BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

APPEAL NO. 46/2025

IN THE MATTER OF:

Sanjaya Kumar Mishra ...Appellant

Vs.

Ministry of Forest, Environment and Climate Change & Ors. ...Respondents

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Through

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Adarsh Tripathi and Vikram Singh Baid
Advocates for the Respondent No. 2
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M: 9090416535/9425308454
E: adarsht912003@gmail.com

Place: New Delhi
Dated: 06.10 .2025

27/09/2025

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

APPEAL NO. 46/2025

IN THE MATTER OF:

Sanjaya Kumar Mishra ...Appellant

Vs.

Ministry of Forest, Environment and Climate Change & Ors. ...Respondents

REPLY ON BEHALF OF THE RESPONDENT NO. 2 (MEJA URJA NIGAM PRIVATE LIMITED)

MOST RESPECTFULLY SHOWETH:

1. The Respondent No. 2 (Meja Urja Nigam Private Limited) is filing the present Reply to the captioned Appeal through Mr. Saurabh Kumar Pathak, working as Sr. Manager (EMG) with NTPC Ltd., who is fully competent to sign, verify, institute, depose and file the present reply and to engage a counsel on behalf of the Respondent No. 2 and to do all necessary acts for the purpose of present proceedings vide Authorization Letter dated 14.08.2025. The true copy of the Authorisation Letter dated 14.08.2025 is attached herewith and marked as **Annexure-1**.

2. That at the outset, the Respondent No. 2 denies each and every averment, statement, allegation, and contention made in the caption Appeal which are inconsistent with the contents of the present Reply and save those which are specifically admitted hereinafter. Further, nothing contained in the Appeal may be treated as admitted by the Answering Respondent merely for the want of a specific traverse, unless specifically admitted in this reply.

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PRELIMINARY SUBMISSIONS

3. At the outset, the present Appeal is misconceived and not maintainable either on facts or in law. It is respectfully submitted that all the issues raised herein had already been agitated by the Appellant before the Expert Appraisal Committee ("**EAC**") and were duly considered at length by the Committee. The Project Proponent (MUNPL) has filed a detailed reply to the Additional Details Sought (ADS), clarifying every issue raised. This Reply has been drafted based on the study undertaken by a consultant who has been accredited by the MoEF&CC. The response given by MUNPL is based on the extensive (3 seasons) study and testing by the consultation. Therefore, the detailed and data-backed response for the ADS by MUNPL is transparent and cannot be challenged on the grounds that have been raised in the Appeal.

4. It is submitted that the Appellant has already raised the same complaints/grounds earlier during the Environmental Clearance process. Therefore, the present Appeal is nothing but an attempt to re-agitate the issues already raised by the Appellant, responded to by MUNPL, and finally decided by the MoEF&CC.

5. Thereafter, the final EIA Report was submitted and scrutinized by the EAC, which, upon being satisfied, recommended the grant of Environmental Clearance. The MoEF&CC, after applying its independent mind and appreciating the EAC's recommendations, granted the EC on 30.04.2025. The present Appeal is nothing but a verbatim reproduction of the objections earlier raised before the statutory authority and is liable to be dismissed as a misuse of process.

6. That the Respondent No. 2, Meja Urja Nigam Private Limited (MUNPL) is a 50:50 Joint Venture between NTPC Limited and Uttar Pradesh Rajya Vidyut

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Utpadan Nigam, established in 2008. The Answering Respondent owns the Meja Thermal Power Station, a 2x660MW coal-based thermal power plant.

7. The Ministry of Environment, Forest and Climate Change (hereinafter as MoEF&CC), Respondent No. 1, has granted Environmental Clearance (EC) dated 30.04.2025 to the Answering Respondent. The said EC has been granted for the Expansion of the Meja Coal-Based Thermal Power Project from 1320 MW (2x660 – Stage I) to 3720 MW (with 3x800 MW- Stage II) located at Village- Kohdar, Mai Khurd & Patai Dandi, Tehsil Meja, District Prayagraj, Uttar Pradesh.

PARA-WISE REPLY

8. In reply to **Paragraphs 1 to 5 of the Appeal**, it is submitted that the impugned EC dated 30.04.2025 has been validly granted for the expansion of the existing project from 1320 MW to 3720 MW. The allegation that the proposal has been considered as a "Fresh EC" instead of an "Expansion" is wholly baseless. MUNPL had consistently applied and pursued the project as an expansion of Stage I, which is borne out from the ToR, the EAC Minutes, and all correspondences. It is submitted that the Application filed by the Respondent No. 2 was never for Fresh EC as is evidenced from the subject of the EC which states it is for "Expansion" and also from the Application that was submitted by the Respondent No. 2. As regards baseline data generation prior to ToR, it is specifically permitted under MoEF&CC O.M. dated 08.06.2022, which clarifies that collection of baseline data for preparation of EIA/EMP can be undertaken at any stage irrespective of the grant of ToR. Hence, no procedural infirmity exists in this regard.

9. In reply to **Paragraphs 6 to 7 of the Appeal**, it is denied that the Ammonia monitoring was inconsistent or vitiated. Ammonia is not a mandated

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parameter under the ToR. Nevertheless, MUNPL voluntarily undertook monitoring at ten locations. The concentrations were consistently far below the applicable National Ambient Air Quality Standard (NAAQS) of 400 µg/m³. The Appellant's reliance on a typographical error in one version of the report, which incorrectly showed minimum and maximum values as zero, is misplaced. This clerical error was acknowledged and rectified in the final EIA report dated 16.04.2025. The laboratory followed IS 5182 Part 25 methodology, and the stray reference to APHA 401 in a table was a clerical mis-citation. This has no bearing on the substantive results, which showed concentrations well within standards. Therefore, the allegations are hyper-technical and unsustainable. The true copy of the corrected final EIA report dated 16.04.2025 is annexed and marked herewith as **Annexure-2**.

10. In reply to **Paragraphs 8 to 9 of the Appeal**, it is submitted that the allegation that Mercury was not monitored is incorrect. In fact, as per ToR, Mercury was monitored in ambient air during all three seasons, and results showed values below the detectable limit (<0.001 µg/m³). Since Mercury was not detected, the same was not reflected in the 104 observation dataset. The relevant results were annexed in the ADS reply. Similarly, Nickel was monitored at all ten AAQ locations and results were duly submitted to the EAC. Thus, the Appellant's assertion of omission of Nickel and Mercury is false and contrary to record. The true copy of the metals results including Hg for all three seasons is annexed and marked herewith as **Annexure-3**.

11. In reply to **Paragraphs 10 to 12 of the Appeal**, it is submitted that the comparative baseline analysis between Stage I and the present expansion was duly carried out. Since only two of the earlier monitoring stations overlapped, the comparison was restricted to those two, namely Sonbarsi and Kohdar village. The results demonstrated only a marginal increase in PM_{10} levels due

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to traffic and commercial activity, while SO_2 and NOx levels remained well within prescribed limits. The Appellant's allegations about the improper placement of samplers are also unfounded. At the project site, separate instruments were used for $PM_{2.5}$ and PM_{10}, while at other locations, combo samplers were employed, which is permissible. The CPCB guidelines require a minimum of 1 metre distance between instruments, and the same was maintained. The Appellant's reliance on a 2 metre separation is applicable only for collocated duplicate samplers, which is not the case here. Hence, the baseline air quality data is valid and reliable. In most of the sampling locations, the minimum height was maintained for ambient air quality samples with all required clearances. However, the height of the suction inlet was around 2 m above the ground. The airflow radius within 2 meters around the sampler was maintained.

The Appellant refers to the E.I.A. report of 29-10-2024 as the final E.I.A. report and bases his observations on the same by raising the issue of the validity of results as per section 7.7.1(g) and (i) of 1S0/IEC 17025-2017. In this connection, the issue was considered by the Expert Appraisal Committee in its 20th meeting held on 24-02-2025, and additional data was sought (ADS) through MoEF and CC reference dated 17-03-2025. The replies to the ADS were furnished on 22/24-03-2025 on the 'PARIVESH' portal, discussed in the 23rd meeting of the EAC held on 04-04-2025 (Annexure-4), and the case was recommended for the grant of Environmental Clearance. It is further submitted that EPM 2000 filter papers were used to test parameters other than PM_{10} as part of the approved methods, which involve sampling of other parameters in the PM_{10} sample.

The true copy of the Comparative Baseline Study (2008 vs 2023-24) is annexed and marked herewith as **Annexure-4**. The true copy of the Photographs/records of monitoring stations and instruments to show sampler

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placement and compliance with CPCB guidelines is annexed and marked herewith as **Annexure-5**.

12. In reply to **Paragraphs 13 to 15**, it is submitted that the Appellant's objections on water quality parameters are misconceived. All water samples were tested through NABL-accredited laboratories in accordance with IS 10500:2012 standards. Phosphate values were reported within permissible ranges, and all heavy metals, including Cadmium, Lead, Arsenic, and Mercury, were found to be within the prescribed standards. In fact, as per IS: 10500, there are no standard limits for phosphate. The limit of 0.03 mg/l mentioned in the limit section was a typographical error, and the same is inadvertent. It is submitted that the necessary corrections, discussed in the EAC meeting, were made in the final EIA report (16.04.2025) and submitted to the MoEF & CC before the grant of EC on 30.04.2025. It is further submitted that occasional differences in expression (e.g., Cr-6 as Chromium VI or Hexa-Chromium) are mere differences in nomenclature and do not affect the substance or validity of the results. Drinking water standards for phosphates are not prescribed (IS 10500-2012). IS 10500-2012 would apply to both surface water and groundwater if the same is used for drinking. The allegation of unreliable data is therefore baseless. There is no anomaly in the assessment of water quality. The true copy of the Surface and Groundwater Test Reports, including phosphate and heavy metals values, is annexed and marked herewith as **Annexure-6 (Colly)**.

13. In reply to **Paragraphs 16 and 17**, it is denied that the laboratories lacked competence. All analyses were conducted in NABL-accredited laboratories with ISO/IEC 17025:2017 compliance. The Appellant's suggestion that the absence of method notation in certain test reports undermines the results is incorrect, as the methods followed were standard and well recognized. Radiological and coal testing were also carried out with due adherence to

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prescribed methodologies, and the results were validly considered by the EAC. It is submitted that Saturn Quality Certifications Pvt. Ltd. is a NABL-accredited Radioactivity Testing Laboratory. The test methods were not mentioned in the report, as it is the laboratory's discretion. However, whenever a client requests the inclusion of test methods, we ensure they are specified in the report. The following test methods were used for "Radiological Testing" of the coal sample:

Parameters	Ra- 226 Bq/Kg	Ra-228 Bq/Kg	Uranium Bq/Kg	Th- 232 Bq/Kg	Pb-210 Bq/Kg	K- 40 Bq/Kg	Cs- 137 Bq/Kg
Results	≤ 0.21 (MDL)	≤ 7.21 (MDL)	≤ 0.24 (MDL)	34.75	≤ 1.60 (MDL)	≤ 3.61 (MDL)	≤ 10.95 (MDL)
Test Method	Alpha Counting System	Beta Counting System	Alpha Counting System	Gamma Spectrometry	Beta Counting System	Beta Counting System	Gamma Spectrometry

Similarly, for the test of trace elements in coal sample, common methods Atomic Absorption Spectrometry (AAS), Inductively Coupled Plasma poetical emission spectrometry (ICP -O ES) method were used. The true copy of the NABL Accreditation Certificates of laboratories confirming the competence of labs engaged for analysis are annexed and marked herewith as **Annexure-7 (Colly)**.

14. In reply to **Paragraphs 18 and 19**, as per the State Action Plan for Climate Change & Human Health-Uttar Pradesh, Malaria, Filaria, and Kala Azar are the endemic diseases to Uttar Pradesh for 2022-2027, whereas, in Prayagraj district, no Malaria and Kala Azar have been reported in 2023. Further local hospitals were also consulted during the study for environmental origin diseases and didn't find any such diseases. It is denied that the baseline data be rejected and the Project Proponent is directed to conduct a fresh assessment in strict compliance with applicable standards and methodologies.

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15. In reply to **Paragraphs 20 to 23**, it is specifically denied that the EAC ignored the Appellant's objections or that the EC is a non-speaking order. The record of the 23rd meeting of the EAC dated 04.04.2025 demonstrates that the additional details and clarifications submitted by MUNPL were duly placed before and considered by the Committee. After careful consideration, the EAC recommended the project for clearance. MoEF&CC, after independent scrutiny, issued the EC only thereafter. The EC is thus a reasoned administrative decision rendered after a transparent statutory process. It is further submitted that all the documents related to Additional Details sought by MOEF&CC as ADS, based on the Appellant's observations dated 17th March 2025, Reply of ADS raised is available in the Parivesh portal of MOEF&CC. It is also significant to note here that the response submitted to the MoEF and CC on 24.03.2025 included all the 16 points raised by the Appellant. This response was examined by the EAC in its 23rd meeting on 04.04.2025 before recommending the grant of environmental clearance. Also, the Minutes of Meeting (MoM) ID: EC/MOM/EAC/542354/3/2025 dated 15.04.2025, issued by the MoEF&CC IA Division (Thermal Projects), also makes it evident that the response of the ADS has been duly considered and deliberated upon before the grant of EC.

16. In reply to **Paragraphs 24 to 26**, it is submitted that the same are admitted up till the averments made therein, which are a matter of record, and rest everything else is wrong and denied. It is prayed that the submissions made in the preceding paragraph be read as part and parcel of the present paragraph under reply. It is further submitted that Combo PM samplers for simultaneous PM_{10} and $PM_{2.5}$ monitoring are scientifically established and available in the market. The results from combo samplers are scientifically valid.

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REPLY TO GROUNDS

Flawed and Unreliable Baseline Data on Air Pollution

17. The averments made are denied. The baseline data generated by the Project Proponent is scientifically valid, was collected through an MOEF&CC-accredited consultant and tested through NABL-accredited laboratories, and was assessed by the EAC. The allegation of non-compliance with Bureau of Indian Standards methods is misconceived. The alleged contradiction in the ammonia sampling methodology was clarified in the ADS reply, wherein it was pointed out that a clerical error in one version of the EIA report wrongly mentioned APHA 401, which was later corrected to IS 5182 Part 25 in the final EIA report dated 16.04.2025. Ammonia was consistently below 20 $\mu g/m^3$ across all stations, as against the standard of 400 $\mu g/m^3$, showing no environmental concern. Further, the placement and operation of samplers were in accordance with CPCB guidelines, with a minimum 1-meter separation maintained where applicable. It is settled law that minor typographical or clerical errors, when explained and rectified, do not invalidate the entirety of scientific monitoring (See ***Sterlite Industries (India) Ltd. v. Union of India, (2013) 4 SCC 575***). Thus, the allegation of flawed baseline data is without merit. The true copies of the Laboratory Test Reports are annexed and marked herewith as **Annexure-8 (Colly)**. The true copy of the Baseline Data Sheets for AAQ Monitoring is annexed and marked herewith as **Annexure-9 (Colly)**.

Non-Compliance with ToR and Statutory Standards

18. This ground is emphatically denied. The Project Proponent fully complied with the ToR dated 14.12.2023. Mercury was in fact monitored during three seasons and found to be below detectable limits (<0.001 $\mu g/m^3$). The omission in tabular representation in the EIA report was due to the fact that the parameter was non-detectable, not because it was not tested. Likewise, Nickel

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was monitored at all ten AAQ stations, and results were duly submitted. The reliance by the Appellant on selective extracts of test reports is misplaced. As regards the competence of laboratories, all testing was done through NABL-accredited facilities, in compliance with ISO/IEC 17025:2017. The Appellant's contention that "absence of method notation" renders data invalid is legally untenable. It is a settled proposition that unless prejudice is demonstrated, minor discrepancies in reporting do not vitiate environmental assessments (See ***Goa Foundation v. Union of India, (2014) 6 SCC 590***). Therefore, this ground fails.

Arbitrary and Non-Speaking Clearance

19. This ground is denied. The Environmental Clearance dated 30.04.2025 is a speaking and reasoned order. The record demonstrates that the EAC considered the representations of the Appellant, the replies filed by MUNPL, and the final EIA report before recommending clearance in its 23rd meeting held on 04.04.2025. The Ministry thereafter applied its independent mind and issued a detailed clearance order running into 34 pages, setting out the conditions and safeguards for the project. It is settled law that an order of an expert body like the EAC, supported by reasons on record, is entitled to judicial deference unless perversity is shown (***Lafarge Umiam Mining Pvt. Ltd. v. Union of India, (2011) 7 SCC 338***). The Appellant has failed to demonstrate any perversity or non-application of mind. Merely because the objections were not accepted does not render the order arbitrary. Accordingly, this ground is also untenable.

20. It is humbly submitted that none of the grounds raised in the Appeal disclose any illegality or irregularity in the grant of Environmental Clearance. The Appellant's allegations are either based on rectified clerical errors, misinterpretation of scientific processes, or selective reading of reports. The

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statutory authorities, including the EAC and MoEF&CC, after thorough scrutiny and due consideration, found the EIA/EMP to be satisfactory and recommended clearance. There is, therefore, complete compliance with law, and no ground is made out for interference by this Hon'ble Tribunal.

21. That accordingly, the prayer sought in the captioned Appeal is denied and ought to be disallowed with exemplary costs. It is most respectfully prayed that the submissions of the Answering Respondent be kindly taken on record.

29/09/2025

RESPONDENT NO. 2

Through

Adarsh Tripathi and Vikram Singh Baid
Advocates for the Respondent No. 2
G-34, Basement, Lajpat Nagar-III, New Delhi
M: 9090416535/9425308454
E: adarsht912003@gmail.com

Place: New Delhi
Dated: 06.10.2025

SOLEMNLY AFFIRMED BEFORE ME ON
Date 26-09-2025
By Sh. Adarsh Tripathi ..identified
By Mr. ..
his/her affidavit is true and correct which is verified and attested.

Kamesh Raja
Advocate

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Government of Uttar Pradesh

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Signature.....

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NOTARY
K.P. Dixa
Advocate
Prayagraj
Regd.No.
20 (18) 2000
Govt. of Uttar Pradesh

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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
APPEAL NO. 46/2025

IN THE MATTER OF:

Sanjaya Kumar Mishra ...Appellant

Vs.

Ministry of Forest, Environment and Climate Change & Ors. ...Respondents

AFFIDAVIT

I, Saurabh Kumar Pathak, S/o Sh. Sampati Kumar Pathak, aged about 40 years, working as Sr. Manager (EMG) with NTPC Ltd., having its office at NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi - 110003, presently at Kohdar, Meja, Prayagraj, do hereby solemnly affirm and state as under:

1. I say that I am the authorized representative of the Answering Respondent No. 2 Company and, as such, am competent to swear the present affidavit.

27/09/2025

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2. I say that I have read the contents of the above Reply and I have understood the contents of the same.
3. I say that the contents of the above Reply, being filed by the Answering Respondent No. 2, are based on the information available to the Answering Respondent in the normal course of business and believed by me to be true.

DEPONENT

VERIFICATION

I, the deponent above-named, do hereby verify the contents of the above affidavit to be true to the best of my knowledge, no part of it is false, and nothing material has been concealed therefrom.

Verified at _____ on this __ day of August, 2025.

DEPONENT

SOLEMNLY AFFIRMED BEFORE ME ON
Dated 26-09-25
By Sri / Smt Saurabh Kumar Pathak
By Mr. Advocate to
his/her, affidavit is true and correct which
verified and attested.

Kamleshwar Pd. Ohja
Advocate NOTARY
Prayagraj

सौरभ कुमार पाठक / SAURABH KUMAR PATHAK
वरिष्ठ प्रबंधक (पर्यावरण प्रबंधन) Sr.Manager (EMG)
मेजा ऊर्जा निगम (प्रा) लि, प्रयागराज
MEJA URJA NIGAM (P) Ltd, Prayagraj
(एनटीपीसी लिमिटेड एवं उ.प्र.रा.वि.ऊ.नि.लि.का संयुक्त उपक्रम)
(A Joint Venture of NTPC Ltd & UPRVUN Ltd.)

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K P OJHA ADV NOTARY K P OJHA ADV NOTARY K P OJHA ADV NOTARY

मेजा ऊर्जा निगम (प्रा0) लिमिटेड

(एनटीपीसी लिमिटेड एवं उ.प्र. राज्य विद्युत उत्पादन निगम लि. का संयुक्त उपक्रम)

MEJA URJA NIGAM (P) LIMITED

(A Joint Venture of NTPC Ltd. & U.P. Rajya Vidyut Utpadan Nigam Ltd.)

AUTHORIZATION LETTER

14.08.2025

I, *Asesh Kumar Chattopadhyay*, Chief Executive Officer, Meja Urja Nigam (P) Ltd., Kohdar, Meja, Prayagraj (Uttar Pradesh) PIN – 212308, do hereby authorize *Shri Saurabh Kumar Pathak* (Emp. No. 102912), Sr. Manager (EMG), NTPC Ltd., to undertake and perform the following actions in the matter of "***Sanjaya Kumar Mishra v. Ministry of Environment, Forest, and Climate Change, MUNPL, and EQMS Global Pvt. Ltd***," before the Hon'ble National Green Tribunal, Principal Bench, New Delhi, in the matter of Appeal No. 46/2025.

a) To furnish the information promptly and engage in the preparation of documents to be filed before the Hon'ble Tribunal in the aforesaid case.

b) To sign caveat/s, necessary application/s, affidavit/s, counter, counter claim/s, petition/s, reply/s, and any other relevant paper/s to be filed before the Hon'ble Tribunal in the aforesaid case.

c) To represent and participate in all the proceedings concerning the aforesaid case.

d) To attend to all necessary and incidental matters concerning the aforesaid case as essential and generally associated with the matter.

For and on behalf of MUNPL

(Asesh Kumar Chattopadhyay)
Chief Executive Officer

अशेष कुमार चट्टोपाध्याय / Asesh Kumar Chattopadhyay
मुख्य कार्यकारी अधिकारी / Chief Executive Officer
मेजा ऊर्जा निगम (प्रा) लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Prayagraj
(एनटीपीसी लिमिटेड एवं उ.प्र.रा.वि.उ.नि.लि.का संयुक्त उपक्रम)
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

Specimen Signature of Shri Saurabh Kumar Pathak

(Asesh Kumar Chattopadhyay)
Chief Executive Officer
अशेष कुमार चट्टोपाध्याय / Asesh Kumar Chattopadhyay
मुख्य कार्यकारी अधिकारी / Chief Executive Officer
मेजा ऊर्जा निगम (प्रा) लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Prayagraj

इकाई: मेजा थर्मल पॉवर प्रोजेक्ट, पो. कोहडार, तहसील मेजा, जिला प्रयागराज –212301
Unit : Meja Thermal Power Project, P.O. Kohdar, Tehsil-Meja, Distt.Prayagraj-212301

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FINAL ENVIRONMENT IMPACT ASSESSMENT REPORT

for

"MEJA THERMAL POWER PROJECT STAGE-II (3X800 MW)

at

Village- Kohdar, Mai Khurd & Patai Dandi
Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh



PROJECT PROPONENT

मेजा ऊर्जा निगम प्रा० लिमिटेड
MEJA URJA NIGAM (P) LIMITED

M/s Meja Urja Nigam Private Limited

Type of Project	Brownfield Project
Total Cost of Project	Rs. 25,081.88 Crores
Category as per EIA notification 2006 and its amendments:	Schedule: 1(d), Thermal Power Plants, Category: A
Proposal No	IA/UP/THE/449702/2023
TOR Details	J-13012/03/2008- IA.II (T) dated 14.12.2023
Monitoring Season	1st October 2023- 31st December 2023
Pblic Hearing	24th June 2024 at Salai Kala Community Center Tehsil Meja, District:Prayagraj

ENVIRONMENTAL CONSULTANT

(Approved Consultant)

EQMS GLOBAL PVT LTD. (Formerly Known as EQMS India Pvt Ltd)
(NABET Accreditation No-NABET/EIA/2225/RA0303)
304-305, 3rd Floor, Plot No. 16, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi – 110092
Phone: 011-42270087, 43062757 Website: www.eqmsindia.com ; E-mail: eqms@eqmsindia.org

UID No.: EQMS/EIA/NTPC-MEJA/1(d)/PR/726 /August/2024
NABET Acc. No.: NABET/EIA/2225/RA0303 dated 18.11.2023 (Valid till 23.11.2025)
Report Release Date: 16.04.2025 **Revision No**: 04

Disclaimer:

This report has been prepared with all reasonable skills, knowledge, care and diligence by M/s. EQMS Global Pvt. Ltd., Karkardooma, Delhi, the NABET accredited and national level leading Environmental Consultancy Organization within the terms of the contract with the client (Project Proponent), incorporating their General Terms and Conditions of Business and taking account of the resources devoted to it by Business Agreement. The report was discussed with the project proponent in details before releasing. This report has been prepared using information received from NTPC, collecting primary data and compilation of secondary data from available resources. We are not responsible for the origin and authenticity of the information, drawings or design details provided by the Client.

UNDERTAKING MUNPL

मेजा ऊर्जा निगम प्रा० लिमिटेड
एनटीपीसी लिमिटेड एवं उ0प्र0 राज्य विद्युत उत्पादन निगम लि0 का संयुक्त उपक्रम
MEJA URJA NIGAM (P) LIMITED
(A Joint Venture of NTPC Ltd. & UPRVUN Limited)

प्रयागराज
Prayagraj

Ref.No. MUNPL/2024-25/09/ Date : 10.08.2024

TO WHOMSOEVER IT MAY CONCERN

Subject: Letter of Authorization

Sh. Anil Kumar, AGM (FES/P&S), Meja Urja Nigam Pvt Ltd, Tehsil Meja, District - Prayagraj (U.P), is authorized to submit application on behalf of Meja Urja Nigam Pvt Ltd for granting TOR, Environmental Clearance, Amendment in TOR / EC etc of Meja TPP, Stage-II. All the documents pertaining to the application process will be signed, authenticated and submitted by the afore-mentioned authorized person.

10/08/2024
(Kamlesh Soni)
Chief Executive Officer

कमलेश सोनी/Kamlesh Soni
मुख्य कार्यकारी अधिकारी/CHIEF EXECUTIVE OFFICER
मेजा ऊर्जा निगम (प्रा) लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Prayagraj
(एनटीपीसी लिमिटेड एवं उ.प्र.रा.वि.उ.नि.लि.का संयुक्त उपक्रम)
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

Corporate Identity No. U74900DL2008PTC176247
पंजीकृत कार्यालय: एनटीपीसी भवन, कोर–7,स्कोप कॉम्पलेक्स, इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली–110 003
Regd. Office: NTPC Bhawan, Core-7, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi-110 003
इकाई: मेजा थर्मल पॉवर प्रोजेक्ट, पो. कोहडार, तहसील मेजा, जिला प्रयागराज –212301
Unit : Meja Thermal Power Project, P.O.Kohdar, Tehsil-Meja, Distt.Prayagraj-212301
Phone Nos. 0532-2693300 / 2693333, Fax – 0532-2693178

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TO WHOMSOEVER IT MAY CONCERN

This is to inform you that authorized person Mr. Prateek Gupta of Project Meja Thermal Power Project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd. has been changed and now Mr. Anil Kumar is authorized person for the above said project. Please find the following existing and proposed authorized person details which need to be changed for registered person in the PARIVESH portal.

Existing Details	Proposed to be changed
E-mail address : env.meja@gmail.com	E-mail address: env.meja@gmail.com/anilkumar02@ntpc.co.in
Name- Mr. Prateek Gupta	Name- Mr. Anil Kumar
Designation-AGM	Designation- AGM
Mobile Number- 9650992883	Mobile Number- 9068202233

This is submitted for your records.

Thanks & Regards

Authorized Signatory

अनिल कुमार / Anil Kumar

महा प्रबंधक (पर्यावरण प्रबंधन समूह) (EMG) / AGM (Environment Management Group)

मेजा ऊर्जा निगम (प्रा) लि, प्रयागराज

MEJA URJA NIGAM (P) Ltd, Prayagraj

(एनटीपीसी लिमिटेड एवं उ.प्र.रा.वि.उ.नि.लि.का संयुक्त उद्यम)

(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

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UNDERTAKING CONSULTANT

EQMS GLOBAL PVT. LTD
305, 3rd Floor, Plot No. 16,
Rishabh Towers, Community Centre,
Karkardooma, Delhi – 110 092
Phones: (91 11) 42270087, 43062757
E-mail: eqms@eqmsglobal.com
Url : www.eqmsglobal.com
CIN : U93030DL2018PTC333707

Date: 10-08-2024

UNDERTAKING

I, Mr. Sanjay Kumar Jain, Designation: Director of M/s. EQMS GLOBAL PVT LTD. (Formerly Known as EQMS India Pvt Ltd) located at 304-305, 3rd Floor, Plot No. 16, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi – 110092, do hereby give undertaking with references to MoEF&CC- OM: No J-11013/41/2006-IA.II (I) dated 04th August 2009, that we have prepared EIA & EMP report for Meja Thermal Power project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh. TOR Letter has been issued for the project by MoEF&CC vide F.No. J-13012/03/2008- IA.II (T) dated 14th December 2023. The Prescribed ToR have been complied with and that the data submitted is factually correct and owning the contents (information and data) of the EIA report.

EQMS Global Pvt. Ltd. (Formerly Known as EQMS India Pvt Ltd)

Sanjay Kr. Jain,
Director,

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REPORT RELEASE

Project: EIA Report for Meja Thermal Power Project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.

This report is released for the use of M/s Meja Urja Nigam Pvt. Ltd. (MUNPL). The EIA report earlier submitted for EC has been revised in accordance with the ADS issued by the EAC on 23/12/2024. Updates have been incorporated to address the ADS requirements, including details on ash utilization, greenbelt planning, greenbelt budget, and other relevant aspects of the ADS.

Regulators and relevant stakeholders solely as part of the subject project's Environmental Clearance process. Information provided (unless attributed to referenced third parties) is otherwise copyrighted and shall not be used for any other purpose without the written consent of EQMS.

PROJECT DETAILS							
Name of Publication	EIA Report for Meja Thermal Power Project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh By M/s Meja Urja Nigam Pvt. Ltd.						
Project Number	PR-726	**Report No.**	1	**Version**	3.0	**Released**	10th March 2025
Managed By	Manager EIA Ratnesh Kotiyal		***Released By*** *EIA Section*		EIA Co-ordinator S.K. Jain		

CONTACT DETAILS

Head Quarter: Delhi / NCR
EQMS India Pvt. Ltd.
304 & 305, 3rd Floor, Rishabh Towers,
Plot No. 16, Community Centre, Karkardooma, Delhi - 110092. (India)
Email: eqms@eqmsindia.org; T: + 91-11-40070087; F: +91-11-22374775

DISCLAIMER

EQMS Global Pvt. Ltd. has taken all possible precautions in the preparation of this report as per its auditable quality plan. EQMS also believes that the facts presented in the report are accurate as on the date it was written. However, it is impossible to dismiss absolutely, the possibility of errors or omissions. EQMS therefore specifically disclaims any liability resulting from the use or application of the information contained in this report. The information is not intended to serve as legal advice related to the individual situation.

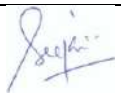
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DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP REPORT

Name of Project: "Meja Thermal Power Project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh By M/s Meja Urja Nigam Private Limited (MUNPL).

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA report.

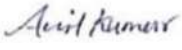
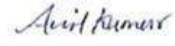
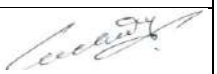
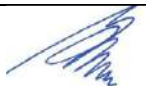
EIA Coordinator

Signature	
Name	Sanjay Jain
Period of involvement	5th April 2023 to till date
Contact Information:	9810297612
Team Member/Associated EIA Coordinator:	Ratnesh Kotiyal Surya Kant Srivastava

Functional Area Experts

Functional Areas	Name of the Expert	Team Member	Involvement)Period and Task(** June 2021 to finalization of report	Signature
Air Pollution Monitoring & Control)AP(	Ms. Sweta Shah	Ms. Kirti Patni	• Preparation of air quality monitoring plan – selecting locations of sampling station and supervision of baseline air and meteorological monitoring • Identification of probable impacts of the different air emissions from the plants/facilities proposed • Identifying the most suitable control device	
Air Quality Modeling and Prediction)AQ(	Ms. Sweta Shah		• Developing micro meteorological data. • Collecting and using secondary data on meteorology like cloud cover, inversion related data, mixing heights etc., • Identification and quantification of pollution impact assessment for the proposed project/activity.	
Noise and Vibration (NV)	Ms. Sweta Shah	Mr. Kapil Singh	• Assessment of noise level and vibration potential due	

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			to proposed project and its mitigation measures.	
Water Pollution)WP(	Mr. SK Jain	Mr. Surya Kant Srivastava	• Water Balance • Identification & assessment of quantum of water pollution and its Mitigation measures . • Effluent Treatment scheme/ Technology Suggestion.	
Ecology and Bio-diversity Conservation)EB(	Mr. Ratnesh Kotiyal	-	• Identification & assessment of ecological impact due to proposed project and its Mitigation measures.	
Solid and Hazardous Waste Management)SHW(	Ms. Sweta Shah	-	• Identification of hazardous and non-hazardous wastes . • Reuse and recycling of solid wastes . • Handling and disposal of non-Hazardous solid waste & Hazardous waste.	
Risk and Hazards)RH(	Mr.PK Srivastava	Mr. Surya Kant Srivastava	• Identification of hazards due to proposed project . • Identification of hazardous substances in the proposed project . • Preparation of risk assessment report and onsite emergency plan.	
Land Use (LU)	Mr. Anil Kumar	-	• Assessment of impact of proposed project on land use of the site and surrounding	
Socioeconomic (SE)	Mr. Anil Kumar	Mr. Kaleem Ahmad	• Assessment of impact of proposed project on social environment of the surrounding	
Geology	Mr. Gulam Nabi Chowdry	-	• Recommendations and preparation of reports on geology.	
Hydrogeology	Mr. Yamesh Sharma	-	• Estimation of run-off generation from site & post project development • Formulation of rainwater harvesting plan • Formulation of water conservation plan	

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Soil Conservation	Mr. Yamesh Sharma	Mr. Ratnesh Kotiyal	• Impact assessment of project on soil quality and development of management plan	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, S.K. Jain, hereby confirm that the above-mentioned experts prepared the EIA/EMP REPORT for "Meja Thermal Power Project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh By M/s Meja Urja Nigam Private Limited (MUNPL).

I also confirm that EC has gone through the report, and the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.

It is certified that no unethical practices including plagiarism have been carried out and external data/ text has not been used without proper acknowledgement, while preparing this EIA report.

Signature:	
Name:	S.K. Jain
Designation:	Director, Technical
Name of the EIA Consultant organization	EQMS Global Pvt .Ltd.
NABET Certificate No .and date	NABET/EIA/2225/RA0303 dated 18.09.2023 (Valid till 23.11.2025)

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CERTIFICATE OF CONSULTANT

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

EQMS Global Pvt. Ltd. *formerly known as EQMS India Pvt. Ltd.*, New Delhi

305, 3rd Floor, Plot No. 16, Rishabh Towers, Community Centre, Karkardooma, Delhi – 110 092

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast and underground both	1	1 (a) (i)	A
2.	River Valley projects	3	1 (c)	A
3.	Thermal power plants	4	1 (d)	A
4.	Metallurgical industries (ferrous only)	8	3 (a)	B
5.	Cement plants	9	3 (b)	B
6.	Petroleum refining industry	10	4 (a)	A
7.	Chemical fertilizers	16	5 (a)	A
8.	Pesticides industry and pesticide specific intermediates	17	5 (b)	A
9.	Petro-chemical complexes	18	5 (c)	A
10.	Synthetic organic chemicals industry	21	5 (f)	A
11.	Pulp & paper industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	24	5 (i)	A
12.	Isolated storage & handling of Hazardous chemicals	28	-	B
13.	Air ports	29	7 (a)	A
14.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones(SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
15.	Bio-medical waste facilities	32A	7 (d a)	A
16.	Ports, harbours, break waters and dredging	33	7 (e)	A
17.	Highways,	34	7 (f)	A
18.	Common Effluent Treatment Plants (CETPs)	36	7 (h)	B
19.	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
20.	Building and construction projects	38	8 (a)	B
21.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Aug 22, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2878 dated Sept 18, 2023. The accreditation needs to be renewed before the expiry date by EQMS Global Pvt. Ltd, New Delhi following due process of assessment.

Sr. Director, NABET
Dated: Sep 18, 2023

Certificate No.
NABET/EIA/2225/RA 0303

Valid up to
Nov 23, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website

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CERTIFICATE OF LABORATORY

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

ADVANCED ENVIRONMENTAL TESTING AND RESEARCH LAB PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

63/1, KAILASH VIHAR, GWALIOR, MADHYA PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-12780

Issue Date: 19/12/2023 **Valid Until:** 18/12/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: ADVANCED ENVIRONMENTAL TESTING AND RESEARCH LAB PRIVATE LIMITED

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

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केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT FOREST & CLIMATE CHANGE GOVT OF INDIA

LiFE Lifestyle For Environment

Speed Post

CPCB No. LB/99/7/2021-INST LAB-HO-CPCB-HO/Pvt./9263

Date: 1st February 2024

Recognition Letter

To,

The Head of Laboratory.
M/s Advanced Environmental Testing and Research Lab Private Limited,
63/1, Kailash Vihar, City Center
Gwalior -474011, Madhya Pradesh.

Subject: Recognition of M/s Advanced Environmental Testing and Research Lab Private Limited, 63/1, Kailash Vihar, City Center Gwalior-474011, Madhya Pradesh as Environmental laboratory under the Environmental (Protection) Act- 1986 – reg.

Sir,

With reference to your application dated 24/02/2023 along with acceptance of the terms & conditions of the guidelines for recognition of environmental laboratories under the Environmental (Protection) Act, 1986, submitted to Central Pollution Control Board (CPCB), the Competent Authority of CPCB has accorded approval for renewal of recognition of Environmental laboratory and Govt. Analysts. Subsequently, **M/s Advanced Environmental Testing and Research Lab Private Limited, Madhya Pradesh** shall be notified considering the current requirement of mandatory accreditation/certifications of the laboratory **with a validity up to 18/12/2025** in the Gazette Notification of India.

2. The following analysts have been approved as Government Analysts:
   1. Dr. Arvind K Sharma
   2. Sh. Rajesh Jain
   3. Dr. Dinesh K Uchchariya

3. The laboratory should compulsorily follow the accepted terms and conditions and may undertake the following tests:
   a) **Physical Tests-**Conductivity, Colour, pH, Fixed & Volatile Solids, Total Solids, Total Dissolved Solids, Total Suspended Solids, Turbidity, Temperature, Velocity & Discharge Measurement of Industrial Effluent Stream, Flocculation Test (Jar Test), Odour, Salinity, Settleable Solids and Sludge Volume Index (SVI).
   b) **Inorganic (General and Non-metallic):** Acidity, Alkalinity, Ammonical Nitrogen, Chloride, Chlorine Residual, Dissolved Oxygen, Fluoride, Total Hardness, Total Kjeldahl Nitrogen (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Phosphate, Sulphate Bromide, Carbon Dioxide, Chlorine Demand, Iodine, Sulphide, Sulphite, Silica and Cyanide.
   c) **Inorganic (Trace Metals):** Boron, Cadmium, Calcium, Total Chromium, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium Absorption Ratio, Zinc, Arsenic, Aluminium, Lithium, Manganese, Selenium, Silver, Antimony and Cobalt.
   d) **Organics (General) and Trace Organics:** Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Phenolic Compounds, Pesticides (each) (Organo-Chlorine and Organo Nitrogen-Phosphorus), Surfactants, Tannin & lignin, Poly-Chlorinated Biphenyl each (PCB's), Polynuclear Aromatic Hydrocarbon (PAH) each, Organic Carbon (In Solid) and Carbon/Nitrogen Ratio.
   e) **Microbiological Test:** Total Coliform, Faecal Coliform, *E. coli, Faecal Streptococci*, Total Plate Count and *Enterococcus*.
   f) **Toxicological Tests:** Bioassay Method for Evaluation of Toxicity Using Fish (90% survival of fish after 96 hrs in 100% effluent), Measurement of Toxicity Using Daphnia or Other Organism and Measurement of Toxicity Factor Using Zebra Fish (Dimensionless Toxicity Test).

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032
दूरभाष/Tel : 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in

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g) **Biological Tests:** Benthic Organism Identification and Count, Macrophytic Identification, Planktonic Identification Count and Measurement of Various Diversity Index.

h) **Characterization of Hazardous Waste:** Preparation of Leachate (TCLP Extract/Water Extract, Corrosivity, Ignibility (Flash Point), Reactivity, Toxicity, and Measurement of Heavy Metals/Pesticides in the Waste/Leachate.

i) **Soil/Sludge/Sediment and Solid Waste:** Boron, Cation Exchange Capacity (CEC), Electrical Conductivity, Nitrogen (Available), Organic Carbon/Matter (Chemical Method pH, Phosphorous (Available), Phosphate (Ortho), Phosphate (Total), Potassium, SAR in Soil Extract, Sodium, Soil moisture, TKN, Calorific Value, Ammonia, Bicarbonate, Calcium, Calcium Carbonate, Chloride, Colour, Gypsum Requirement, H. Acid, Heavy Metal, Magnesium, Mechanical Soil Analysis, Nitrate, Nitrite, PAH, Pesticide, Potash (Available), Sulphate, Sulphur, Total Water Soluble Salt and Water Holding Capacity.

j) **Ambient Air/ Fugitive Emissions:** Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2), Total Suspended Particulate Matter, Respirable Suspended Particulate Matter PM_{10}, Ammonia, Carbon Monoxide, Chlorine, Fluoride, Lead, Ozone, Benzene Toluene Xylene (BTX), Polycyclic Aromatic Hydrocarbon (PAH) Benzo-a-Pyrine & Others and $PM_{2.5}$.

k) **Stack Gases/ Source Emission:** Particulate Matter, Sulphur Dioxide, Velocity & Flow, Carbon Dioxide, Carbon Monoxide, Temperature, Oxygen, Oxides of Nitrogen, Acid Mist, Ammonia, Chlorine, Fluoride (Particulate), Fluoride (Gaseous), Hydrogen Sulphide and Carbon Disulphide.

l) **Noise Level:** Noise Level Measurement (20-140 dBa) and Ambient Noise and Source Specific Noise.

m) **Meteorological:** Ambient Temperature, Wind Direction, Wind Speed, Relative Humidity and Rain Fall.

4. The laboratory shall compulsorily participate in the Analytical Quality Control (AQC) Exercise conducted by the CPCB to ascertain the capability of the laboratory and analysts. The lab shall submit quarterly progress report on the sample analysis carried out to CPCB.

5. The surprise inspection / periodic surveillance of the recognized environment laboratory will be undertaken to assess its proper functioning systematic operation and reliability of data generated at the laboratory by a Joint Team as per the Notification.

6. The laboratory should have the mandatory requisite accreditation and certificate of the ISO: 17025 and ISO: 45001 as per rules. This recognition is subject to such accreditations and renewals as applicable and in case of serious non-compliance of any of the terms and conditions, the laboratory may be black listed for a minimum period of two years and civil/criminal proceedings, as applicable, may be initiated for performing functions on behalf of the Government in an unauthorized manner.

7. **M/s Advanced Environmental Testing and Research Lab Private Limited, Madhya Pradesh** is required to apply for further renewal of recognition through online using CPCB web portal (https://cpcbepalab.in/epalab) before expiry of recognition with mandatory accreditation / certification concerned.

Yours faithfully,

K. R 1/2/24

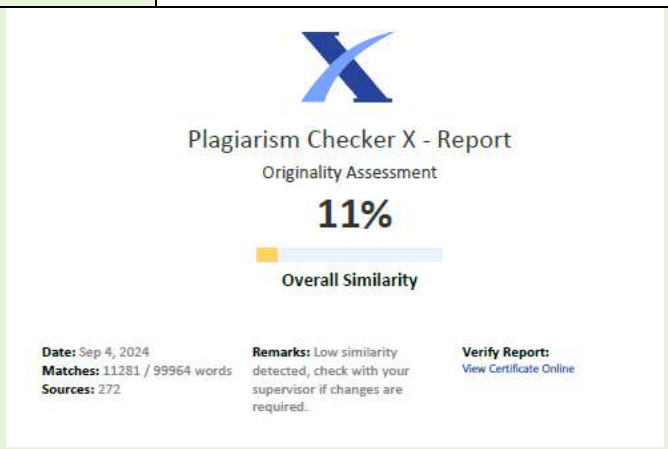
(Dr. K. Ranganathan)
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Parivesh Bhawan, East Arjun Nagar, Delhi-110032

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CERTIFICATE OF PLAGIARISM CHECK

Title of EIA Report	EIA Report for Meja Thermal Power project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh By M/s Meja Urja Nigam Pvt. Ltd.
Name of Accredited Organization	M/s EQMS Global Pvt. Ltd.
Unique Identification Number	EQMS/EIA/ NTPC-MEJA/IA/1(8)/PR-726
Name of EIA Co-ordinator (EC):	Mr. Sanjay Kumar Jain
Name of the Software	Plagiarism Checker X



Declaration by the Head of the accredited consultant organization/ authorized person

I hereby certify that this EIA Report has been evaluated using online/In-house software viz., Plagiarism Checker X. The report produced has been analysed by the system based on it, I certify that the EIA report produced in accordance with good scientific practice.

Date and Sign of EIA Coordinator:

Name: Mr. Sanjay Kumar Jain
Designation: EIA Co-ordinator

Date and Sign of Head of Accredited Organization:
Name of the EIA Consultant Organization: M/s EQMS Global Pvt. Ltd.
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A-4	Wildlife Conservation Plan - DFO-2024
A-5	Coal analysis test reports and Light Diesel Oil (LDO)
A-6	NIH Roorkee Watershed Study August 2024
A-7	IRO's certified compliance report of previous EC and MUNPL's reply to IRO Compliance Report
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A-16	CIL Coal Allotment letter 20.06.2024
A-17	NIH-Roorkee Hydrogeological Study
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A-19	PH MoM and MUNPL Action Plan for PH MoM 26.04.2024
A-20	DMP - Onsite and Offsite
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A-26	Irrigation and Water Resources Department, Govt of UP, regarding HFL level of River Tons dt.10.01.2025

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LIST OF ABBREVIATIONS

Abbreviations	Full Form
AAQ	Ambient Air Quality
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APCM	Air Pollution Controlling Equipment
APHA	American Public Health Association
B	Boron
BDL	Below Detection Level
BDU	Best Designated Use
BIS	Bureau of Indian Standards
CER	Corporate Environment Responsibility
CGWB	Central Ground Water Board
Cl	Chlorine
CO	Carbon Monoxide
CPCB	Central Pollution Control Board
CTE	Consent to Establish
CTO	Consent to operate
dBA	Decibel (A)
DG	Diesel Generator
DMP	Disaster Management Plan
E	East
EAC	Expert Appraisal Committee
EHS	Environment Health & Safety
EIA	Environment Impact Assessment
EMG	Environment Management Cell
EMP	Environment Management Plan
EPP	Emergency Preparedness Plan
ETP	Effluent Treatment Plant
F	Floride
FCC	False Color Composite
FPS	Fine Particulate Matter Sampler
GIS	Geographic Information System
GLC	Ground Level Concentration
GW	Ground water
HAZOP	Hazard and Operability Study
HC	Hydrocarbon
IRC	Indian Road Congress
IUCN	International Union for Conservation of Nature's
Kg	Kilogram
KLD	Kilo Litre per Day
km	Kilometer
M^2	Square meter
Mbgl	Meter below ground level
Mg/ Nm3	Milligram per Normal meter cube

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MoEF&CC	Ministry of Environment, Forests & Climate Change
MT	Metric Tones
N	North
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NE	Northeast
NH	National Highway
NH	No Hazard
NH3	Ammonia
NO2	Nitrogen Dioxide
NOC	No Objection Certificate
PCU	Passenger Car Unit
PM	Particulate Matter
PP	Polypropylene
PPEs	Personal protective equipment
PUC	Pollution Under Control
QA/QC	Quality Assurance/ Quality Control
QRA	Quantitative Risk Assessment
RET	Rare, Endangered and Threatened
RO	Reverse Osmosis
RRM	Risk Reduction Measures
RSPM	Respirable suspended particulate matter
S	South
SO2	Sulphur Dioxide
SPCB	State Pollution Control Board
STP	Sewage Treatment Plant
SW	Southwest
ToR	Terms of Reference
TPD	Tons per Day
TSDF	Treatment, Storage, And Disposal Facility
USEPA	United State Environmental Protection Agency
UTM	Universal Transverse Meter
W	West
ZLD	Zero Liquid Discharge
Zn	Zinc
µg/m^3	Microgram per meter cube

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CHAPTER 1. INTRODUCTION

This chapter provides background information of the project, need of the project, need of the EIA study, scope and EIA methodology adopted and structure of the report.

1.1. Prelude

Power development is one of the key infrastructural elements for the economic growth of the country. The development of the power sector in the country since independence has been predominantly through the State Electricity Boards formed in each state under the Electricity (Supply) Act 1948 with responsibility for generation, transmission and distribution of electric power. Central Electricity Authority (CEA) was identified as the nodal agency for centralized planning of generation and transmission system. National Thermal Power Corporation Limited was set up in November 1975 with the objective of promoting, planning and developing thermal power projects in the country.

Meja Urja Nigam Private Limited (MUNPL), a 50:50 Joint Venture Agreement of NTPC Ltd & UPRVUNL was registered as a company on 02.04.2008, with an intent to establish Meja Thermal Power Project. Meja Urja Nigam Private Limited (MUNPL) has an installed capacity of 1320 MW with both units (2X660 MW) under commercial operation since 30.04.2019 and 31.01.2021 respectively. The power plant is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, District-Prayagraj, Uttar Pradesh. The power generated by the plant is supplied mainly to Uttar Pradesh along with the states of Uttarakhand, Chandigarh, Rajasthan, Punjab, J&K, Delhi, Madhya Pradesh and Haryana.

1.2. Identification of Project & Project Proponent

1.2.1. *Identification of Project*

MUNPL is planning to install a 3X800 MW Coal based thermal power plant near Villages- Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, Prayagraj, Uttar Pradesh in line with MoU with Govt. of Uttar Pradesh within the existing premises of Meja Thermal Power Project. MoM dated 27.12.2022 of Ministry of Power and CEA identified Meja Stage-I Project (2X660 MW) for capacity addition by the year 2030, during the meeting held on 09.12.2022 under the chairmanship of Secretary (Power) Govt. of India.

Ministry of Power vide Office MEMO dated 25.10.2023 reviewed the capacity addition up to year 2031-32 with upgradation of capacity of Meja Project for Stage-II from 2X660 MW to 3X800 MW. A supplementary JV Agreement has been signed between NTPC and UPRVUNL (Uttar Pradesh Rajya Vidyut Urja Nigam Limited)/ Govt. of Uttar Pradesh on 13.09.2023 for the joint development of Meja Stage-II.

1.2.2. *Proposal*

The present proposal is for the installation of three Ultra Super Critical Units (800 MW each) for Meja Stage-II (3X800 MW) with Air Cooled Condenser (ACC) System.

1.2.3. *Identification of Project Proponent:*

Meja Urja Nigam Private Limited (MUNPL), is a 50:50 JV company of NTPC Ltd & UPRVUNL and was registered as a company on 02.04.2008, with an intent to establish Meja Thermal Power Project. Details of the project proponent is as mentioned in Table 1.1 below:

Table 1.1 : Details of Project Proponent

Project Proponent:	**M/s Meja Urja Nigam Private Limited (MUNPL)**
Authorized Signatory:	Mr. Anil Kumar
Correspondence Address:	MUNPL 5th Floor, Sangam Place, Civil Line, Prayagraj
Designation:	AGM
Email Id	env.meja@gmail.com / anilkumar02@ntpc.co.in
Mobile No	9068202233

1.3. Purpose of the Report

As per Environmental Impact Assessment (EIA) Notification dated 14.09.2006 and subsequent amendments of Ministry of Environment and Forests and Climate Change (MoEF&CC), the proposed project falls under Category A of schedule 1(d) and requires prior Environmental Clearance from MoEF&CC. Further, Category A projects also attract the provisions of Public Consultation as per EIA Notification dated 14.09.2006.

An application for grant of ToR (Terms of Reference) for the project was submitted to MoEF&CC on 20.10.2023. ToR Letter has been granted for the project by MoEF&CC vide **F.No. J-13012/03/2008- IA.II (T) dated 14th December 2023.** Copy of the ToR letter is attached as **Annexure-1.**

The Draft EIA/EMP (Environmental Impact Assessment/Environmental Management Plan) report has been prepared by M/s EQMS Global Pvt. Ltd., Delhi (Formerly known as EQMS India Pvt. Ltd.) in accordance with the Terms of Reference (ToR) provided by the Ministry of Environment, Forest and Climate Change (MoEF&CC) and submitted to the Uttar Pradesh Pollution Control Board (UPPCB) for conducting the Public Hearing for the Project. The public hearing for the project was successfully conducted on 24th June 2024. The proceedings of the public hearing and other documents were forwarded by Member Secretary vide letter no: H13497/C-2/NOC-5376/Public Hearing/24 dated 03-07-2024 to MoEF&CC Delhi. The Final EIA report has been prepared after incorporating the comments/ suggestion raised by the public during public hearing.

The main objective of conducting EIA study as per approved ToR is to study the baseline environment status and to prepare the environment monitoring plan and Environment management plan to considerable reduce the activities that may have effects on the environment and thus realising the principles of sustainable development.

Scope of study:

MUNPL has appointed M/s EQMS Global Pvt Ltd., Delhi to prepare the Environment Impact Assessment report for the proposed expansion project based on the ToR accorded by MoEF&CC

vide letter J-13012/03/2008- IA.II (T) dated 14.12.2023 to facilitate & obtain Environment Clearance for the same from Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India. The scope of this study broadly includes:

- Conduct literature review, collate and compile secondary data including socio-economic data from published literature / government publications.
- Undertake environmental monitoring through field sampling so as to establish the baseline environmental status of the study area.
- Identify existing pollution source and load due to various activities in the ambient levels.
- Identify the basic environmental status including the meteorological parameters and socioeconomic environment of the proposed study area.
- Predicting incremental levels of pollutants in study area due to the proposed expansion of the plant activities.
- Evaluate the predicted impact on the various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact methodologies.
- To prepare an environmental management and monitoring plan outlining the measures for improving the environmental quality for environmentally sustainable development.
- Prepare Risk Assessment and Disaster Management Plan and undertake Additional studies if required.
- Identify critical environment attributes that has to be monitored past project scenario

1.4. Site Selection Criteria

The plant facilities for this proposed expansion Stage-II would be accommodated within the land available in the existing power station of Meja TPP Stage-I. However, about 110 Ha additional land is required, which comprises of Ash Dyke (89 Ha), Greenbelt & other (21 Ha). The land is proposed to be acquired consists of 110 Ha Govt. land and does not involve any forest land.

1.5. Necessity and Benefit of the Project

The power demand in our country is increasing rapidly due to rapid industrial and infrastructure developments. Lack of availability of sufficient electric power has always been one of the greatest deterrents to the growth of industry in the state.

Modern civilization will not sustain without electricity, so power generation has become very vital and considered as the backbone of industrial development and urbanization. The use of thermal power to generate electrical power has been an age-old mechanism that is still contributing to a major part of electrical consumption. Thermal Power plants are the major source of electricity for country. More than half of the total electricity demand in our country is met by thermal power plants.

1.5.1. *Benefits of the proposed project*

- Project will fulfil the demand supply gap of power.
- Project will ease the dependency of import of power within the country.
- Project will generate employment.
- Project will contribute to overall socio economic development of the area and country.

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1.6. Demand/Supply Gap

The Load Generation Balance Report (LGBR) 2024-25 outlines the assessment of the Anticipated Power Supply Position in the country for the year 2024-25. The Report takes into consideration the power availability from various generating stations in operation (both conventional and renewable ones), fuel availability, and anticipated water availability at hydro-electric stations. A conventional capacity addition of 19,680 MW has been considered for the year 2024-25 comprising 14,040 MW of Thermal, 3,790 MW of Hydro and 1,900 MW of Nuclear.

Table 1.2 : All India Power Supply Scenario for the year 2023-24

	2023-24	2022-23	Actual Growth (%)
Energy Requirement (MU)	1,629,670	1,513,497	**7.7**
Energy Supplied (MU)	1,625,253	1,505,914	**7.9**
Peak Demand (MW)	243,271	215,888	**12.7**
Peak Met (MW)	239,931	207,231	**15.8**

During the year 2023-24 total ex-bus Energy Requirement and Supplied increased by 7.7 and 7.9% respectively and Peak Demand increased by 12.7%.

Table 1.3 : All India Actual Power Supply Scenario for the year 2023-24

	Energy				Peak			
	Requirement	Availability	Surplus/ Deficit (-)	Demand	Requirement	Availability	Surplus/ Deficit (-)	Demand
	(MU)	(MU)	(MU)	%	(MW)	(MW)	(MW)	%
All India	1,629,670	1,625,253	4,418	**0.3**	243,271	239,931	3,340	**1.4**

It is evident from the Table 1.4 that the growth in Electricity Supply was commensurate to the growth in Demand in the previous year 2023-24. The above figures indicates that the country witnessed a marginal Demand-supply gap both in terms of Energy and Peak. However, this Demand-supply gap was generally due to factors other than inadequacy of power availability in the country.

Table 1.4 : Anticipated All India Power Supply Position for the year 2024-25

Region	Energy				Peak			
	Requirement	Availability	Surplus/ Deficit (-)		Demand	Availability	Surplus/ Deficit (-)	
	(MU)	(MU)	(MU)	%	(MW)	(MW)	(MW)	%
Uttar Pradesh	160,637	186,900	26,263	16.3	31,917	30,870	(-)1,047	(-)3.3
Northern	510,585	550,390	39,805	7.8	90,612	83,980	(-)6,632	(-)7.3
All-India	1,734,361	1,776,520	42,159	2.4	256,530	245,615	-10,915	-4.3

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From the above demand supply scenario, it is observed that both Uttar Pradesh and Northern region are projected to experience peak and energy shortage by end 20th plan without addition of the proposed project.

Considering the above, Meja Urja Nigam Private Limited (MUNPL) STPP Stage-II (3x800 MW) planned to be commissioned, which is justified from demand supply consideration.

The **CEA (Central Electricity Authority) 20th Electric Power Survey Report** projects All India Electricity demand for the next 20 years, viz year wise projection from 2021-22 to 2031-32 and perspective electricity demand projection for the years 2036-37 and 2041-42.

Electrical Energy Consumption, T&D losses, electrical energy requirement and peak electricity demand for the years 2021-22, 2026-27 and 2031-32 on all India basis:

Table 1.5 : All India Electricity Demand Projection

Particulars	Year			CAGR (in %)	
	2021-22	2026-27	2031-32	(2021-22) to (2026-27)	(2026-27) to (2031-32)
Total Energy Consumption - MU	11,38,408	16,10,053	21,33,380	7.18	5.79
T&D losses - MU	2,43,237	2,97,782	3,40,396		
T&D losses (Ex-Bus) - %	17.60	15.61	13.76		
Energy Requirement (Ex-Bus) – MU	13,81,646	19,07,835	24,73,776	6.67	5.33
Annual Load Factor - %	77.65	78.57	77.07		
Peak Demand (Ex-Bus) - MW	2,03,115	2,77,201	3,66,393	6.42	5.74

As per the table, the percentage increase in electricity energy requirement is less than increase in energy consumption, hence reduction in T&D losses are expected in future.

Table 1.6 : 20th EPS (Electric Power Survey) Demand Projection

Particulars	2021-22	2026-27	2031-32	2036-37	CAGR (%)		
					2021-22 to 2026-27	2026-27 to 2031-32	2031-32 to 2036-37
Energy Requirement (in MU)	13,81,646	19,07,835	24,73,776	30,95,487	6.67	5.33	4.59
Peak Demand (in MW)	2,03,115	2,77,201	3,66,393	4,65,531	6.42	5.74	4.91

Table 1.7 : Northern Region Electricity Demand Projection (2021-22 to 2031-32)

	2021-22	2026-27	2031-32
Energy Requirement (in MU)	**4,18,188**	**5,92,312**	**7,73,545**
Peak Demand (in MW)	**73,367**	**97,898**	**1,27,553**

Table 1.8 : CAGR Electrical Energy Requirement and Peak Electricity Demand (2021-22 to 2041-42)

Year	Energy Requirement (MU)	Peak Demand (MU)
2021-22	13,81,646	2,03,115

2026-27	19,07,835	2,77,201
2031-32	24,73,776	3,66,393
2036-37	30,95,487	4,65,531
2041-42	37,76,321	5,74,689

Table 1.9 : CAGR Electrical Energy Requirement and Peak Electricity Demand

Year	Growth in Energy Requirement (MU)	CAGR of Energy Requirement (%)	Growth in Peak Demand (MW)	CAGR of Peak Demand (%)
2021-22 to 2026-27	5,26,189	6.67	74,085	6.42
2026-27 to 2031-32	5,65,941	5.33	89,192	5.74
2031-32 to 2036-37	6,21,711	4.59	99,139	4.91
2036-37 to 2041-42	6,80,834	4.06	1,09,158	4.30

Table 1.10 : Uttar Pradesh Demand Projection at Power Station Bus Bar (Utilities)

Particulars	2021-22	2026-27	2031-32	2036-37	2041-42
Electrical Energy Requirement (MU)	1,29,580	1,91,138	2,53,974	3,20,346	3,87,169
Peak Electricity Demand (MW)	24,991	33,017	44,066	55,592	67,170

As per CEA (Central Electricity Authority), the power generation has increased over previous years:

Table 1.11 : Power generation

Year	Power Generation from all Sources		Fossil Fuel Based Power Generation	
	In Billion Units (BU)	% increase over last year	In Billion Units (BU)	% increase over last year
2017-18	1308.1	5.35	1037.1	4.3
2018-19	1376.0	5.19	1072.2	3.4
2019-20	1389.1	0.95	1042.7	(-) 2.7
2020-21*	1381.8	(-) 0.52	1032.5	(-) 1.0
2021-22	1491.8	7.96	1111.8	7.96
2022-23	1624.4	8.89	1202.9	8.20
2023-24**	1736	6.9	1301.7	9.91

Source: MOP Website

*In year 2020-21, power generation was mainly affected due to less demand during COVID-19 pandemic.
**Upto December (Provisional)

During the recent period, coal-based power generation has increased by 16.1% over the last year. As per the recent study carried by CEA (Central Electricity Authority) on Optimal Generation Capacity Mix for 2029-30, the likely All India installed Capacity is estimated to be 8,17,254 MW by 2029-30.

Table 1.12 : All India Likely Installed Capacity by the end of 2029-30

Fuel Type	Capacity (MW) by 2029-30
Hydro	60,977
PSP	10,151
Small Hydro	5,000

Coal + Lignite	2,66,911
Gas	25,080
Nuclear	18,980
Solar	2,80,155
Wind	1,40,000
Biomass	10,000
Total	**8,17,254**

As per CEA, the likely installed capacity for Coal & Lignite based Power generation is estimated to be 266.9 GW by 2029-30. It was about 217 GW by June 2024. For such generation, about 55 GW of Coal & Lignite based projects need to be added.

1.6.2. *Beneficiary States:*

A PPA was signed with the Uttar Pradesh State on 05.01.2011 for availing 75% power from Stage-II Project with then envisaged capacity (2X660 MW). It was also signed with the Uttarakhand State. Consent from Uttar Pradesh and Uttarakhand after increase in project capacity to 3X800 MW from earlier 2X660MW has been obtained and copy of letter is attached as **Annexure-2.**

1.7. Nature & Size of the Project

As per the Government of India (Ministry of Environment, Forests & Climate Change (MoEF & CC),) EIA Notification, 2006 and further amendments, the proposed project will be covered under Activity 1(d); Category A and hence requires environmental clearance from MoEF& CC, New Delhi. The tentative cost of the project is Rs.25,081.88 Crores. About 1295 Ha of land has been acquired for Meja TPP during Stage-I. The plant facilities of Stage-II shall be accommodated within the existing premises of the Meja TPP. However, about 110 Ha additional land is required, which comprises of Ash Dyke (89 Ha), Greenbelt and other (21 Ha). No forest land is involved.

Location: Proposed 3x800 MW Super Thermal Power Plant of **M/s Meja Urja Nigam Private Limited (MUNPL),** is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, Prayagraj, Uttar Pradesh. The project boundary showing the corner cordinates of the project is given in **Figure 1.1**.

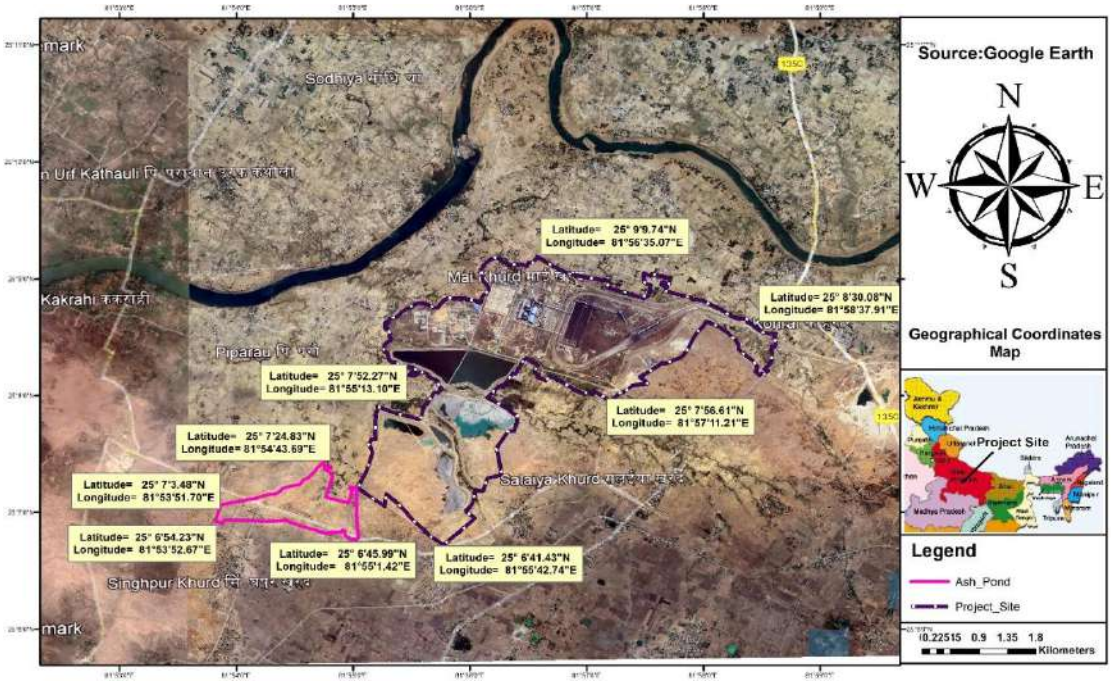


Figure 1.1 : Coordinates of the Project site

Proposed site is well connected through the rail and road. The nearest railway station, Meja Road Railway Station on Prayagraj-Mughalsarai section of North Central Railway is about 14.23 km from the project site in NE direction. The site is in south-west of Prayagraj-Mirzapur Highway. National Highway-135 C is passing about 0.7 km, east of the site. The nearest commercial airport is Prayagraj Airport approximately at an aerial distance of 38 km, NNW. Varanasi Airport is located at a distance of about 100 km in E direction.

Location is presented in **Figure 1.2.** Nearest settlement is Mai Khurd Village abutting the project site. Other villages located within 1 km area of the proposed site are Kohdar (0.37 Km, NNE), Jhadiyahi (0.40 Km, WNW).

Tons River is located at about 0.95 km, WNW of the project site. River Ganga is located at a distance of about 23.24 Km, NNW from the project site. No National Park, wildlife sanctuary, biosphere reserve is present within the 10 km area of the proposed site. However the community conservation area of black buck is located at Chandkhamharia located about 5.5 km from the proposed site in south direction. However, it is a community conservation site which is not notified sensitive location. Few reserved and protected forests are present in the study area. The locational environment features presented in **Table 1.13.** The Google satellite image of the 10 km area of the site is given in **Figure 1.3** and Topo map of 10 Km radius map is given in **Figure 1.4**. Environment sensitivity Map is provided in **Figure 1.5**

Table 1.13 : Salient Environmental Features of Proposed Site

S. No	Parameter	Description
1	Location	Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, Prayagraj, Uttar Pradesh
2	Coordinates	**Existing Plant:**

S. No	Parameter	Description
		1 — 25° 9'9.74"N & 81°56'35.07"E 2 — 25° 8'30.08"N & 81°58'37.91"E 3 — 25° 7'56.61"N & 81°57'11.21"E 4 — 25° 6'41.43"N & 81°55'42.74"E 5 — 25° 7'52.27"N & 81°55'13.10"E **Existing Ash Dyke:** 1 — 25° 8'1.03"N & 81°55'41.51"E 2 — 25° 7'47.12"N & 81°56'23.92"E 3 — 25° 6'58.24"N & 81°55'46.90"E 4 — 25° 7'25.45"N & 81°55'10.34"E **Proposed Ash Dyke with 21 Ha greenbelt** 1 — 25° 6'45.99"N & 81°55'1.42"E 2 — 25° 6'54.23"N & 81°53'52.67"E 3 — 25° 7'3.48"N & 81°53'51.70"E 4 — 25° 7'24.83"N & 81°54'43.69"E
3	Site elevation above MSL and Topography	The elevation of the project area ranges between 83 to 128 amsl. The project site is sloping slightly towards west and southwest direction
4.	Distance from the HFL of river	The tons river[1] is located about 950 m away from the site. HFL of the Tons River is 87.18 m at Meja Road CWC Gauge near project site.
5.	Reserved /Protected Forests	• Badiha Reserved Forest (7.00 Km, SW) • Gadaria Reserved Forest (5.00 Km, SW) • Singhpur Khurd Reserved forest (0.90 Km, SW) • Salaiya Kalan Reserved forest (Along Southern Boundary) • Salaiya Khurd Reserved forest (Along Southern Boundary) • Kohdar Reserved forest (Along Eastern Boundary) • Murpela Reserved forest (2.70 Km, East) • East Chandhs Reserved Forest (8.00 Km, East) • Sukh Protected Forest (8.50 Km, East)

[1] FINAL FEASIBILITY REPORT ON DETAILED HYDROGRAPHIC SURVEY TONS RIVER by IWAI

S. No	Parameter	Description
6.	Wetland of State and National Interest	None within study area
7.	Presence of Schedule-I Fauna	Peafowl, Jungle Cat, Porcupine, Blackbuck, Hyaena, Rat Snake and Russel's Viper
8.	Critically Polluted Area	None within study area (10 km radius area)
9	Site connectivity	Site is connected to NH-135 C through NTPC Meja Road. NH-135 C, 0.7 km, east.
10	Nearest Rail Station	Meja Road Railway Station, 14.23 km, SE.
11	Nearest Airport	Prayagraj Airport – 36.76 km, NNW
12	Nearest Habitat	Nearest settlement is Mai Khurd Village abutting the project site.
13	Archaeologically important places	None
14	Water Bodies	River Tons (0.95 Km, WNW) River Ganga (23.24 Km, NNW)
15	Seismic zone	Seismic Zone-III (Moderate Risk Zone)
16	Interstate Boundary	None within 10 km area
17	Nearest Industries	None within 10 km radius area
18	Physical Sensitive Receptors	School: Vijay Degree College, Salaiya, Meja, Prayagraj (0.68 Km, SSW) Hospitals: Ma Isaraja Devi Charitable Hospital, Sirihir, Meja, Prayagraj (3.05 Km, SSW)
19	Archaeological Monuments	None within the study area

**Note: All distances mentioned above are aerial distances from the proposed expansion of thermal power plant boundary*

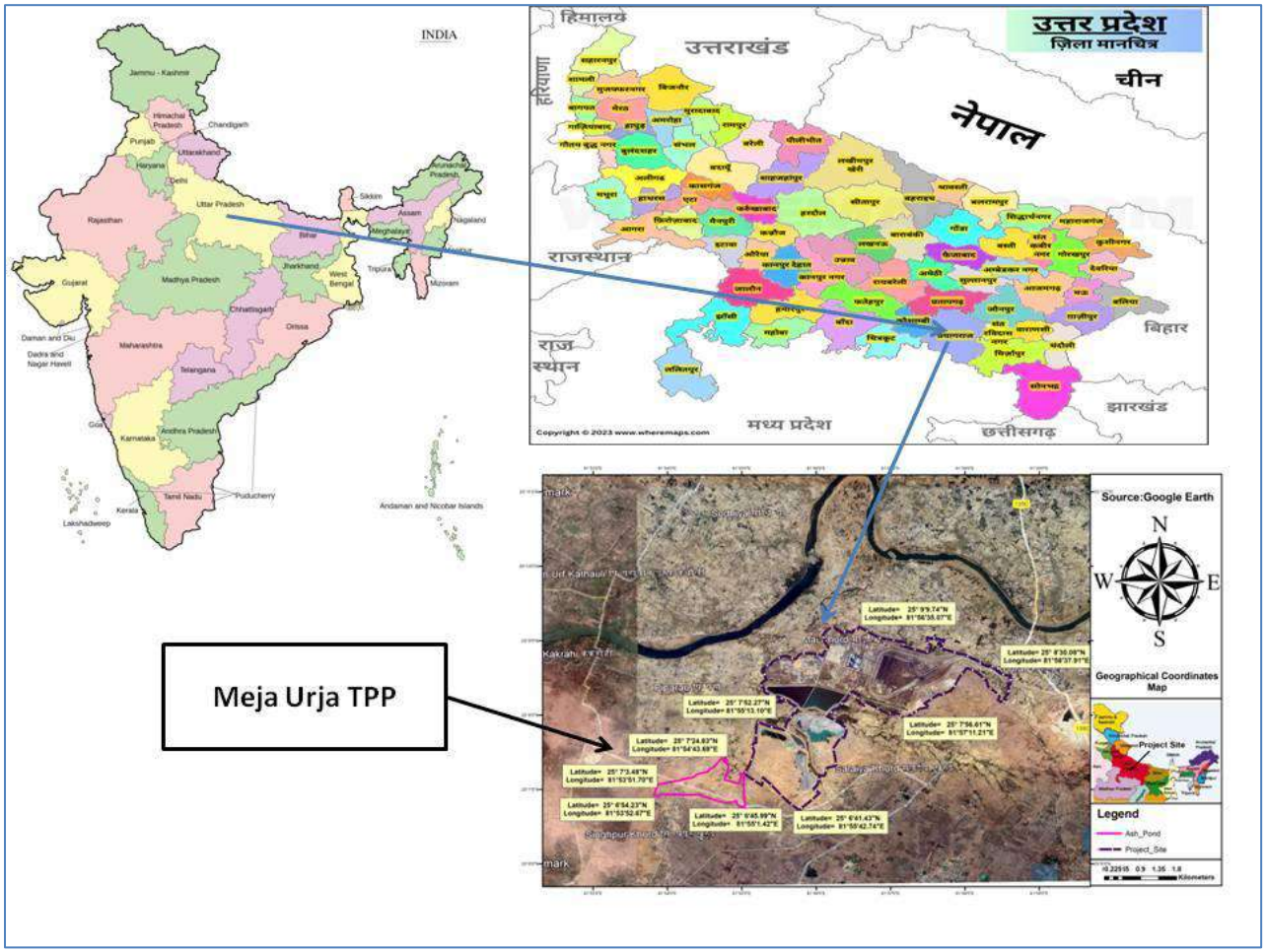


Figure 1.2 : Location Map

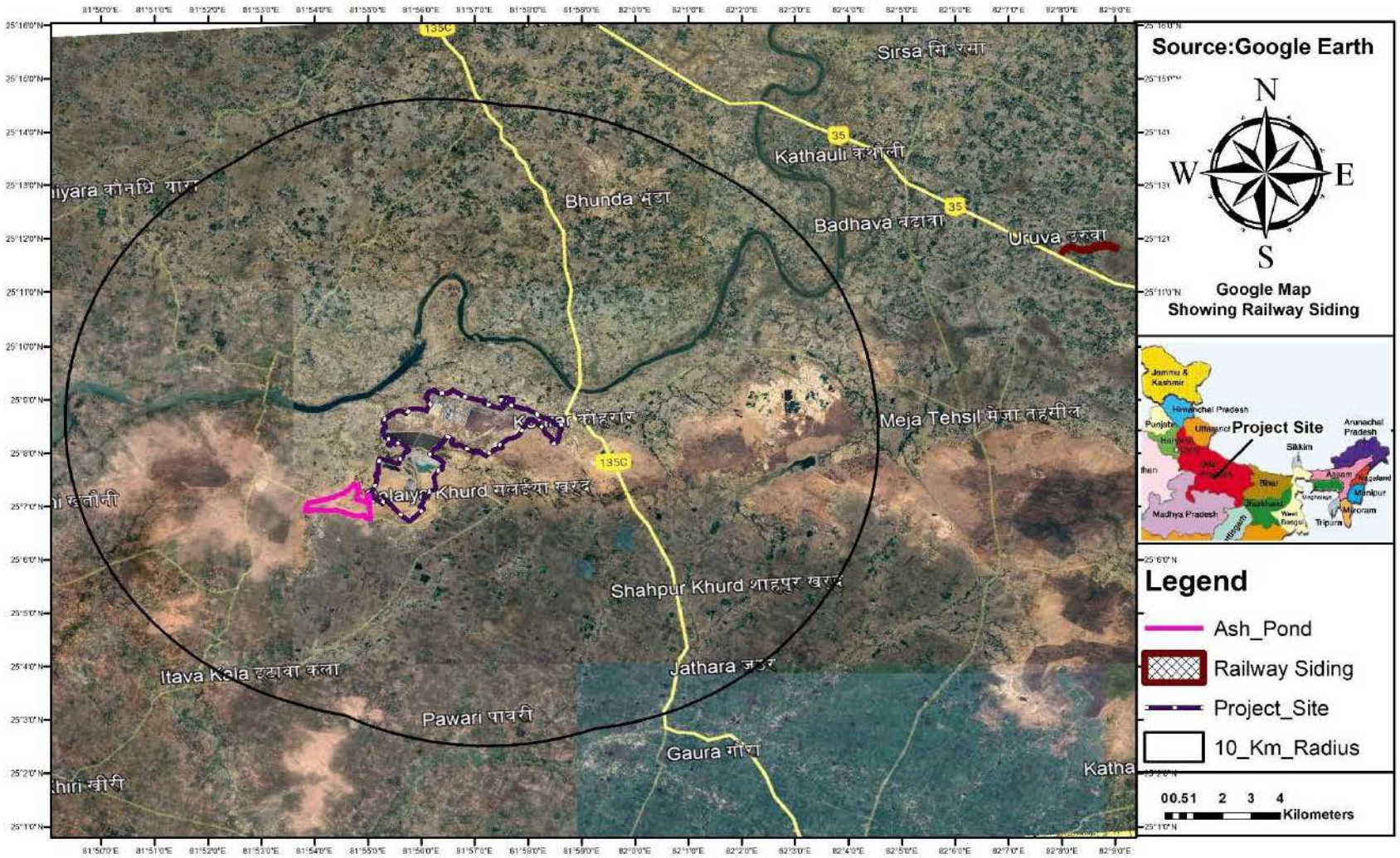


Figure 1.3 : Google Image of Project (Google Earth)

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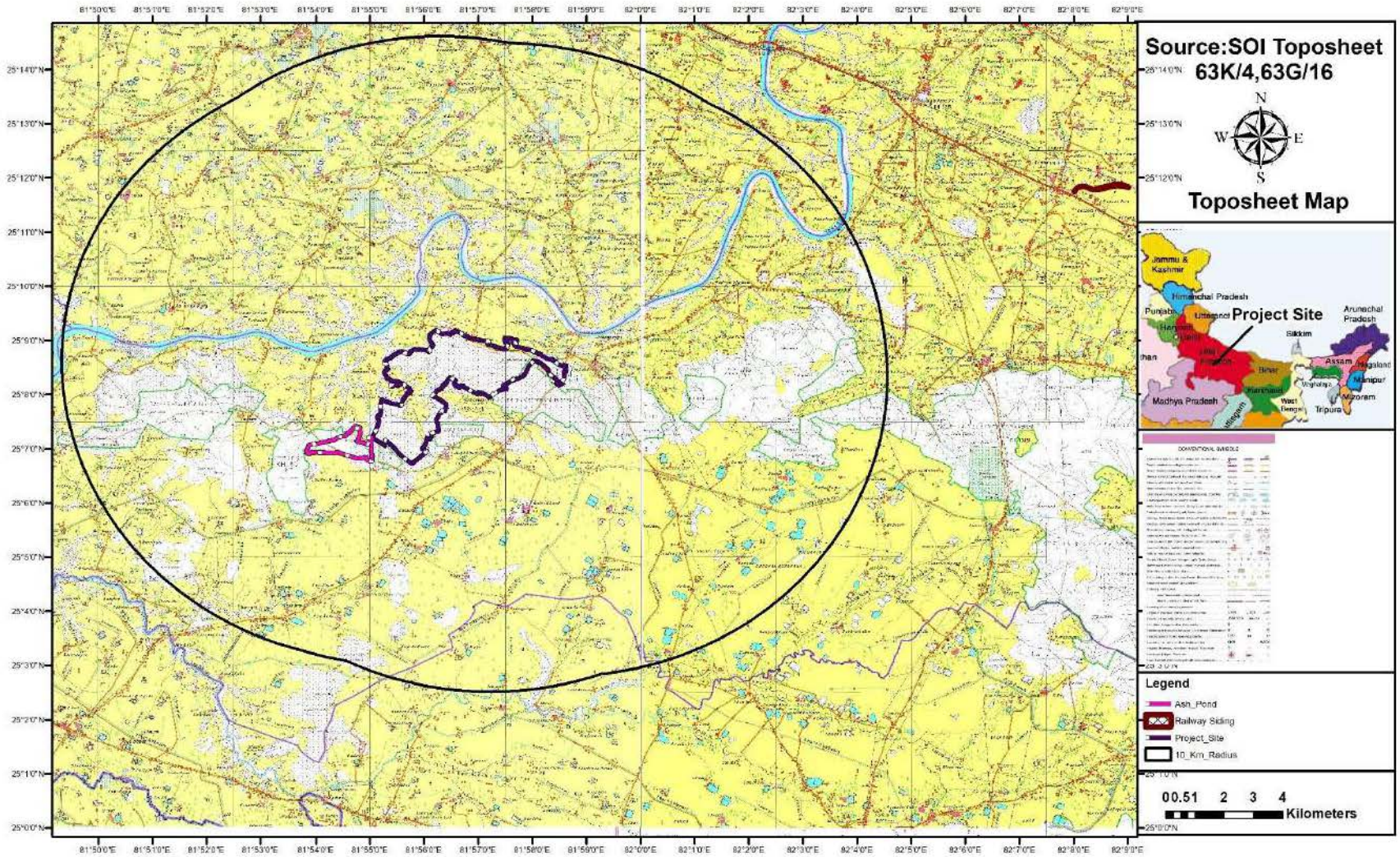


Figure 1.4 : **Topo Map of the Study Area showing project site**

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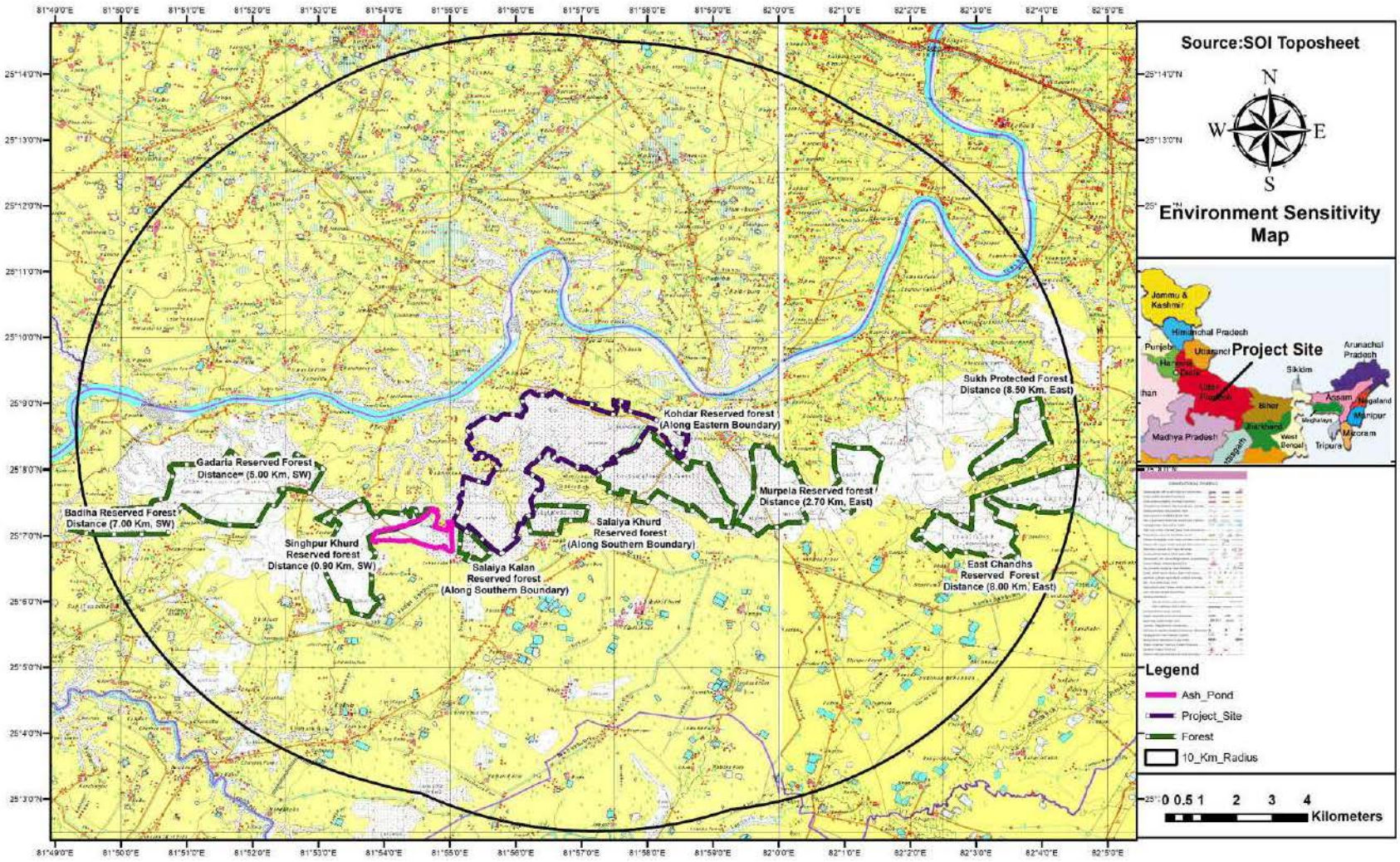


Figure 1.5 : **Environment Sensitivity Map**

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1.8. ToR Compliance

In order to identify the environmental impacts due to construction and operation phase of proposed expansion and its associated facilities, and draw a suitable environmental management plan to mitigate adverse impacts, if any, an EIA study has been undertaken, in compliance to Terms of Reference approved by MoEF&CC vide letter No. **J-13012/03/2008- IA.II (T)** dated **14.12.2023** (Copy attached as **Annexure-1).** The compliance report of approved ToR with respect to EIA report is presented in **Table 1.14.**

Table 1.14 : ToR Compliance

S. No		Terms of Reference	Compliance
1. Specific Terms of Reference			
1.1	1	Public Health Delivery Plan including the provisions of Drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, Construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local population.	Details of the existing medical facilities, drinking water facilities and other infrastructure available in the study area are provided in Section 3.12.3, Table 3.62, Chapter 3 of EIA report. MUNPL has a dedicated Aarogyam Hospital having all First Aid and OHC Facilities to plant workmen as well as for the neighbouring villagers. Beside that there are many private and Govt hospitals like Tej Bahadur Saru Hospital, Motilal Nehru Divisional Hospital, Swarup Rani Hospital etc. in the Prayagraja and Meja tehsil to cater basic medical requirement of the population in the study area. Detailed people health management plan provided in Section 10.11, Chapter 10 of EIA report. As a part of STG-II, expansion of drinking water facilities shall be taken up and a budget of Rs. 3.0 Cr is provided under CER/CD. Under CER/CD of MUNPL a budget of Rs. 40.1 Cr is allocated for activities like strengthening of existing medical facilities, providing water, infrastructure and livelihood generation etc.
	2	All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall	The public hearing for the project was successfully conducted on 24.06.2024 as per the provision of EIA Notification, 2006. Public hearing details along with the action plan is provided in Section 7.1 and Table 7.1 of EIA report Chapter 7.

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S. No		Terms of Reference	Compliance
		be incorporated in the EIA/ EMP report in the relevant chapter.	
	3	Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22- 65/2017-IA.III dated 30th September 2020 shall be submitted. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.	Public hearing details along with the action plan is provided in Section 7.1 and Table 7.1 of EIA report Chapter 7. R&R Plan is provided in Section 10.15 of EIA Report Chapter 10.
	4	Details of settlement in 10 km area shall be submitted.	Provided in Section 3.12.5 of Chapter 3 in EIA report.
2. Environment Management and Biodiversity Conservation			
2.1	1	Cumulative Environmental Impact Assessment study of all the existing and proposed projects in the 15-km radius of the proposed project shall be conducted.	There are no major industries present or proposed within the 15 km radius of the project site hence the Cumulative Env. Impact Assessment has been conducted for Meja STPP, Stage – I & Stage – II and incorporated in Section 4.5.4, Chapter 4 of EIA report.
	2	PCCF letter shall be obtained stating that no wildlife corridor is passing through the project boundary.	Proposed project is expansion of existing MUNPL Stage-I. Letter from PCCF Forest Dept stating that no wildlife corridor is passing through the project boundary is attached as **Annexure-3**.
	3	Wildlife conservation plan shall be prepared, in consultation with State Forest and wildlife department, with adequate fund for wildlife habitat management, preserving wildlife and its corridors and be submitted along with EIA/EMP report. Human-Wildlife Conflict issue shall be studied and such incidences reported in the study area during last 10 years shall be submitted. No provision for purchasing the vehicle shall be made in the wildlife conservation plan.	There are seven species reported to be Schedule-I species. Wildlife Conservation Plan has been prepared for the same. MUNPL has kept a budget of Rs. 3.51 Crores for conservation of Sch-I species. Human wildlife conflict issues has been addressed in wildlife conservation plan in consultation with Divisional Forest official. Copy of the Wildlife Conservation Plan is attached as **Annexure-4.** No budgetary provision has been made for purchasing vehicles in conservation plan.

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S. No		Terms of Reference	Compliance
	4	Details of the existing rail, road networks and alignment of transmission lines along with quantity of coal being transported/to be transported for existing units and proposed expansion, its source and transportation mode shall be submitted.	The railway siding network of the plant is connected to Indian Railway line at Meja Road Station and Unchadih Station. The plant railway line is also connected with EDFC (Eastern Dedicated Freight Corridor). Entire coal for Stage-I is being transported through rail and for Stage-II same rail network shall be used. Details provided in Section 2.3, Chapter 2 of EIA report.
	5	Radioactivity studies along with coal analysis to be provided (sulphur, ash percentage and heavy metals including Pb, Cr, As and Hg). Details of auxiliary fuel, if any including its quantity, quality, storage, etc should also be given.	Radioactivity of Coal and auxiliary fuel (Light Diesel Oil-LDO) are attached as **Annexure-5.** LDO is used for initial start-up, low load operation and as secondary fuel for pulverized coal flame stabilization at the start-ups / low load operations. LDO Tank of 2000 KL is envisaged, Dyke for LDO storage tank shall be provided. Details are enclosed in Section 2.4.2 and 2.4.4 of Chapter 2 in the EIA report.
	6	A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study.	Comparative study for previous and present baseline is provided in Section 3.10, Table 3.32, 3.33, 3.34 and 3.35 of Chapter 3 in the EIA Report.
	7	Existing green plantation carried out by the project proponent (within or outside the plant boundary) with its survival rate shall be submitted and a plan shall be made to maintain survival rate up to 90%.	MUNPL Stage-I was developed on Plateau/rocky land. Plantation and its survival in such land profile is a challenging. MUNPL has consulted domain expert the Divisional Forest Officer-Prayagraj for plantation in the Study Area. At present about 163 Ha. Certificate from Divisional Forest Officer-Prayagraj for the existing plantation carried by MUNPL Stage-I is attached as **Annexure-22**. Survival rate is 81.7%. Details provided in Section 10.10.1 of Chapter 10 of EIA Report. Greenbelt with a budget of Rs. 33.24 Crore, Carbon sink through plantation in nearby forest land will be done with a budget of Rs. 24.25 Crore. Total Budget for Green Belt development and Carbon Sink plantation shall be Rs. 57.49 Crore.

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			The proposed greenbelt development plan is mentioned in Section 10.10.2 of Chapter 10 in the EIA report..
	8	Detailed action plan shall be prepared for maintenance of pollution control equipment.	Air pollution control equipment (ESP, FGD, NOx Control and Dust Extraction and Dust Suppression system) are integral part of main plant equipment and the same are shall be maintained as per operation and maintenance philosophy of MUNPL. Details maintenance schedule is provided in Section 10.17 and the cost of the maintenance is incorporated in Section 10.17.1 of Chapter 10 in the EIA report.
	9	Details of Ash management of existing (since operation of the plant) and proposed project shall be submitted, along with 5-year plan for 100 % ash utilization.	The Ash Handling System is provided in Section 2.10, Ash Utilization Plan in Section 2.11 of Chapter 2 in the EIA Report.
	10	Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.	The details for ash and coal handling system is mentioned in Section 2.10 & Section 2.7 of Chapter 2 respectively.
	11	Proper protection measures like HDPE lining, appropriate height of bund and adequate distance between proposed Ash Pond and water body (minimum 500 meter) etc. shall be planned so as to reduce the possibility of mixing of leachate with any fresh water body for under construction ash pond. High Density Slurry disposal plan shall be prepared.	Ash shall be disposed to Ash pond in HCSD and proper protection measures like HDPE lining, appropriate height of bund. Details of lining of ash dyke and its height are provided in Section 2.10.2.3 of Chapter 2 in the EIA report.
	12	Pond and ground water quality (10 locations within 2 km radius of the plant boundary) shall be studied, and report be submitted along with EIA/EMP. Action plan for Ground water monitoring stations on all hotspots like schools/hospitals within 2 km radius of the plant boundary be submitted.	Ground water quality of hot spots present in the 2 km area is provided in Section 3.8, Chapter 3 of EIA report. Action plan for ground water monitoring on hotspots around the project is prepared and provided in Section 6.2.2 Chapter-6 of EIA report.

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	13	Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report.	No metallic contamination observed in the ground water and soil samples. The details of heavy metals present in the surface and ground water and soil is given in Section 3.8 and 3.9 of Chapter 3 of EIA report.
	14	Details pertaining to water source, treatment and discharge should be provided.	Water requirement for existing Stage-I is about 39 Cusec and is presently being drawn from Ganga River. Govt. of UP (GoUP) has allocated 44 Cusec of water for Stage-I. The water requirement for Stage-I is 39 Cusec and Surplus water available is 5 Cusec. For meeting the requirement of Stage-II, an additional water allocation of 25 Cusec shall be obtained from GoUP from Ganga River. Details of water requirement, treatment and discharge are mentioned in Section 2.4.5 & 2.14.2 of Chapter 2 of EIA report
	15	Zero Liquid Discharge plan shall be submitted.	The project is designed on Zero Liquid Discharge (ZLD) concept. The details are mentioned in Section 4.5.6 of Chapter 4 in EIA report.
	16	Action plan for development of green belt (40% of total project cover area) along the periphery of the project boundary with 80% survival rate shall be provided with a video clip of existing green belt. The plan shall be prepared in consultation with State Forest Department considering the project site is located in rocky area.	MUNPL Meja Stage-I was developed on Plateau/rocky land. Plantation and its survival in such land profile is a challenging. At present about 163 Ha with survival percentage of 81.7% is carried. Certificate from Divisional Forest Officer-Prayagraj for the existing plantation carried by MUNPL Meja in STAGE-I is provided in Section 10.10.1 of Chapter 10 of EIA Report. MUNPL has already established a greenbelt covering 163 Ha within its current facility. For the proposed project, additional green belt shall be developed in 318 Ha inside MUNPL. Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land. Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by

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			MUNPL in consultation with DFO Prayagraj, which is close to the project boundary. Thus, the total greenbelt to be developed by MUNPL will be more than 40%. A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided in Section 10.10.2 of Chapter 10 of EIA report.
	17	PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations.	The treated sewage shall be used for horticulture purpose. There will be no discharge outside the plant premises. MoP has exempted from linking and use of Naini Sewage Treated Water by Meja Thermal Power Plant as it is located across the river. The details are mentioned in Section 4.5.6 of Chapter 4.
	18	Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.	Environment Cost Benefit Analysis is mentioned in Chapter 9 of EIA report.
	19	An action plan shall be prepared for Water shed development within 10 km radius of the plant boundary in consultation with reputed government institution.	MUNPL has conducted Study on Watershed through NIH Roorkee. Report is attached as **Annexure-6.** Watershed study plan and budget is provided in Section 7.16.2 Chapter 7 of EIA report.
	20	A detailed plan need to be submitted for undertaking extensive green plantation within 10 km radius of the plant focusing on water reservoir, school, hospital and other institutional area and same need to be incorporated in EIA/EMP report	MUNPL Meja Stage-I was developed on Plateau/rocky land. Plantation and its survival in such land profile is a challenging. At present about 163 Ha with survival percentage of 81.7% is carried. Certificate from Divisional Forest Officer-Prayagraj for the existing plantation carried by MUNPL Meja in STAGE-I is provided in Section 10.10.1 of Chapter 10 of EIA Report. MUNPL has already established a greenbelt covering 163 Ha within its current facility. For the proposed project, additional green belt shall be developed in 318 Ha inside MUNPL. Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of

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			the total project land. Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary. Thus, the total greenbelt to be developed by MUNPL will be more than 40%. A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided in Section 10.10.2 of Chapter 10 of EIA report.
	21	A detailed note w.r.t. compliance of MoEF&CC notifications dated 31.12.2021 and 30.12.2022 defining the eligibility of thermal power plants for having additional ash pond shall be submitted by the IRO in its compliance report.	As per the MoEF&CC notification dated December 30, 2022, new or expanded thermal power plants are permitted to use 0.1 Hectares per Mega Watt for ash dykes. Total power generation for Stage-I and Stage-II is 3720 MW. Land available for Ash Pond for Stage-I&II is 262 Ha. Additional land 89 Ha to be acquired is identified adjacent to Stage-I Ash pond. Existing Stage-I HCSD lagoon can be used for HCSD disposal (Dry Fly ash) of Stage-II. However, existing constructed ash dyke (Bottom ash dyke) of Stage-I is not adequate for proper sedimentation & decantation of slurry from all the five units (2 x 660 MW + 3 x 800 MW) and for storage of decantated water in Overflow Lagoon for re-circulation of decanted ash water to ensure ZLD. Requirement of land for Stage-II Bottom Ash Dyke has been reviewed and it can be reduced to 89 Ha to accommodate 2 (two) bottom ash Lagoons and one common Overflow Lagoon near to the exiting ash pond to run the power plant without interruption throughout the year
3.0 Disaster Management Plan			
3.1	1	Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.	Disaster Management Plan for Stage-I is in place. Disaster Management plan has been prepared and provided in section 7.14, Chapter 7 of EIA report. Same shall be strengthen for Stage-II.

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4.0 Miscellaneous			
4.1	1	Certified compliance report of previous EC to be submitted certified by Regional office of the MoEF&CC. IRO shall provide specific observations on the status of OCMS, ash utilization, green cover and emission control equipment of all units of the plant.	IRO-Lucknow visited MUNPL Meja on 6th and 7th of July, 2024. IRO certified compliance report of previous EC is attached as **Annexure-7.** Latest MUNPL Meja's Action Taken Report towards IRO's compliance report is attached as **Annexure-7.**
	2	PP shall submit details of court cases and its status for the project.	Updated list of the cases and its status is attached as **Annexure-8**
	3	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.	Baseline monitoring station photographs with date, time and coordinates is attached in **Annexure-9.** In Chapter 3 sampling locations are represented on topo sheet. Test reports from the Lab are attached as **Annexure-9.**
	4	Arial view video of project site shall be recorded through drone and be submitted	Drone video of project site is recorded and same shall be presented during EAC meeting.

Standard Terms of Reference

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1.0 statutory Compliance		
1.1	The proposed project shall be given a unique name in consonance with the name submitted to other Government Departments etc. for its better identification and reference.	The proposed project has been given the Unique name i.e. "MEJA THERMAL POWER PROJECT STAGE-II (3X800 MW)" at Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh by M/s. Meja Urja Nigam Private Limited (MUNPL)
1.2	Vision document specifying prospective long-term plan of the project shall be formulated and submitted.	Vision document of the project is enclosed as **Annexure-10**
1.3	Latest compliance report duly certified by the Regional Office of MoEF&CC for the conditions	IRO-Lucknow visited MUNPL Meja on 6th and 7th of July, 2024. IRO certified compliance report of previous EC is attached as **Annexure-7.** Latest MUNPL Meja's Action

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	stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.	Taken Report towards IRO's compliance report is attached as **Annexure-7.**
2.0 Details of Project and Site		
2.1	The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.	The plant facilities for this proposed expansion Stage-II would be accommodated within the land available in the existing power station of Meja Thermal Power Project Stage-I, which was selected after analysis of two alternative site. Details provided in Section 5.1, Chapter 5 of EIA report.
2.2	Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.	Executive summary is attached as Chapter 11, of EIA report. Proposed site photographs are given in Chapter 11. MUNPL (Meja Urja Nigam Private Limited) submitted the application for public hearing to the Chief Environment Officer, UPPCB office on 01.04.2024. The public hearing was conducted on 24.06.2024. Response to the issues raised during Public Hearing and the written representations, along with a time bound Action Plan and budgetary allocations submitted and is provided in Section 7.1 of Chapter 7 of the EIA report.
2.3	Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.	Solar power shall be harnessed by installing rooftop Solar Photo Voltaic (PV) systems on various buildings of the Power Plant. In Stage-I, 3.5MW rooftop solar work is in progress. Installation of 1.5 MW rooftop solar is included in Stage-II EPC package. Details are incorporated in Section 10.13 of Chapter 10 of EIA Report.
2.4	The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be	Geographical Coordinates of the project site are in Section 1.7 (Table 1.13) in Chapter 1 of the EIA report. Location of proposed project site and Ash pond on Satellite map and Toposheet is given in Figure 1.3 and Figure 1.4 respectively in Chapter 1 of the EIA report. Tons river is located about 950 m away from the site. Meja Road CWC Gauge the HFL of the Tons River is 87.18 m near project site. Site elevation towards river side is more than 90 amsl, hence no chance of flooding is anticipated. Irrigation and Water Resources

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	specified, if the site is located in proximity to them.	Department, Govt of UP, regarding HFL level of River Tons dt.10.01.2025 is attached as **Annexure-26.**
2.5	Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.	General layout plan of the Project showing plant area, ash pond, green belt and others are shown in Figure 2.3 and Land breakup of the Project is given in Table 2.3 in Chapter 2 of the EIA report.
2.6	Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.	The plant facilities for this proposed expansion Stage-II would be accommodated within the land available in the existing power station of MUNPL Stage-I. For Stage-II, the acquisition of an additional 110 Ha comprising of Ash Dyke (89 Ha), greenbelt and other (21 Ha) area. Land acquisition is currently under process. Land breakup of the existing and proposed project is mentioned in Table 2.3 in Chapter 2 of the EIA report
2.7	Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.	The plant facilities for this proposed expansion would be accommodated within the existing power station. For Stage-II, the acquisition of an additional 110 Ha comprising of Ash Dyke (89 Ha), greenbelt and other (21 Ha) area. Land acquisition is currently under process. No forest land is involved in the project. Existing facilities i.e. coal transportation, ROW, transmission line are already developed and same shall be used for the proposed project. Details of updated legal cases against the project is attached as **Annexure-8.**
2.8	If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.	No forest land is involved in the proposed project.
2.9	The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.	The total plot area of site is 1295 Ha, out of which 535 Ha land is government land, 760 Ha is private land. The land is already in possession of MUNPL. Proposed expansion shall be done with in the existing premises. An additional 110 Ha of Govt land shall be acquired for Ash dyke (89 Ha), greenbelt and other (21 Ha). No forest land is involved. The land acquisition for ash dyke is in advanced stage. As on date, there are approx. 50 families residing on the proposed land for Ash dyke. A provision of Rs. 26.24 Cr. has been made as a R&R

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		Plan for these families. The detailed R&R plan shall be made after the consultation with the Dist. Authority and as per the R&R Policy of the UP Govt.
2.10	Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.	The land use details provided in Section 3.4, and land use land cover map provided in Figure 3.16, Chapter 3 of the EIA report.
2.11	Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.	Toposheet on 1:50,000 scale is enclosed as Figure – 3.4 in Chapter – 3 of the EIA report. The site is already developed no filling is required. DEM of the project site is provided in Figure 3.6.
3.0 Ecology Biodiversity		
3.1	A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.	The land use details provided in Section 3.4, and Figure 3.16, Chapter 3 of the EIA report. There is no grazing land or any common property resources involved in the project.
3.2	Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site	PCCF Letter regarding No wildlife corridor and location of any National Park, Sanctuary, Elephant, Tiger Reserve within 10 km radius is attached as **Annexure-3**.

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	shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.	
3.3	A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.	Mineralogical map of the project site and study is enclosed as Figure 3.10 of Chapter 3 of EIA report.
3.4	The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.	Water requirement for existing Stage-I is about 39 Cusec and is presently being drawn from Ganga River. Govt. of UP (GoUP) has allocated 44 Cusec of water for Stage-I. The water requirement for Stage-I is 39 Cusec and Surplus water available is 5 Cusec. For meeting the requirement of Stage-II, an additional water allocation of 25 Cusec shall be obtained from GoUP from Ganga River. The make-up water requirement for this project would be about 3000 m^3/Hr., (30 Cusecs) with ACC bottom ash as lean slurry and fly ash as HCSD system for ash handling. The water requirement has already been optimized with maximum recirculation & reuse of water and concept of Zero Liquid Discharge (ZLD). This is much lesser than the water requirement stipulated by MoEF&CC vide notification dated 07.12.2015 (as amended on 28.06.2018) Detailed water balance is given in Figure – 2.1 of Chapter – 2 of the EIA report.
3.5	Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.	No Water body/Nallah is passing through the project site. No diversion of water body is envisaged.
3.6	It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be	As it is an existing project and the proposed Stage – II is limited to the existing plant boundary. The nearest distance of the plant boundary from Tons river is about 950 m. Irrigation and Water Resources Department,

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	located 500 m away from railway track and National Highways.	Govt of UP, regarding HFL level of River Tons dt.10.01.2025 is attached as **Annexure-26.**
3.7	Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted	Detailed hydrogeological study of the project site and surrounding 10 km study was conducted by National Institute of Hydrology (NIH), Roorkee, Uttarakhand. Detailed report is attached as **Annexure-17.** Details provided in Section 3.3.3, Chapter 3 of EIA report.
3.8	Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.	The impacts of the water drawl on the aquatic ecology is provided in Section 4.5.11 of Chapter-4. The proposed project is conceptualised on Zero Liquid Discharge (ZLD). Hence no effluents discharge into natural drainage system is envisaged. All effluents will be treated to confirm to the effluent standards and recycled for in-plant use and ash handling. Hence no major impact on natural water bodies is anticipated. Adequate mitigation measures have been proposed for protection of aquatic fauna at Section 4.5.11.2 mitigation measures.
3.9	Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.	Water requirement for existing Stage-I is about 39 Cusec and is presently being drawn from Ganga River. Govt. of UP (GoUP) has allocated 44 Cusec of water for Stage-I. The water requirement for Stage-I is 39 Cusec and Surplus water available is 5 Cusec. For meeting the requirement of Stage-II, an additional water allocation of 25 Cusec shall be obtained from GoUP from Ganga River. Details of water requirement is mentioned in Section 2.4.5 of Chapter 2 of EIA report. Impact on water resource is given in Section 4.4.7 and 4.5.4 of Chapter – 4.
3.10	Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished. In addition, wherever ground water is drawn, PP shall	No ground water shall be used for the project during operation phase. However a comprehensive study of potential assessment of rainwater harvesting in MUNPL plant and township is provided in Section 10.14, Chapter 10 of EIA report

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	submit detailed plan of Water charging activity to be undertaken.	
3.11	Feasibility of near zero discharge concept shall be critically examined and its details submitted.	Zero Liquid Discharge (ZLD) concept has been adopted. The details submitted in Section 4.5.6, Chapter 4 of EIA report.
3.12	Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.	For proposed expansion project (Stage-II) Air Cooled Condenser (ACC) has been proposed to optimize the water requirement. Cycle of Concentration in the Aux. Cooling Water (ACW) System shall be 5. AWRS is in operation for Stage-I and AWRS shall be provided for Stage-II. Details of water conservation and pollution control measures are given in Section 2.5 and 2.14.2 in Chapter-2
3.13	Plan for recirculation of ash pond water and its implementation shall be submitted.	Provided in section 2.10.1 of Chapter 2 of EIA report.
3.14	Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.	Detail of methodology and identification of monitoring points of surface / ground water sampling is provided in Section 3.8, Chapter 3 of EIA report. Long term monitoring plan for ground water, surface water, air and noise environment is provided in Section 6.2.3 of Chapter 6 of EIA report.
3.15	Hazards Characterization: Past incidents of hazard events within 10km radius of project area with detailed analysis of causes and probability of reoccurrence	No industry is present within the 10 km radius of the project. Hence, no such events recorded in last 10 years. There has been no hazard event at Meja TPP since its inception.
4.0 Environment Baseline Study and Mitigation Measures		
4.1	One complete season (critical season) site specific meteorological and AAQ data (except monsoon season) as per latest MoEF&CC Notification shall be collected along	The details of Ambient Air quality monitoring is provided in Section 3.6.4 (Table 3.9) of Chapter-3.

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	with past three year's meteorological data for that particular season for wins speed analysis and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM10, PM2.5, SO2, NOx, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration the upwind direction, pre-dominant downwind direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre - dominant downwind direction at a location where maximum ground level concentration is likely to occur.	
4.2	In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).	Three-month AAQ data incorporated in Section 3.6, Chapter 3 of EIA report. Air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated is incorporated at **Annexure-9** in EIA report.
4.3	A list of industries existing and proposed in the study area shall be furnished.	No other industry is present or proposed within the 10 km radius of the project.
4.4	Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modelling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on	The emissions from point sources at TPS are very important for impact assessment as these sources are comparatively large, continuous in nature and are released at higher elevations above ground level. The cumulative impact due to proposed expansion (Point source) is likely to have significant impact on air quality of the study area and has been carried out through air modelling. Details are provided in Section 4.5.2 at Chapter 4

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	the location map. The cumulative study should also include impacts on water, soil and socioeconomics.	
4.5	Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.	Sample for coal analysis has been collected and Test report are attached as **Annexure-5.**
4.6	Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.	Properties of Coal is provided in Section 2.4.2, Chapter 2 of EIA report. Light Diesel Oil (LDO) shall be used for initial start-up, low load operation and as secondary fuel for pulverized coal flame stabilization at the startups/ low load operations. LDO Tank of 2000 KL is envisaged, Dyke for LDO storage tank shall be provided. Details are enclosed in Section 2.4.4 of Chapter 2 of the EIA report. Analysis report is given as **Annexure-5.**
4.7	Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted.	Approx. 9.94 MTPA coal with 85% PLF considering GCV of 3900 Kcal/Kg shall be required for the proposed project. Coal linkage source is allocated from BCCL for Meja STPP Stage-II vide CIL letter dated 20.06.2024. Copy of the Coal linkage is attached as **Annexure-16.** The details are given in Section 2.4.2 at Chapter-2 The MoEF&CC notification dated 02.01.2014 has been superseded with notification dated 20.05.2020 and the provisions of the latest notification shall be complied.
4.8	Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.	Entire coal shall be transported through rail. The railway siding network of the plant is connected to Indian Railway line at Meja Road Station and Unchadih Station. Which is also connected to Dedicated Freight Corridor (DFC). Entire coal is transported by rails. The details are mentioned in Section 2.4.3 of Chapter 2. Baseline Traffic study provided in Section 3.13, Chapter 3 and impact of the road transportation and mitigation measures is provided in Section 4.5.10, Chapter 4 of EIA report. It is proposed to transport LDO (auxiliary fuel) to the power plant by road tankers.

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S. No	Terms of Reference	Compliance
4.9	For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.	The existing as well as proposed units are based on domestic coal. MUNPL does not proposed to use imported coal except for blending. The existing unit is already complying with the provision of notification dated 20.05.2020 by transporting entire coal by rail route.
4.10	Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.	The workers will be housed in a temporary labour colony, which may be located near the project site and proper drainage network will be provided to avoid water logging and outflow. All basic amenities to the construction workers shall be provided at the site. Details provided in Section 2.5.13, Chapter 2 of EIA report.
5.0 Environmental Management Plan		
5.1	EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.	Chapter – 10 of the Final EIA report is based on Environmental Management Plan. Cost Provision for Environmental Measures are given in Section 10.16 of Chapter 10.
5.2	A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be prepared. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Provision for mock drills shall be suitably incorporated to check the efficiency of the plans drawn.	Provided in Chapter 7 of Final EIA report.
5.3	The DMP so formulated shall include measures against likely	Provided in Chapter 7 of Final EIA report.

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S. No	Terms of Reference	Compliance
	Fires/Tsunami/ Cyclones/ Storm Surges/ Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.	
5.4	Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash along with monitoring mechanism.	Detail fly ash utilization plan provided in Section 2.11 Chapter 2 of EIA report.
6.0 Greenbelt Development Plan		
6.1	Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary not less than 2000 tree per ha with survival rate of more than 85% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO2 and other gaseous pollutants and hence a stratified green belt should be developed.	Meja Urja Nigam Private Limited has developed 163 Ha land under greenbelt in existing plant. Till date MUNPL has planted about 368160 numbers of tree, in which 30,000 nos. of trees has been developed through adopting Miyawaki Technique. For the proposed project, additional green belt shall be developed in 318 Ha inside MUNPL. Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land of 1405 Ha. Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary. Thus, the total greenbelt to be developed by MUNPL will be more than 40%. A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided in Section 10.10.2 of Chapter 10 of EIA report. A Comprehensive Action Plan along with details of the carbon to be sequestrated with existing and proposed

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S. No	Terms of Reference	Compliance
		greenbelt is provided in Section 10.10 of Chapter 10 of EIA report.
6.2	Over and above the green belt, as carbon sink, plan for additional plantation shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months.	For the proposed project, additional green belt shall be developed in 318 Ha inside MUNPL. Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land. Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary. Thus, the total greenbelt to be developed by MUNPL will be more than 40%. A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided in Section 10.10.2 of Chapter 10 of EIA report. The proposed greenbelt development action plan from DFO-Prayagraj is attached as **Annexure-23.** Action plan for greenbelt development is provided in Section 10.10 of Chapter 10 of EIA report.
7.0 Socio-economic Activities		
7.1	Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.	Socio-economic study of 10 km radius of study area was done by performing field surveys through questionnaire filling and public consultations were undertaken during the baseline field study period. Socio-economic details based on primary survey & secondary data and discussions are provided in Section 3.12 of Chapter-3
7.2	Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.	CSR plan provided in Section 10.8.1, Chapter 10 of EIA report
7.3	If the area has tribal population, it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.	No forest land is acquired for the proposed project, no tribal population is affected. There is only 0.24% tribal population reported in the study area. MUNPL is already doing the welfare programs for tribal population under CSR program, provided in Section 10.8 Chapter 10 of EIA report.

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S. No	Terms of Reference	Compliance
7.4	A detailed CER plan along with activities wise break up of financial commitment shall be prepared in terms of the provisions OM No. 22-65/2017-IA.III dated 30.09.2020.CER component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified.	MUNPL has earmarked a budget of Rs. 40.1 Crore for undertaking CER/CSR activities based on need-based analysis. This budget is for upcoming 5 years. This money will be spent for different CER/CSR activities like agro based livelihood, women empowerment, health and community welfare in surrounding villages. The details are mentioned in Section 10.8 of Chapter 10 of EIA report
7.5	While formulating CER schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and detail the same with any Govt. scheme(s). CER details done in the past should be clearly spelt out in case of expansion projects.	Social audit of MUNPL has been conducted time to time by repeated institute. Copy of the same enclosed as **Annexure-11** Recommendations are incorporated in the CER/CD budget. MUNPL has proposed a fund of Rs. 40.1 Cr for development programmes under CER-CD. Details of the CSR plan provided in section 10.8 Chapter 10 of EIA report
7.6	R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.	For Stage-II, the acquisition of an additional 110 Ha comprising of Ash Dyke (89 Ha), greenbelt and other (21 Ha) is currently under process. The land acquisition for ash dyke is in advanced stage. As on date, there are approx. 50 families residing on the proposed land for Ash dyke. A provision of Rs. 26.24 Cr. has been made as a R&R Plan for these families. The detailed R&R plan shall be made after the consultation with the Dist. Authority and as per the R&R Policy of the UP Govt.
7.7	Assessment of occupational health and endemic diseases of	The proposed plant consists of dedicated Hospital having all First aid and OHC Facilities to plant workmen

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S. No	Terms of Reference	Compliance
	environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.	as well as neighbouring Villages. No endemic diseases reported from the study area. The details of endemic diseases mentioned at Section 7.15.14 and Occupational Health Management are mentioned in Section 10.11 of Chapter 10.
7.8	Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in nonconductive environment shall be carried out and precautionary measures like use of personal equipment's etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.	The proposed plant consists of dedicated Hospital having all First aid and OHC Facilities to plant workmen as well as neighbouring Villages. The details of Health Management are mentioned in Section 7.15 of Chapter 7.
8.0 Corporate Environment Policy		
8.1	Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.	Yes, MUNPL/NTPC Environment Policy provided in Section 10.5.2, Chapter 10 of EIA report. The intent of this policy is to meet the environment expectation and to provide actionable guidance, as MUNPL strives to foster a culture of excellence and challenges itself for continual improvement.
8.2	Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.	Yes. Well defined SOP's are in place as part of Environment Policy. Standard operating process Provided in Section 10.5 Chapter 10 of EIA report.
8.3	What is the hierarchical system or Administrative order of the company to deal with the	The hierarchical structure of Environment Monitoring Cell of the company is shown in figure 10.4 of Chapter-10.

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S. No	Terms of Reference	Compliance
	environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.	Environment Management Group (EMG) at site will ensure the comply of environment clearances conditions of the proposed project.
8.4	Does the company has compliance management system in place wherein compliance status along with compliances / violations of environmental norms are reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.	Company has a well laid institutional framework for addressing the Environment Risk as well as non compliances / violations of environment norms if any.
9.0 Miscellaneous		
9.1	All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.	Shall be complied
9.2	Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.	Details of litigation pending are enclosed as **Annexure-8**
9.3	In case any dismantling of old plants are envisaged, the planned land use & land reclamation of dismantled area to be furnished.	Not Applicable

1.9. Project Schedule For Approval and Implementation

For Stage-II (3x800 MW) the commercial operation date (COD) of first unit of the project is proposed to be completed in 60 months from the date of award. Subsequent units shall be commissioned at intervals of 09 months each.

1.10. Legislation, Policy and Guidelines

The proposed project falls under Category A of EIA Notification 2006 and schedule Item No. 1(d). The acts, rules, and guidelines applicable for the proposed projects as per Legislation of Government of India are listed in **Table 1.15** below.

Table 1.15 : Summary of Environmental Legislation, policy, and guidelines as applicable on the project

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Legislation	Areas / Activities Covered	Applicability
Environment (Protection) Act, 1986 with Rules.	• Overall Environment Protection • Compliance to environmental (Air, Water, Noise) Standards issued under EPR	Applicable.
EIA Notification, 2006 and amendments	• Prepare EIA / EMP report • Obtain Environmental Clearance from MOEF&CC.	Applicable as Category A project
Air (Prevention and Control of Pollution) Act, 1981 with Rules.	• Protection of Air Quality • Consent to Establish (NOC) for establishing and Consent to Operate (CTO) for activities causing air pollution from SPCB	Applicable, involves emissions of flue gases
Water (Prevention and Control of Pollution) Act, 1974 with Rules.	• Protection of Water Quality • Discharge of sewage and effluent • Obtaining Consent to Establish for establishing and Consent to Operate for activities causing water pollution from SPCB and for the discharge of effluents	Applicable
Solid Waste Management Rules, 2016 and amendments thereof	• Collection, segregation, storage, transportation, processing and disposal of municipal solid.	Applicable
Noise Pollution (Regulation and Control) Rules, 2000 and amendemnts thereof	• Compliance with Ambient Noise and emission Standards in accordance to use classification for the area	Applicable
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and amendments thereof.	• Obtaining Authorization from SPCB for handling and storing of hazardous waste like waste oil and lubricants • Following guidelines for handling and storing of such hazardous waste • Management (Collection, Handling, Intermediate Storage) of Ash	Applicable
Wildlife Protection Act, MoEF&CC 1972, amended 2010	• Lays down rules and regulations pertaining to Wildlife Sanctuaries and National Parks. • Obtain NBWL Clearance if site is within 10 km radius or within	Not applicable

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Legislation	Areas / Activities Covered	Applicability
	ecosensetive zone of WLS/NP/ Protected Areas	
Forest Conservation Act (FCA 1980)	• Lays down rules and regulations pertaining to Forest land • Obtain Forest clearance if Forest land involved	Not applicable
Motor Vehicles Act with Rules, 1989 as amended	• Lay down restriction for vehicles not having Pollution Under Control Certificate (PUCC) or proper labelling to enter premises	Applicable
E-Waste Management Rules, 2016	• Procedure of collection, storage and transportation of E-waste	Applicable
Plastic Waste Management Rules, 2016	• Procedure of segregation, collection, storage, transportation, processing and disposal of plastic waste	Applicable
Construction & Demolition Waste Management Rules, 2016	• Procedure of collection, segregation of concrete, soil and others • Procedure of storage of construction and demolition waste generated	Applicable
Public Liability Insurance Act, 1991	• Taking a insurance policy to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto	Applicable
Ash Utilisation Notification, 2021 and their amendments	• Procedure for management and 100% ash utilization as per notification	Applicable

1.11. Statutory clearance

The list of environmental clearances of existing MUNPL thermal power plant is given in Table 1.16

Table 1.16 : List of Environmental Clearances

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S. No	Statutory Clearances	Issuing Authority	Letter No	Date of Issue	Remarks
1	2x660 MW Meja Thermal Power plan Stage-I, **Environmental Clearance**	MoEF&CC	J.13012/03/2008-IA.II (T)	10.01.2011	**Annexure -12**
2	2x660 MW Meja Thermal Power plan Stage-I, **Amendment in Environmental Clearance**	MoEF&CC	J.13012/03/2008-IA.II (T)	21.07.2017	
3	2x660 MW Meja Thermal Power plan Stage-I, Extension of validity of **Environmental Clearance**	MoEF&CC	J.13012/03/2008-IA.II (T)	08.01.2018	
4	2x660 MW Meja Thermal Power plan Stage-I, temporary permission for transportation of coal by road and Extension of validity of **Environmental Clearance**	MoEF&CC	J.13012/03/2008-IA.II (T)	28.03.2019	
5	2x660 MW Meja Thermal Power plan Stage-I, Extension of validity and amendment in **Environmental Clearance**	MoEF&CC	J.13012/03/2008-IA.II (T)	08.08.2019	
6	2x660 MW Meja Thermal Power plan Stage-I, Extension of validity of **Environmental Clearance**	MoEF&CC	J.13012/03/2008-IA.II (T)	25.09.2020	
7	**Consent to Establishment** (CTE-NOC) for Stage-I	UPPCB	F92464/C-9/NOC-15/ii dated 19.09.2011	19.09.2011	**Annexure-13**
8	**Consent to Operate (CTO)** under Air and water Act	UPPCB	168397/UPPCB/Allahabad (UPPCBRO) /CTO/both/Prayagraj/2022	16.12.2022 and valid upto 31.12.2024	**Annexure -14**
9	**Hazardous Waste Authorization**	UPPCB	10138/UPPCB/Allahabad (UPPCBRO)/ HWM/ALLAHABAD/2019	26.04.2020 and valid upto 25.04.2025	**Annexure-15**

1.12. Need of the Study

The need for conducting an Environment Impact Assessment arises because the development of such project is likely to have impact on the environment and social aspect of the area. The environment impact assessment study has been conducted to seek environmental clearance under Category 1(d) as per the EIA Notification, 2006 for the proposed project in accordance to the standard Terms of Reference of MoEF&CC and the additional ToR issued by MoEF&CC.

1.13. Scope of the Study

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The CEIA report has been prepared based on the ToR accorded by MoEF&CC vide letter J-13012/03/2008- IA.II (T) dated 14.12.2023. The scope of this study broadly includes:

- Reviewing existing literature and gathering relevant data related to the study area.
- Collecting field samples of environmental attributes from various representative locations to establish baseline environmental conditions.
- Gather and organize secondary data, including socio-economic information from published literature and government reports.
- Assess and identify different pollution loads resulting from various activities.

- Assessing the anticipated effects on various environmental attributes in the study area using scientifically established and widely recognized Environmental Impact Assessment (EIA) methodologies.
- Developing an Environment Management Plan (EMP) that outlines strategies for enhancing environmental quality in relation to future projects aimed at sustainable development.
- Identifying key environmental attributes that need to be monitored after the project's completion.

1.14. Structure of The Report

The EIA report contains project features, baseline environmental setup, assessment of environmental impacts, and formulation of mitigation measures, environmental management, and monitoring plan with risk & disaster management plan. EIA report contains the following chapters.

Chapter 1: Introduction

This chapter provides background information on the need of project, need of EIA study and brief of the project. The scope and EIA methodology adopted in preparation of EIA report have also been described in this chapter. It also covers the identification of project & project proponent, brief description of nature, size, location of the project and its importance to the country and the region. Scope of the study details about the regulatory scoping carried out as per the generic structure given in the EIA notification, 2006.

Chapter 2: Project Description

This chapter deals with the details of the project including particulars of upcoming type of industries, size and magnitude of construction, estimated industrial workforce, water requirement and source, sewage generation and its management, solid waste generation and disposal, hazardous waste and its disposal, parking requirements, infrastructure facilities, power requirement, green belt development and emergency facilities, etc.

Chapter 3: Description of the Environment

This chapter presents the existing environmental status of the study area (10 km) around the proposed project including topography, drainage pattern, water environment, geological, climate, transport system, land use, flora & fauna, socio-economic aspects, basic amenities etc.

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Environmental assessment of the proposed project site regarding its capability to receive the proposed new development is also discussed in this chapter.

Chapter 4: Anticipated Environmental Impacts and Mitigation Measures

This chapter describes the overall impacts of the proposed project activities and underscores the areas of concern, which need mitigation measures during construction and operation phase. It predicts the overall impact of the proposed project on different components of the environment viz. Air, water, land, noise, biological, and socio-economic.

Chapter 5: Analysis of Alternatives

This chapter covers the details of various alternatives in respect of both location of site and technologies to be deployed relevant to the project.

Chapter 6: Environmental Monitoring Programme

This chapter covers the planned Environmental Monitoring Program during construction and operation phase. It includes the technical aspects of monitoring the effectiveness of mitigation measures.

Chapter 7: Additional Studies: Public consultation, Risk Assessment, Social impact assessment (R&R Action Plan)

This chapter details the proceeding of the public consultation carried out along with proposed action plan with timeframe and budgetary allocation and proposed CSR/CER, Detail of risk assessment study for the project and R&R action plan if applicable.

Chapter 8: Project Benefits

This chapter describes the benefits accruing to the locality, neighbourhood, region, and nation as a whole. It brings out details of benefits by way of improvement in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

Chapter 9: Environmental Cost Benefit Analysis:

Environmental cost-benefit analysis focuses on assessing the economic value of environmental impacts associated with projects or policies. This process involves identifying both the positive and negative effects on the environment, such as changes in biodiversity, pollution levels, and natural resource use. By quantifying these impacts, often using methods like contingent valuation or ecosystem service valuation, environmental CBA aims to provide a clear picture of how environmental costs and benefits compare.

Chapter 10: Environmental Management Plan

This chapter details the inferences drawn from the environmental impact assessment exercise. It provides mitigation and control measures for environmental management plan (EMP) for minimizing the negative environmental impacts and to strengthening the positive environmental impacts of the proposed project. Technical aspects of monitoring the effectiveness of mitigation measures have been given in this chapter.

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This chapter provides mitigation and control measures for environmental management plan (EMP) for minimizing the negative environmental impacts and strengthening the positive environmental impacts of the proposed project.

Chapter 11: Summary and Conclusion

This chapter provides the summary and conclusions of the EIA study of the proposed project with overall justification for implementation of the project and also explanation of how, adverse effects will be mitigated.

Chapter 12: Disclosure of Consultants Engaged

This chapter provides the disclosure of consultants engaged to carry out the EIA study along with other additional studies.

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Chapter 2. PROJECT DESCRIPTION

This chapter deals with the project details of the existing & proposed TPP, project location, size & magnitude of operation including associated activities required by and for the project, proposed schedule for approval and implementation, including technical details of raw material, quality, and quantity etc.

2.1. General

Presently, MUNPL (Meja Urja Nigam Private Limited) has constructed a Thermal Power Plant near Villages-Kohdar, Mai Khurd and Patai Dandi, Tehsil: Meja, Prayagraj, Uttar Pradesh. Installed capacity of this plant is 1320 MW with both units (2X660 MW) under commercial operation since 30.04.2019 and 31.01.2021 respectively. Prior Environmental Clearance was accorded by MoEF&CC vide F.No. J-13012/03/2008-IA. II (T) dated 10th Jan 2011 and CTO granted by UPPCB vide CTO no. 224743/ UPPCB/ Allahabad (UPPCBRO) /CTO/ both/ Prayagraj/2024 dated 31.12.2024 and is valid up to 31.12.2026.

MUNPL (Meja Urja Nigam Private Limited) is planning to install 3 units of X 800 MW in line with MoM with Ministry of Power and CEA held on 09.12.2022.

Table 2.1 : Details of Production Capacity

S. No	Product	Quantity
1.	Electricity/Power	Operational Stage-I: 2 x 660 MW (based on supercritical technology) Proposed Stage-II: 3 x 800 MW (based on ultra supercritical technology)

2.2. Type of Project

Meja Stage-II (3x800MW) It's is an expansion project. The existing land available with MUNPL is 1295 Hactare. The proposed expansion shall be done within the existing plant boundary. For proposed expansion Stage-II However, about 110 Ha additional land is required, which comprises of Ash Dyke (89 Ha), greenbelt and other (21 Ha) needs to be acquired. The tentative cost of the project is Rs. 25,081.88 Crores. Meja Stage-II (3x800MW) shall be an Ultra Super Critical Units. In order to reduce the water consumption, Stage-II units shall be equipped with based on Air Cooled Condensers (ACC). The main components of the proposed plant include:

- Steam Generator and its Auxiliaries
- Steam Turbine and its Auxiliaries
- Electrical Systems: Generator Bus Duct, Transformers, Switchgears, Switch Yard etc.
- Control and Instrumentation Systems
- Air Pollution Control Systems like Dust Suppression and Extraction Systems, Electrostatic Precipitators, Flue Gas Desulphurisation System, NO_x Control System and Dust Suppression and Extraction System
- Water Intake and Treatment Systems
- Air Cooled Condensers

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- Fuel Oil Handling and Storage System
- Coal Handling and Storage System
- Ash Handling, Utilisation and Disposal System
- Site Drainage, Effluent Treatment and Sewage Treatment Systems with facilities for Recycle and Reuse.
- Green belt, Afforestation and Landscaping Systems.

2.3. Project size /Magnitude of Operation

The salient feature of the project is tabulated below in **Table 2.2** below.

Table 2.2 : Salient Features of the Project

S. No	Features	Description	
		Existing Stage-I (2X660MW)	Proposed Expansion Stage-II (3X800MW)
1	Capacity/Configuration	2x660 MW	3x800 MW
2	Technology	Super-Critical Technology	Ultra Super-Critical Technology
3	Construction Power	-	4 MW construction power for the Meja Stage II would be met from existing 2 No. power sources (Each having capacity to handle 4MW) installed for Meja Stage-I, from Purvanchal Vidyut Vitran Nigam Limited.
4	Source of Coal	NCL & CCL	BCCL. Coal allotment letter is attached as **Annexure-16**
5	Coal requirement	7.34 MTPA	9.94 MTPA
6	Mode of Transportation	Through Rail	Through Rail
7	Moisture (%)	13-14	13-14
8	Sulphur content	0.3 to 0.5 %	0.3 to 0.5 %
9	Average gross Calorific value (kCal/kg)	3000 (NCL) 3900 (CCL)	3900
10	Capacity of Installed Boiler	2120 TPH	2580 TPH
11	Ash Content in Coal	34-43%	40%
12	Total Ash Generation	2.79 MTPA	3.78 MTPA
13	Fly ash	2.232 MTPA	3.024 MTPA
14	Bottom ash	0.558 MTPA	0.756 MTPA
15	ESP efficiency	>99.90%	>99.90%
16	Stack height (Meters)	One twin flue chimney of 275 M height	One twin flue chimney of 220M height & one single flue chimney of 150M height.
17	Water requirement	Available: 44 Cusecs Requirement: 39 Cusec	Requirement: 30 Cusec Available: 5 Cusec from Stage-I

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S. No	Features	Description	
		Existing Stage-I (2X660MW)	Proposed Expansion Stage-II (3X800MW)
		Surplus: 5 Cusec	To be Arranged: 25 Cusec
18	Water source	River Ganga (29 Km, pipeline)	River Ganga (29 Km, pipeline)
19	Land requirement	1295 Ha	Main Plant within existing land. About 110 Ha additional land is required, which comprises of Ash Dyke (89 Ha), greenbelt and other (21 Ha).
20	Project cost	Rs.13,093 Crores	Rs.25,081.88 Crores

Source: MUNPL

2.4. Project Requirement

2.4.1. Land Requirement

The project site is located near Villages-Kohdar, Mai Khurd and Patai Dandi, Tehsil: Meja, Prayagraj, Uttar Pradesh. The latitude and longitude of the project site is presented in Figure 2.1. The total plot area of site is 1295 Ha, out of which 535 Ha land is government land, 760 Ha is private land. The land is already in possession of MUNPL. Proposed expansion shall be done with in the existing permises. For development of Ash Pond for the Stage-II about 110 Ha of additional land is required, which comprises of Ash Dyke (89 Ha), greenbelt and other (21 Ha). The land breakup of the project site is shown in **Table 2.3.** Greenbelt details provided in **Table 2.3.1.**

Table 2.3 : Land Breakup of The Project Site

Description	Existing Land Area		Proposed Additional Land requirement for Stage-II (Ha)	Remark
	Land area for Stage-I as per EC/EIA (Ha)	Land area for Stage-II already taken with Stage-I (Ha)		
Main Plant	144.2	183.8	0	
Ash Pond	262	Shared with Stage-I	89	Additional ash pond area reduced from 110 Ha to 89 Ha
Township	85	Shared with Stage-I	0	-
Railway Siding	171	Shared with Stage-I	0	-
Reservoir	75	Shared with Stage-I	0	-
Makeup water	5.22	Shared with Stage-I	0	-

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Description	Existing Land Area		Proposed Additional Land requirement for Stage-II (Ha)	Remark
	Land area for Stage-I as per EC/EIA (Ha)	Land area for Stage-II already taken with Stage-I (Ha)		
Existing Green belt (other area within Project Land)	87	0	0	Please see ***Footnote no. 1***
Proposed Greenbelt (other area within Project Land)	0	186.42	21	*Additional 21 Ha land proposed for green belt and other*
Miscellaneous	95.36	Shared with Stage-I	0	Please see ***Footnote no. 2***
Sub-Total (Ha)	924.78	370.22	110	-
Total (Ha): Existing and Proposed	1295		110	-
Grand Total (Ha)	**1405**			-
Footnote no. 1. *In addition to the 87 Ha of existing greenbelt as mentioned above, an additional 76 Ha. greenbelt has been already developed within main plant, township & railway siding area thus total greenbelt in existing plant is 163 Ha.*				
Footnote no. 2*. Includes public roads, vegetable market, parking, administrative building, undulating land, drains, dry fly ash silo, outside area, open areas etc.*				

Source: MUNPL

Table 2.3.1: Existing and proposed Greenbelt details within the MUNPL Premises

Sl. No.	Description (A)	Existing Greenbelt area in Ha (B)	Proposed Greenbelt area in Ha (C)
1	Plant area	10	21.15
2	Ash Pond area	0	14.41
3	Township area	22	5.05
4	Railway Siding area	44	76
5	Existing Green belt (other area within Project Land)	87	0
6	Proposed Greenbelt (other area within Project Land)	0	207.42 (186.42+21)
7	**Total (Sum of Sl. No. 1 to 6)**	**163**	**324**
Grand Total (B7+ C7)		**487 Ha**	

Total Project Land: 1405 Ha

Percentage of Green Belt area w.r.t. Total Project Land (487x100/1405) is 34.66%.

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2.4.2. Coal/Fuel Requirements

Main raw material required for power plant is Coal. Approx. 9.94 MTPA corresponding to 85% PLF considering GCV of 3900 Kcal/Kg shall be required for the project. Standing Linkage Committee (Long-Term) in its meeting held on 03.01.2024 have recommended for the grant of coal linkage to the project. Coal linkage source is allocated from BCCL for Meja STPP Stage-II vide CIL letter dated 20.06.2024. Copy is attached as **Annexure-16.** Coal storage of 15 days requirement of coal is proposed at the power plant. Properties of Coal are given below in **Table 2.4.**

Table 2.4 : Properties of Coal

S. No	Parameter	Range
1.	Total moisture content (%)	13-14
2.	Inherent moisture	5.3-6.3
3.	Volatile matter (as received) (%)	20-23
4.	Ash (as received) (%)	40
5.	Sulphur (%)	0.3 to 0.5
6.	Average gross Calorific value (kCal/kg)	3900 kcal/kg
7.	Heat rate (K Cal/ KWhr.)	2200

2.4.3. Coal Handling & Transportation system

The plant's railway siding network is linked to the Indian Railway network via Meja Road Station and Unchadih Station, and also connects with the Eastern Dedicated Freight Corridor (EDFC). Coal for Stage-I of the plant is currently being transported through the Indian Railways network, while coal transport for Stage-II is also planned to be transported by through Indian Railways. Coal from the mines will be transported to the power plant using BOBR or BOX-N wagons and will be unloaded into underground RCC hoppers. BOBR wagon rakes unloading will occur in Track Hopper Yard. BOX-N wagon rakes will be unloaded using wagon tipplers.

Coal Quality: Analyzing coal for radioactivity is crucial for effective coal management and utilization, given the potential health, safety, and environmental concerns associated with radioactive materials. Consequently, coal samples have been tested for radioactivity and metal content, with the results detailed in Table 2.5. Test report area attached as **Annexure-5**

Table 2.5 : Radioactive Properties of Coal

Parameter	Range of Values (Bq/Kg) Observed in	Clearance level as per AERB directive
	BCCI coal	
Ra-226	≤ 0.21 (MDL)	**1,000**
Ra-228	≤ 7.21 (MDL)	**1,000**
Uranium	≤ 0.24 (MDL)	**1,000**
Th-232	34.75	**1,000**
Pb-210	≤ 1.60 (MDL)	**1,000**
K-40	≤ 3.61 (MDL)	**10,000**
Cs-137	≤ 10.95 (MDL)	**1,000**

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Table 2.6 : Metal Contents in Coal

	Range of Values (mg/Kg) Observed in
	BCCL Coal
As	ND
Cd	ND
Co	5.0-7.8
Cr	56
Cu	15.8
Mn	114.3
Ni	52.3
Pb	ND
Zn	24
Hg	ND
Ba	123.4

2.4.4. Start–Up Fuel:

Light Diesel Oil (LDO) shall be used for initial start-up, low load operation and as secondary fuel for pulverized coal flame stabilization at the startups/ low load operations. The necessary oil supply scheme with pumps, filters and valves will be provided. The burners, air registers etc., will have independent pneumatic drives and the entire operation of purging, insertion, air, and fuel sequencing shall be automatic. Ignition of oil shall be directly by igniters. LDO system shall be sized for 30% BMCR capacity of the Steam Generator. Steam Generator will be so designed that oil firing for flame stabilization will not be required beyond 40% BMCR.

LDO shall be received at the power station in road tankers and unloaded at existing unloading rake/header by gravity. Existing LDO unloading cum transfer pumps located in existing unloading pump house shall be utilized for pumping to storage tanks in view of less fuel oil requirement in regular, augmentation if required shall be detailed out during FSC. The LDO shall be pumped to two (2) numbers of existing storage tanks each of capacity 2000 cubic meter. Additional LDO Tank of 2000 KL is envisaged, Dyke for LDO storage tank shall be provided. The LDO pressurizing pumps will pump the LDO to Boiler through piping.

Table 2.7 : Properties of LDO

S.No	Parameter	Specification	STD. Method	LDO Quality
1	Relative Density @ 15 °C, Kg / m3	Report	IS 1448(P: 32)	855
2	Flash Point (PMC), °C	66 Min.	IS 1448(P: 21)	74
3	Viscosity, Kinematic @ 40°C, cSt	2.5 to 15.7 Max.	IS 1448(P: 25)	5
4	Ramsbottom Carbon Residue (RCR), percent by mass	1.50 Max	IS 1448(P: 8)	1.3
5	Copper Strip Corrosion, 3 hrs at 100°C	Not Worse than No. 2	IS 1448(P: 15)	No.1
6	Water content % by Vol.	1.0 Max.	IS 1448(P: 40)	<0.05
7	Sediment % by Mass	0.10 Max.	IS 1448(P: 30)	0.04

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8	Ash % by Mass.	0.02 Max	IS 1448(P: 4)	0.01
9	Acidity, Inorganic, mg KOH/gm,	NIL	IS 1448(P: 2)	Nil
10	Sulphur, Total % by Mass	1.8 Max	IS 1448(P: 33) & P: 35	1.2
11	Pour Point, °C	21°C for Winter, Max 21°C for Summer, Max	IS 1448(P: 10)	Minus 3

2.4.5. Water requirement

Construction Phase*:* Approx. 400 KLD of water shall be required during the construction phase. Source of water requirement will be from the surplus water from the existing plant. However, ground water shall be used as contingent arrangement during construction phase of Stage-II.

Operational Phase:

Water requirement for existing Stage-I is about 3000 m^3/Hr (30 Cusec) and is presently being drawn from Ganga River. Govt. of UP (GoUP) has allocated 44 Cusec of water for Stage-I. The water requirement for Stage-I is 39 Cusec and Surplus water available is 5 Cusec. For meeting the requirement of Stage-II, an additional water allocation of 25 Cusec shall be obtained from GoUP from Ganga River.

The make-up water requirement for this project would be about 3000 m^3/Hr., (30 Cusecs) with bottom ash as lean slurry and fly ash as HCSD system for ash handling. Air Cooled Condensers (ACC) is envisaged for Stage-II (3x800 MW) units. The consumptive water requirement for Stage-II includes make up water, evaporation losses and effluent. Existing water pipeline infrastructure shall be used. The makeup water required at various locations involving the process of the power generation, other losses like evaporation and effluent generation are given in the following **Table 2.8**. Water balance diagram provided in **Figure 2.1.**

Table 2.8 : Water Requirement for Stage II (3 X 800 MW)

Plant Water Usage/Loss	Water Requirement (m^3/ hr)
Auxiliary Cooling Towers	320
Ventilation System makeup water	150
Potable Water system	50
Ash handling	1115
Loss in Power Cycle	65
FGD	655
Service water system	455
DM Clarifier	190
Total	**3000**

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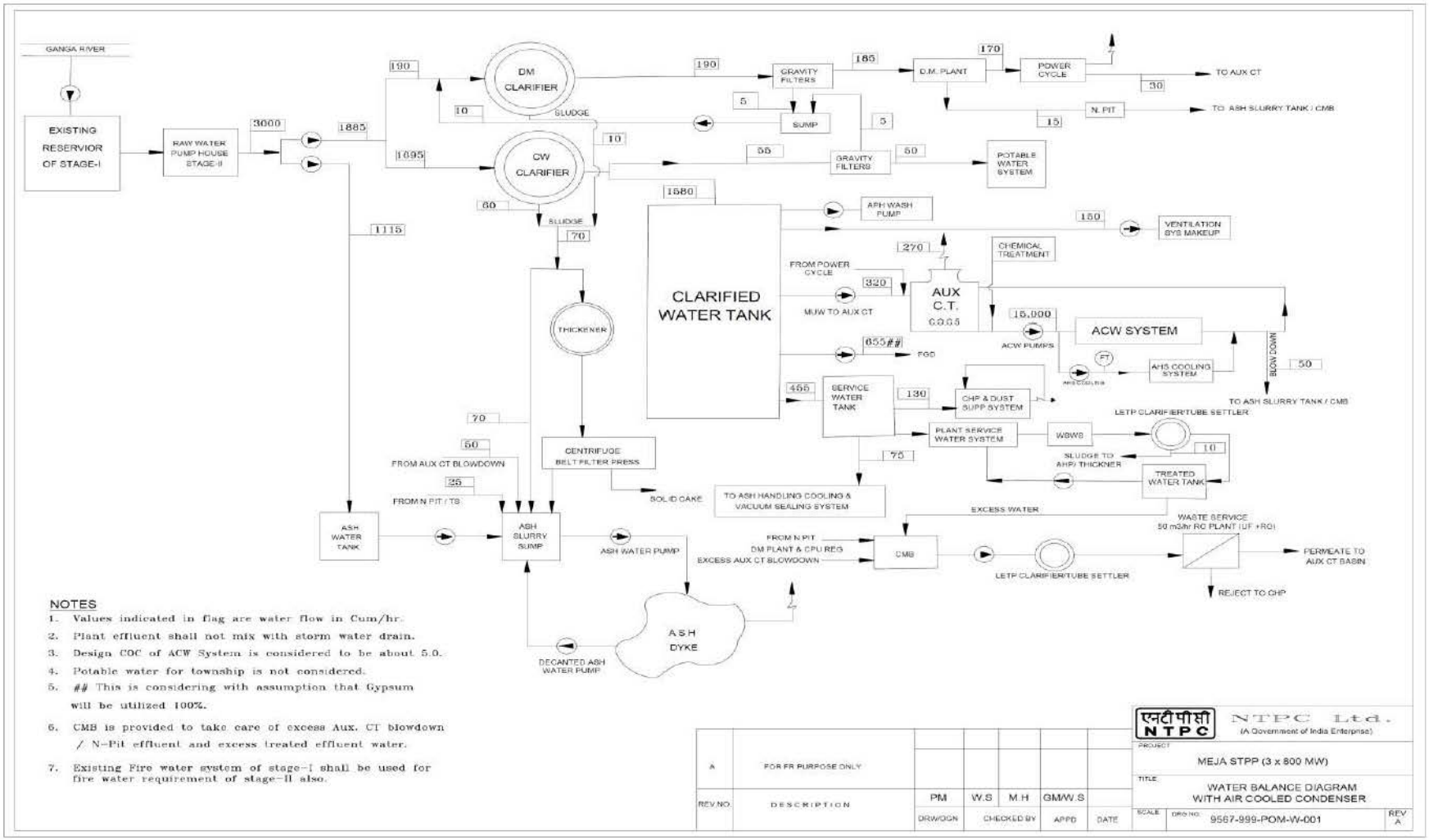


Figure 2.1 : Water Balance Diagram

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2.4.6. Manpower requirement

The proposed expansion power plant will require skilled, semi-skilled and unskilled personnel during construction and operational phase. Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase. The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases.

Details of the employment generation from the proposed project is given in Table 2.9 below:

Table 2.9 Employment generation

S. No	Phase	Existing		Proposed	
		Permanent	Temporary	Permanent	Temporary (no of peak labour)
1	Construction	--	--	60	4986
2	Operation	229	1603	210	5040

2.5. Technology & process Description

In a thermal power plant, the chemical energy of the fuel (coal) is first converted into thermal energy (during combustion), which is then converted into mechanical energy (through a turbine) and finally into electrical energy (through a generator). The schematic diagram of the process of power generation from a coal based thermal power plant is shown in **Figure-2.2.** Lay out plan of the project is given in **Figure 2.3**. The process has the following steps:

1. The coal is transferred from the coal handling plant by conveyor belt to the coal bunkers, from where it is fed to the pulverizing mills, which grind it to fine powder. The finely powdered coal, mixed with air is then blown into the boiler by a fan where it burns like a gas.
2. **The process of combustion releases thermal energy from coal**. The boiler walls are lined with boiler tubes containing high quality demineralized water (known as boiler feed water). The combustion heat is absorbed by the boiler tubes and the heat converts the boiler feed water into steam at high pressure and temperature. The steam, discharged through nozzles on the turbine blades, makes the turbine to rotate, which in turn rotates the generator coupled to the end of the turbine. Rotation of generator produces electricity, which is passed to the step-up transformer to increase its voltage so that it can be transmitted efficiently. The power is evacuated via switchyard through a Transmission System.
3. During combustion, the non-combustible part of coal is converted into ash. A small part of ash (about 20%) binds together to form lumps, which fall into the ash pits at the bottom of the furnace. This part of ash, known as bottom ash is water quenched ground and then conveyed to pits for subsequent disposal to ash disposal area or sale.
4. Major part of the ash (about 80%) is in fine powder form, known as fly ash, and is carried out of the boiler along with the flue gas. The flue gas, after heat recovery, is passed

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through the electrostatic precipitators, where the ash is trapped by electrodes charged with high voltage electricity.

5. The flue gases exiting from the Electrostatic Precipitators (ESPs) are discharged through a tall chimney for wider dispersal of remaining ash particles and gases. The ash collected in the ESP hoppers is extracted in dry form and conveyed to dry ash storage silos from where it is supplied to user industries. Unused part of fly ash shall be taken to ash ponds for disposal.
6. Then the flue gases shall be passed through the Flue Gas Desulphurization system (FGD) where lime will be fed in to the system to quench the sulphur dioxide and gypsum is precipitated.
7. The steam, after passing through the turbines, is condensed back into water in condensers and the same is re-used as a boiler feed water for making steam. The reasons for condensing and reusing the steam are following:

- The cost of boiler feed water is very high as it is very pure demineralized water hence reuse is economical.
- The use of condenser lowers the temperature at the exit end and hence increases the efficiency of the turbine.
- As a part water conservation measure Air Cooled Condensers (ACC) have been envisaged which will reduce the water requirement from 7,200 m^3/hr (in case of Water Cooled Condenser) to 3,000 m^3/hr (ACC).
- The Cycle of Concentration in the Aux. Cooling Water (ACW) System to conserve clarified water consumption shall be minimum 5.
- In Air Cooled Condensers (ACC) wherein the finned cooling tubes shall be arranged in the form of an inclined roof. Circulating air fans shall be installed below the roof for forced air circulation. The combination of roof and one fan forms one module. The whole condenser shall consist of several modules based on required surface area.

2.5.1. Steam Generators and Auxiliaries

The Steam Generators (SG) shall be ultra-supercritical once through type, water tube, direct pulverised coal fired, top supported balanced draft furnace, single reheat, radiant, dry bottom type, suitable for outdoor installation. The gas path arrangement shall be single pass (tower type) or two pass type having 281 Kg/cm^2 (abs) pressure at super heater outlet and SH/RH outlet temperature of 603 to 613°C. It is envisaged to co-fire biomass along with coal in the steam generator as per regulation of Ministry of Power.

The Steam generator and its auxiliaries shall be designed for firing of Indian Coal, identified for the project and also capable of firing imported coal (blended with domestic coal upto 30%).

The parameter envisaged for each unit at 100% BMCR is as given hereunder.

S. No	Parameters	Values
1	Steaming Capacity (Main steam flow at Superheater Outlet)	2580 TPH at BMCR
2	Steam Pressure at Superheater Outlet	281 Kg/cm^2 (a)
3	Steam Temperature at Superheater Outlet	603 deg C

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S. No	Parameters	Values
4	Steam flow to re-heater (CRH)	1995 TPH
5	Steam Temperature at Reheater Outlet	603-613 deg C
6	Feed water temperature at Economizer Inlet	307.6 deg C

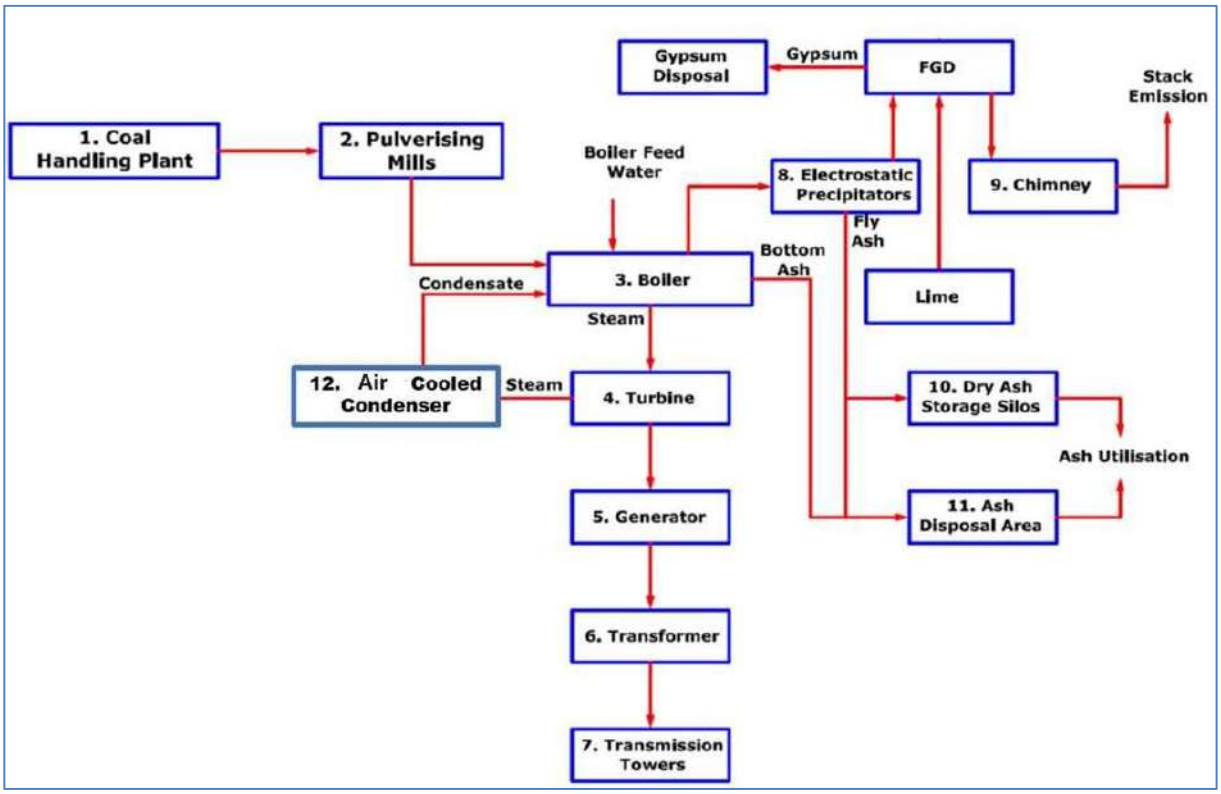


Figure 2.2 : Process Flow Diagram

2.5.2. Condensing Equipment

Two pass surface condenser capable of maintaining the required vacuum while condensing steam at the maximum rating of the turbine will be provided. The condenser arrangement will be such that on-load maintenance of one half of the condenser at a time is possible by isolating the same from cooling water inlet and outlet sides. The condenser will be of two pass divided water box design with horizontal straight tubes. The condensers will have integrated air cooling zone and it should be designed so as to accept full quantity of steam during turbine HP and LP bypass operation without any undue vibration, thermal stress etc. The condenser axis will be at a right angle to the turbo-generator axis. The condenser would also be provided with on-line tube cleaning system.

The condensate temperature under any circumstances will not be less than the saturation temperature corresponding to condenser backpressure. The maximum heat load of the condenser will correspond to turbine operating with valves wide open condition at 105% TMCR, 3% make-up, 85% cleanliness factor and maximum cooling water inlet temperature of 36°C for maintaining an absolute pressure of 0.109 bar(a). The condenser will be sized so as to

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meet 8°C temperature rise in the cooling water. The design will satisfy the requirements of Heat Exchanger Institute (HEI) Standards. Hot well storage capacity of five (5) minutes will be considered between the operating levels. The condenser will be designed to maintain MCR load with 10% tube plugging.

Two (2) nos. x 100% capacity vacuum pumps will be provided to maintain the vacuum in the condenser by expelling the non-condensable gases. One vacuum pump will operate during normal plant operation and during start-up, both the units may be operated such that the desired vacuum can be achieved within a short time. The capacity of these vacuum pumps will be as per HEI standards.

2.5.3. Boiler Feed Pumps & Drives

Three (3) nos. x 50%, horizontal, multistage, centrifugal type boiler feed pumps will be provided. The pumps will be sized considering a feed flow of 110% of MCR feed flow, spray water quantity and other system requirements. Two of the boiler feed pumps will be normally in operation and the third boiler feed pump would act as standby. Each boiler feed pump will have one (1) matching capacity single stage booster pump. The booster pump will take suction from feed water storage tank and discharge into the suction of corresponding main boiler feed pump which in turn, will supply feed water to boiler through the high-pressure heaters and feed control station. A design margin of 5% in the capacity and head will be provided over and above the following requirement.

a) Boiler MCR Steam flow
b) 3% makeup
c) Emergency reheater spray
d) Spray water requirement of HP bypass system.
e) Leakage through recirculation valves of BFP
f) Unit capability in case the condenser cooling water temperature at corresponding to worst ambient conditions.

All the feed pumps will be provided with minimum flow automatic recirculation control arrangement to protect the pump under low load operation. The recirculation will be discharged back to the deaerator. Each pump will be provided with mechanical seals with proper seal cooling arrangement, self-contained forced lubricating oil system for supplying oil to the bearings, couplings etc. The lubricating oil and sealing arrangement of the feed pumps will be cooled by closed cooling water system utilizing DM water as cooling medium. All necessary protective and supervisory system will be provided to ensure safe and trouble-free operation of the feed pumps.

2.5.4. Deaerating Heaters & Closed Heaters

The unit will be provided with a variable pressure type deaerating heater with a feed water storage tank of 10 minutes capacity of boiler MCR condition. The deaerator will be designed for working pressure from full vacuum to maximum pressure available at extraction steam to deaerator. Vent condenser will be provided with the deaerator to minimize wastage of steam. The deaerator will be of spray-cum-tray type with a separate horizontal storage tank for feed water storage and will be capable of deaerating all the incoming condensate from LP feed water

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heaters and drains from HP feed water heaters to provide boiler feed to match the boiler MCR requirements continuously. The deaerator will be designed to keep the oxygen content of the condensate below 0.005 cc\litre with zero free carbon dioxide.

Deaerator will normally operate by taking extraction steam from IP turbine casing. However, during low load operation and start-up, the deaerator will be pegged with steam drawn from auxiliary header. The deaerator will be placed at a suitable elevation to provide sufficient NPSH for the boiler feed booster pumps and considering the head available for the drain of the preceding HP heater condensate flow to the deaerator.

The feed water heaters will be of closed U-tube horizontal type. The feed water heaters will have both desuperheating and drain cooling zones in addition to the normal condensing zone as necessary. High pressure heaters and low pressure heaters will be provided with bypassing arrangement in order to allow isolation for maintenance. The recommendations of ASME standard TDPS-I will be followed for prevention of water ingress into the turbine by providing adequately sized draining facility.

2.5.5. Compressed Air

The compressed air system will provide supply of compressed air having suitable pressure and quality for instrument & control purpose use (Instrument Air) and for General Station use (Plant Air). The system includes the filter, silencer at the compressor inlet, the compressors, intercoolers, after coolers, moisture separators, Common air receivers, air drying plant, instrument air receiver, instrument air piping, plant air piping, valves, fittings, instrumentation and controls as required for the system. Details of the compressor system is given in **Table 2.10.**

Table 2.10 : Details of Air compressors

S. No	Component ACS	Quantity	Unit	Technical parameter
1	Air compressors with control panels, instrumentation & all accessories like piping, valves, etc.	9	No.	Screw/Centrifugal type oil free compressors each of capacity 60 NM^3/min & discharge Pressure of 8 $kg/cm^2(g)$
2	ADP with panels, instrumentation, all accessories like piping, valves & electronic dew point meters	5	Set	Each of capacity 60 NM_3/min & design outlet dew point of (-) 40^0C (atmospheric).
3	Air receivers	16	No.	Nominal Capacity: 10 m^3
4	Air receiver for WT plant	1	No.	Nominal Capacity: 2 m^3
5	EOT crane	1	No.	8 Ton

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2.5.6. Cooling System

Cooling System for Meja, Stage-II, Air Cooled Condenser (ACC) system would be adopted for condenser water cooling. Water is an invaluable resource, and the world is confronting significant challenges related to water scarcity. For thermal power generation water is an important raw material. Consumptive use of water in a thermal generating unit mainly includes requirements of condenser cooling, ash disposal system, cycle make up water, FGD (Flue Gas Desulphurization) system, and Auxiliary cooling systems besides other miscellaneous requirements. Quantum of makeup water required for condenser cooling water system with Water Cooled Condenser (WCC) is the highest among all the consumptive requirements of any thermal generating power plant.

Air-Cooled Condensers is an alternate technology using dry cooling instead of conventional wet cooling to save water. ACC uses ambient air to cool and condense steam back into condensate cycle. The process involves passing steam through a series of finned tubes, where it is cooled by ambient air, driven by fans. By eliminating the need for water sources and minimizing thermal pollution, ACC offer a more sustainable solution.

Specific Water consumption with ACC reduces about 60%. (Roughly specific water consumption with ACC will be in the range of 0.90 to 1.24 litre/kWhr with FGD, depending on type of ash handling system whether Bottom & Fly ash handling is of HCSD type or Dry type). Due to poor heat carrying capacity of air compared to water, the condenser back pressure is more in case of ACC that results in deterioration in heat rate ie increase in specific fuel consumption. However, land requirement and maintenance are less with ACC compared to wet cooling system.

ACC has advantage over WCC in terms of relief of vapor plumes, displacement of habitat, salt or mineral drift, water consumption through evaporation, and increased solid waste generation due to wastewater treatment.

2.5.7. Water Treatment Systems

The project's water treatment system includes several components designed to ensure water quality throughout various stages of the process. These components consist of a Water Pre-treatment Plant, Water Demineralization Plant, Chlorine Dioxide Plant, Condensate Polishing Plant, Air Cooled Water (ACW) Treatment Plant, and Effluent Treatment Plant (ETP). Each of these plants serves a specific function within the overall water treatment process to maintain optimal operational conditions and environmental compliance.

2.5.7.1 *Water Pre-Treatment Plant*

The pre-treatment plant will be designed to eliminate suspended and colloidal matter from the raw water supply. Separate pre-treatment facilities will be dedicated to meeting the needs of the ACW (Auxiliary Cooling Water) system and the Demineralization (DM) Plant. A centralized chemical house will store necessary chemicals like chlorine, lime, alum, and coagulant aid, with individual chemical preparation tanks and dosing pumps allocated for each pre-treatment system.

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For the ACW system, the pre-treatment setup will include an aerator cum stilling chamber, two reactor-type clarifiers, and two 100% gravity filters. Meanwhile, the DM Plant's pre-treatment configuration will feature an aerator cum stilling chamber, a reactor-type clarifier, and two 100% gravity filters. Both systems will be equipped for dosing alum, lime, coagulant aid, chlorine dioxide, etc.

After clarification, water will be directed to storage tanks or filters based on requirements. Clarified water will be pumped to various systems including HVAC makeup, FGD (Flue Gas Desulfurization) process water, FGD Gypsum wash, and Service water. Additionally, the ACW system's makeup water will be supplied either by pumps or gravity.

Filtered water from the gravity filters will flow into respective reservoirs and then be pumped to the DM plant and potable water system. The installation will include necessary hoists, cranes, and weighing scales for handling equipment and chemicals. Comprehensive instrumentation, interlocks, controls, and panels will ensure safe and reliable operation of the water pre-treatment plant.

2.5.7.2 *Water Demineralization Plant*

The Demineralization (DM) plant will be configured to fulfil the water needs of the steam cycle, closed circuit auxiliary systems, and stator water cooling system. The DM plant will consist of three (3) streams and each stream shall comprise of Activated carbon filter, Cation exchangers, degasser system (comprising of degasser tower, degassed water tank, degassed water pumps and degasser blowers etc.,), anion exchangers and mixed bed exchanger., micron cartridge filters, RO systems, degassers, and MB units.

Cation resins will be regenerated using hydrochloric acid, while anion resins will use sodium hydroxide. Regeneration facilities will feature bulk acid and alkali storage tanks, alkali solution preparation systems, acid and alkali measuring tanks, and dosing ejectors. The plant will operate semi-automatically with PLC-based controls.

Three DM water storage tanks will store the demineralized water, and one neutralization pit will be available to adjust pH levels and discharge effluent water from the DM plant. The system will allow interconnection between Stage-I and Stage-II DM water storage tanks with requisite pumps, piping, valves, and fittings for seamless operation.

2.5.7.3 *Chlorine Di-Oxide Plant*

Two separate Chlorine Dioxide (ClO_2) plants will be installed for the Auxiliary Cooling Water (ACW) system and pretreatment system to avoid the growth of algae and bacteria. Each system will be equipped with chemical storage tanks, unloading systems, instrumentation, panels, chlorine dioxide leak sensors, and other necessary components for efficient operation and safety.

2.5.8. Ventilation

A ventilation system would be designed to supply fresh outdoor air and shall be selected for maintaining inside conditions for those areas where close control of temperature is not

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necessitated, but nevertheless have a stipulated maximum temperature. The ventilation system envisaged for the proposed plant will achieve the following criteria:

- Scavenging out structural heat gain and heat load from various equipment, hot pipes, lighting etc.
- Dilution of polluted air due to generation of obnoxious gases/aerosol contaminants like acid fumes, dust, etc.

The areas entitled for ventilation system shall be as follows:

- Turbine building
- Coal mill building
- ESP building (Equipment Room)
- Air compressor room
- AC plant room
- DM plant MCC room
- Raw water pump-house

2.5.9. Mill Reject System

To efficiently manage Mill Rejects continuously, a Mill Reject system will be implemented with a capacity of at least 1% of the mill design capacity or based on the worst coal scenario, whichever is higher, considering the maximum number of working mills. Each mill will be equipped with a mill reject pyrite hopper. Mechanical conveying via a mill reject conveyor system will transport the rejects from the mill area to a storage silo. The storage silo will have a capacity of storing rejects for 16 hours for all units. Finally, the stored Mill Rejects will be disposed of into trucks from the storage silo.

2.5.10. Electrostatic Precipitator (ESP)

It is proposed to install high efficiency Electrostatic Precipitator having an efficiency that limits the outlet emission of particulate matter to 30 mg/Nm^3 while the boiler is operating at its MCR, firing worst coal having maximum ash content.

The electrostatic precipitators will have six (6) parallel gas streams, isolated from each other on the electrical as well as gas side and will be provided with gas tight dampers at inlets and outlets of each stream, to allow maintenance to be carried out safely on the faulty stream, while the unit is working. ESP specific collection area shall not be less than 250 m^2/m^3/sec at 100% TMCR. Electrostatic precipitator will be provided with microprocessor based programmable type rapper control system and ESP management system to ensure safe and optimum operation of ESP.

ESP transformer rectifier sets will use high flash point oil as the cooling medium. The dust collection hoppers at all strategic locations will have a minimum storage capacity of eight (8) hours. The hoppers will have heating arrangements to prevent ash sticking to the sloping sides

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and down pipes. Level indicators to indicate ash levels in the hoppers and trip the ESP in case of high ash levels in the ash hoppers are also envisaged to ensure safety of ESP.

Environmental and Efficiency Considerations: In order to meet the environment norms and maintain the sustained efficiency of ESP, it shall be adequately designed with sufficient margins for all operating conditions. The Electrostatic Precipitator Management System (EPMS) in conjunction with opacity monitor shall continuously monitor and maintain the optimum energy level to achieve higher efficiency of ESP. The steam generator shall be designed for low NOx formation by adopting the appropriate burners. The steam generator shall meet the requirement of sustained high efficiency and availability, high efficiency at part load, flexibility to burn coal within the range specified, quick startup and two shift operation. Furnace shall be sized for burning high ash coal and low flue gas velocities to minimize erosion.

2.5.11. NOx Control

Low NOx burners shall be adopted to reduce nitrogen oxide (NOx) emissions in industrial and commercial combustion processes. NOx gases, which include nitrogen monoxide (NO) and nitrogen dioxide (NO_2), are pollutants that contribute to smog, acid rain, and other environmental and health issues. Low NOx burners help mitigate these effects by optimizing the combustion process to produce fewer NOx emissions.

2.5.12. Flue Gas De-sulphurising system (FGD)

A wet limestone-based Flue Gas Desulphurization (FGD) system will be installed behind ESP, at the tail end of the steam generator downstream with an efficiency of reducing SO_2 emission to 100 mg/Nm^3. FGD System will be provided with limestone slurry preparation system for grinding of limestone to desired fitness. The estimated limestone requirement for Stage-II is around 30.6 T/Hr. The system will have scrubber as the main reaction vessel in which SO_2 gas shall be captured in limestone slurry to produce gypsum. The estimated gypsum generated is around 49.6 T/Hr. The scrubber will be provided with a bypass system. The FGD System shall also include auxiliary Equipments and systems like mills, cyclones, vacuum filters, belt conveyors, pumps, storage vessels, pipping's and fittings, etc. The FGD System shall also be provided with four nos. of elevators for easy access & movement of man and materials, three nos. Passenger cum Goods Elevators of minimum capacity of 1000 kg for each absorber, Limestone Grinding System Building and Gypsum Dewatering Building and one nos. Passenger Elevator of minimum capacity of 680 kg in MCC cum Control Room Building of FGD Plant.

2.5.13. Infrastructure Facilities for Work Force

The proposed expansion power plant will require skilled, semi-skilled and unskilled personnel during construction and operational phase. Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase. The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, most of the workers will be from local area and don't require

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accommodation. But some of the workers need accommodation and will be housed in workers colony, which will be located near the project site. The workers colony which will be temporary in nature will have the following amenities:

- Drinking water facility– Drinking water will be supplied through water tankers/community taps in workers colony;
- Community kitchen will be provided for the workers in Workers colony;
- Sanitation facilities will be constructed which will include the adequate number of separate toilets for men and women. The makeshift treatment plant will be installed and treated wastewater will be utilized in greenbelt development.
- Bins will be installed to collect municipal waste from the Workers colony;

2.5.14. Roads and Sewerage

All roads shall be of rigid pavement made up of concrete.

Single Lane Roads: Roads to all buildings/ facilities/structures, road approaches/connections, access roads to liquid fuel storage areas and other equipment areas where access is necessary from inspection, operation and maintenance point of view and all roads inside switchyard.

Double Lane Roads: Roads shall be 12 m wide with 7.5 m wide concrete pavement and 2.25 m wide raised shoulders on both sides of the road.

Intermediate Roads: Roads shall be 8 m wide with 5.5 m wide concrete pavement and 1.25 m wide raised shoulders on both sides of the road. It will help in cost saving and fulfilling of requirement.

Drains: Drains shall be constructed on both sides of roads and shall be connected to the main trunk drain and then finally to the nearby natural drainage system. Existing drainage channel passing through the plant site shall be suitably diverted. Drains along the periphery of the main plant and other major structures shall be of RCC with rectangular section and others will be of brick masonry with rectangular section.

Sewerage: A network of underground sewerage system shall be provided in the plant area. Packaged type STP (Sewage Treatment Plant) shall be provided with sufficient capacity for discharge. CI pipes shall be used for catch pipes (and also for disposal under pressure) and RCC concrete pipes shall be used for trunk sewage disposal pipes. All the sewerage collected in STP. For treatment of domestic sewage existing STP (2200 KLD) shall be utilized.

2.6. General Layout

Some of the existing facilities shall be used for the proposed expansion. In laying out various facilities, consideration has been given to the following general aspects:

- Provision for 3x800 MW units including cooling towers.
- Coal storage yard for 15 days requirement at site
- Ash silos for fly ash and ash pond area.

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- FGD system
- Water treatment facilities
- Availability of adequate space for fabrication / storage of construction equipment and materials.

All facilities of the plant area are laid out in close proximity to each other to the extent practicable so as to minimize the extent of land required. The layout also facilitates movement of men and materials between the various facilities both during construction and also during subsequent operation and maintenance. The plant layout is presented in **Figure 2.3**

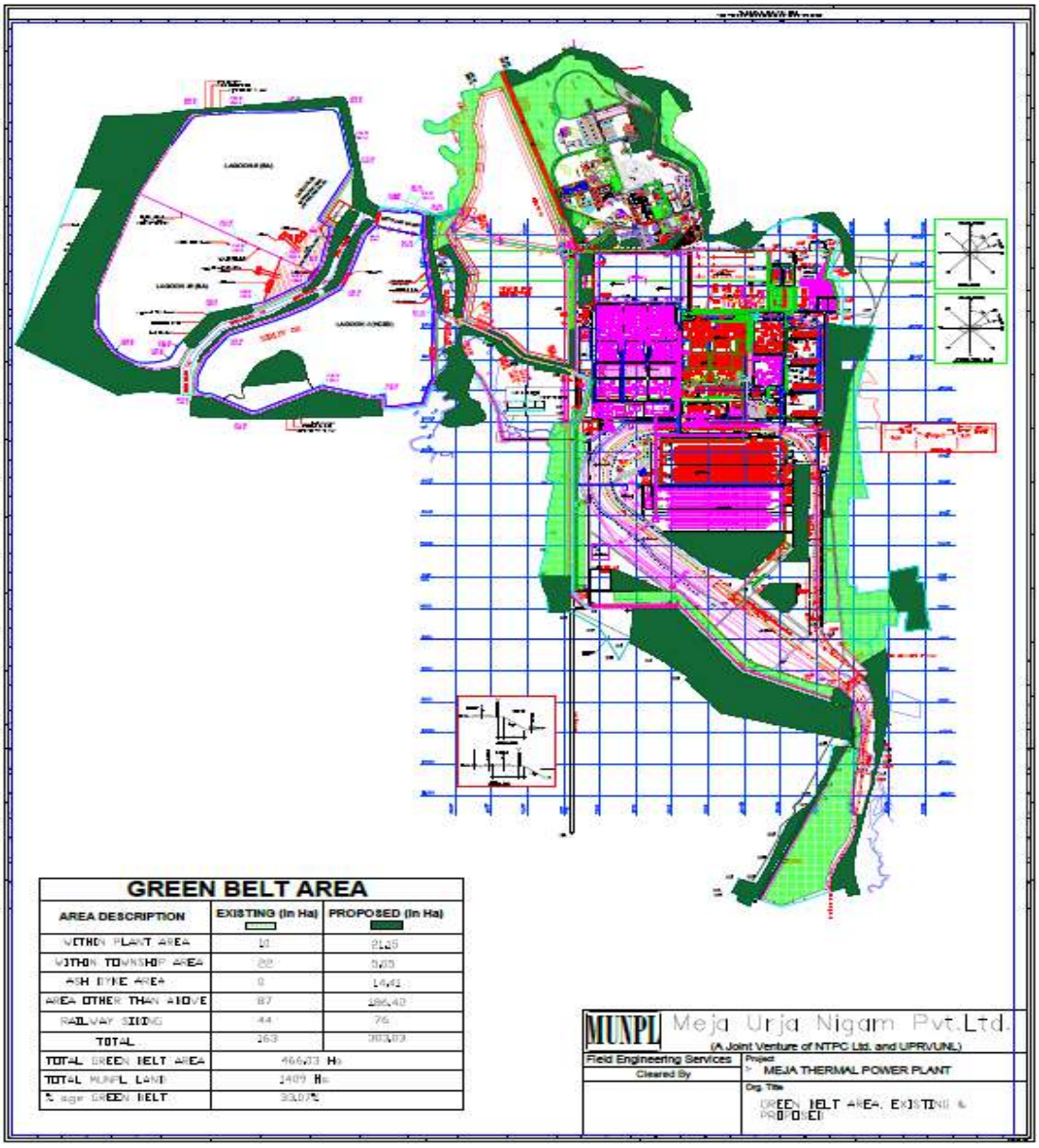


Figure 2.3 : Plant Layout

2.7. Coal Handling Plant

It is proposed to have one coal handling plant of 3300 MTPH rated capacity with parallel double stream (one working and one standby) of belt conveyors along with facilities for receiving,

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unloading, crushing and conveying the crushed coal to boiler bunkers and stacking/ reclaiming the coal to/from crushed coal stockyards. Two (2) numbers of uni-directional, rail mounted, travelling stacker re-claimers, bucket wheel type is proposed for coal stockyard management. The coal handling plant have a dedicated coal unloading terminal comprising five (5) numbers of wagon tipplers for unloading BOX-N wagon rakes. BOBR wagon rakes will be unloaded in track hopper provided in Stage – I of the project.

The overall operating hours of the coal handling plant shall be 16 hours spread over two shifts per day leaving third shift exclusively for routine inspection and maintenance. The proposed CHP shall cater to the peak daily requirement of coal for all units in two bunker filling cycles in 12 hrs. effective operation. Coal received in underground RCC hoppers by wagon tipplers shall be conveyed to the crusher house, for sizing of coal to (-) 20mm. From crusher house, the crushed coal can either be conveyed directly to the coal bunkers through a series of conveyors or stacked on to the crushed coal stockpiles by means of stacker reclaimers. Motorized travelling trippers shall be provided to feed crushed coal into the raw coal bunkers of the boilers. Provision of blending imported coal with indigenous coal has been envisaged through stacker reclaimers for the project. Dust suppression and service water systems shall be provided throughout the coal handling plant. Ventilation systems shall be provided for underground buildings/tunnels, MCC rooms and bunker buildings. A centralized main CHP control room (DDCMIS based) shall be provided to facilitate control and monitoring of the operations of the entire coal handling plant. Receiving and unloading of BOX-N rakes shall be controlled and monitored from wagon tippler control room located adjacent to the wagon tippler. Inter connection between Stage–II CHP and Stage–I CHP is also provided.

2.8. Proposed Schedule for Approval and Implementation

For Stage-II (3x800 MW) the commercial operation date (COD) of first unit of the project is proposed to be completed in 60 months from the date of award. Subsequent units shall be commissioned at intervals of 09 months each.

2.9. Power Evacuation system

It is proposed to consider step up voltage for the project as 765 kV. Four (4) numbers 765 kV line bays are envisaged for power evacuation. The connectivity of these lines will be finalized based on the % share of power allocation by MOP and power flow system studies. The final connectivity proposal of Stage-II generation switchyard will be finalized by CTU based on system studies. The issue of power evacuation of the proposed project shall be taken up with appropriate Transmission Utility (STU and CTU) as per regulatory provision.

2.10. Ash Handling System

Total 3.78 MTPA Ash shall be generated from proposed project (Stage II: 3X 800 MW). Ash Handling Control System consisting of binary and modulating controls of dry and wet ash handling system, bottom ash handling system and ash slurry pumps, etc.

The bottom ash, economizer ash and pre-heater ash shall be disposed in wet form. Fly ash from the ESP hoppers shall be transported in dry form to storage silos near plant boundary through

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buffer hoppers for utilization. In case of non-utilization, bottom ash and fly ash shall be disposed-off as HCSD (High Concentration Slurry Disposal) in ash disposal area.

Prayagraj is a religious city and the entry of heavy vehicles is completely closed for about 120 days in a year in addition to the monsoon season, which affects the movement of ash bulkers. The movement of ash balkar is also affected during Ardh Kumbh, Maha Kumbh and Kavad Yatra. The acquired land for Stage-I is hilly and extremely sloping, resulting in less usable land. Hence, MUNPL proposes additional area for ash pond of 89 Ha and greenbelt 21 Ha, near to the exiting ash pond to run the power plant without interruption throughout the year.

2.10.1. *Ash Handling and water circulation system*

HCSD Pump house, compressor house, ash slurry pump house shall be steel shed with metal sheet cladding and profile roof, Ash water pump house shall be open type with grade slab. Other buildings shall have RCC framed structural arrangement with brick cladding and RCC roof. Overhead bridge/ culvert by thrust boring shall be provided for the railway crossing for the ash slurry pipes. For routing of the ash pipes at road crossing local hump / culvert or bridges shall be provided.

A. Fly Ash Handling System

About 3.024 MTPA fly ash per unit shall be generated. In the Fly Ash System, the fine-textured ash is extracted in a dry state from the ESP hopper using a pneumatic conveying system (either vacuum or pressure system). The dry ash buffer hoppers present adjacent to the ESP in each unit shall transport the dry ash either to HCSD ash silos or main storage silos with rail loading facilities.

5 nos. of screw type transport air compressors, refrigerant type air-dryer and air receivers shall be provided for each unit. 6 nos. of MS pipes (cast iron) for conveying coarse fly ash from hoppers to 6 nos. of HCSD cum fly ash storage silos located in the fly ash silo complex. The dry fly ash will then be transported from the main storage silos to the user industries either in closed tankers or open tankers. In case of non-utilization, dry fly ash shall be disposed in HCSD Dyke in combined high concentration form.

Fly Ash Slurry Disposal:

The fly ash collected in HCSD silos shall be mixed with water in an agitator tank at a controlled rate to obtain the slurry with desired high concentration, which will further be pumped to ash disposal area, at a distance of approximately 1.5 Km from the plant. There will be 6 working and 4 standby HCSD streams for all units. Each stream will consist of one HCSD pump and individual disposal pipes. HCSD pump house will include all HCSD pumps & HCSD silo aeration blowers.

2.10.2. Bottom Ash Handling and Disposal system

2.10.2.1 *Bottom Ash/ Economizer Ash/ Air Pre-heater Ash Handling System:*

Bottom Ash is extracted either through continuously operating SSC (Submerged Scraper Chain Conveyor) System with dry ash hopper or through intermittently operating jet pumps in conjunction with water impounded hoppers. In case of continuous BA extraction, bottom ash

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collected from all the units will be pumped to the common Bottom Ash Slurry Disposal Pump House either through BA Slurry transportation pump in case of SSC system or to the slurry sump of the common Bottom Ash Slurry Disposal Pump house through water impounded bottom ash hopper in case of jet pump system.

Economizer Ash shall be handled in wet form. Coarse Ash Slurry from economizer hopper shall be led either to water impounded hopper or to Slurry Sump of the SSC system.

Air Pre-heater Ash shall be handled in wet form. Coarse Ash Slurry from Air Pre-heater Hopper shall be led to Ash Slurry Sump of Bottom Ash Slurry Disposal Pump house.

Bottom Ash and Coarse Ash will be transported from the Bottom Ash Slurry Disposal Pump house to the dewatering bins through bottom ash slurry duty pumps. In case of non-utilization of bottom ash, the slurry will be pumped to existing ash dyke through dewatering bins. No pits will be permitted in the bottom area of the boiler to accommodate water impound hoppers.

2.10.2.2 *Bottom Ash Slurry Disposal*

The bottom ash and coarse ash slurry from all the units shall be transported from bottom ash slurry pump house through slurry duty pumps to dewatering pumps approximately 1 km away from the plant. There will be one working stream and two standby streams, all are provided with individual disposal pipes (no cross-over in disposal piping).

2.10.2.3 *Lining of Ash Dykes:*

The scheme for ash disposal envisages two lagoons for bottom ash (BA) with one common Overflow Lagoon (OFL) and one lagoon for Fly Ash (FA). Construction of two well type water escape structure with flexible opening is also envisaged for evacuating decanting water from storage lagoon to overflow lagoon for recirculation through ash water recirculation system (AWRS). Decanted water from each BA lagoon is directly connected by water escape structure to OFL. Construction of spillways is also envisaged for discharging excess rainwater from storage lagoons/ OFL.

The supernatant from the ash dykes shall be recycled back to the plant through dedicated ash water re-circulation system. The water entrapped in deposited ash is further collected through dyke embankment by intercepting through sand chimney/ sand blanket, into a toe-drain all around the dyke and recirculated back to the plant.

Due care shall be taken for the design and construction of the ash dyke as per relevant IS Codes and under the guidance of panel of experts. Compliance with the design and operation guidelines shall ensure that the risk of the failure of the dyke is minimum. Leachate collection system shall be provided all along the ash pond. Proper protection measures like HDPE lining, appropriate height of bund shall be planned.
The Stage-II ash dyke will be positioned adjacent to the existing Stage-I ash dyke, covering a total proposed area of approximately 89 Ha for ash pond and 21 Ha for greenbelt and other . For the disposal of fly ash (FA) from Stage-II, a high concentration slurry disposal (HCSD) system will be used, while bottom ash (BA) will be handled via lean slurry. The project, operating at an

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average Plant Load Factor (PLF) of 85%, is expected to generate about 5.3 million cubic meters of coal ash annually. According to the latest MoEF&CC guidelines, 100% utilization of fly ash is required within three years of the plant's commissioning.

As per the MoEF&CC notification dated December 30, 2022, new or expanded thermal power plants are permitted to use 0.1 hectares per megawatt for ash dykes. For Stage-II, the identified 89 Ha for ash pond and 21 Ha greenbelt of land, adjacent to Stage-I, complies with this regulation. The ash disposal plan typically includes two lagoons for bottom ash with a shared overflow lagoon and one lagoon for fly ash with a sedimentation basin. To optimize land use, the plan will feature one FA lagoon and two BA lagoons, along with a common overflow lagoon.

Considering the current design and expected storage needs, a starter dyke of 9 meters in height with one additional raising will be used for the HCSD lagoon, while the BA lagoons will have a starter dyke of 12 meters in height with two additional 3-meter raises using the upstream method. In compliance with environmental regulations, all coal ash storage lagoons (BA and FA) and the overflow lagoon will be lined with HDPE or any other suitable impermeable media.

2.10.2.4 *Ash Classification and Bagging System*

The ash handling system will segregate fine and coarse ash based on their source fields. Fine ash (less than 45 microns, 95% size) will originate from the 4th field onwards, while coarse ash will be from the initial three fields in service. The fly ash from ESP hoppers or buffer hoppers of all units will be directed to a 250 Tons classifier silo. From there, the ash will undergo further classification and storage in separate silos, each with a capacity of 500 tons for fine and coarse ash respectively.

For efficient loading into closed tankers, each silo will feature outlets equipped with telescopic chutes and rotary feeders. To mitigate dust and maintain air quality, the silos and hoppers will be equipped with target boxes, bag filter assemblies, pulse jetting mechanisms, and fan units. Aeration blowers will ensure proper air circulation.

The bagging plant will handle 50% of the fine ash production, including classified fine ash and direct fine ash from the 4th field onwards. This plant will be equipped for mechanized bagging, packaging the fine ash into 1-ton and 50-kg bags. A closed storage area will accommodate these bags, ensuring storage flexibility for both bag sizes produced daily.

2.11. Ash Utilization Plan

Ash utilization shall be done as per MoEF&CC notification dated 31-12-2021 and its amendments. To utilize ash and also to comply the condition stipulated in above notification MUNPL has taken many action. The current Ash utilization in existing project (Stage-I) of MUNPL for FY 2024-25 is around 84% till December 24. The ash utilization status of existing unit for last few years is given below:

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Table 2.11 : Ash Utilization in Existing Stage-I

Fin Year	Ash Production (LMT)	Total AU (LMT)	Total AU (%)
FY 2019-20	2.74	0.00	0.00
FY 2020-21	10.20	5.72	56.08
FY 2021-22	18.23	13.21	72.46
FY 2022-23	15.73	9.82	62.39
FY 2023-24	17.85	12.63	70.78
FY 2024-25 up to Dec'24	15.31	12.86	84.00

Proposed year wise Ash Utilization for proposed Stage-II

- As per MoEF&CC Fly Ash Notification on dated 31.12.2021, starting w.e.f. April 2022, all TPPs to utilise 100% current ash (fly ash and bottom ash) generated during that year with minimum utilization of 80% every year in 03-year cycle while achieving average 100% AU in each 03-year cycle. However, there is relaxation of one years for Plants with Ash utilization between 60-80% in FY 2021-2022.
- Since Ash utilization for Meja in Financial Year 2021-2022 was 72.46 %, 03-year cycle shall start from April 2023 with minimum utilization of 80% every year. So accordingly, Ash Utilization compliance for MoEF&CC first 4-year Compliance Cycle (from FY 2023-2024 to FY 2025-2026) is given in Table 2.12 as follows:

Table 2.12 : Ash Utilization Compliance

MoEF&CC Compliance Cycle	Fin Year	Target for Total AU (%) as per MoEF&CC Notification	Actual / Planned Total AU (%)	Compliance as per MoEF&CC Notification
First	FY2022-23	No Minimum Target	62.39 (Actual)	Yes
	FY2023-24	Minimum 80 %	70.78 (Actual)	No
	FY2024-25	Minimum 80 %	83.83 (Planned)	Yes
	FY2025-26	Minimum 80 %	155.85 (Planned)	Yes
Second	FY2026-27	Minimum 80 %	80 (Planned)	Yes
	FY2027-28	Minimum 80 %	80 (Planned)	Yes
	FY2028-29	Minimum 80 %	140 (Planned)	Yes

Note: Non-compliance of same shall attract Environmental Compensation @ Rs. 1000 per metric ton on unutilized ash

Proposed year wise Ash utilization plan for Stage-I and Stage-II is given in **Table 2.13.**

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Table 2.13 : Proposed year wise Ash Utilization for Existing Stage-I & Proposed Stage-II

MoEF&CC Compliance Cycle	F. Year	Ash Generation (LMT)	Area Development (LMT)	Outside Bricks (in MT)	Own Brick plant (LMT)	Cement & Other Industries	Roads Construction (LMT)	Ash based Product / Others (LMT)	Mines Filling (LMT)	Total Ash Utilized (LMT)	Ash Utilization (%)
First	**Operation from existing 2x660 MW(St-1)**										
	FY 22-23	15.73	0.04	0.00	0.00	8.34	1.43	0.00	0.00	9.82	62.39%
	FY 23-24	17.85	0	0	0	10.88	1.76	0	0	12.63	70.78%
	FY 24-25	19.05	0	0.4	0.1	8.17	7.24	0	0	15.91	83.83%
	FY 25-26	25.55	0	4.04	0	16.35	19.43	0	0	39.82	155.85%
Second	FY 26-27	25.55	0	3.07	0.2	13.08	4.09	0	0	20.44	80.00%
	FY 27-28	25.55	0	3.07	0.2	13.08	4.09	0	0	20.44	80.00%
	FY 28-29	25.55	0	3.888	0.2	16.352	15.33	0	0	35.77	140.00%
Third	FY 29-30	25.55	0	3.07	0.2	13.08	4.09	0	0	20.44	80.00%
	With Commissioning of St-2 1st Unit & Operation from 2x660 MW(St-1) + 1x800 (St-2)										
	FY 30-31	41.04	0	5.052	0.2	21.008	6.57	0	0	32.83	80.00%

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MoEF&CC Compliance Cycle	F. Year	Ash Generation (LMT)	Area Development (LMT)	Outside Bricks (in MT)	Own Brick plant (LMT)	Cement & Other Industries	Roads Construction (LMT)	Ash based Product / Others (LMT)	Mines Filling (LMT)	Total Ash Utilized (LMT)	Ash Utilization (%)
	With Commissioning of St-2 2nd and 3rd Units & Operation from 2x800 MW(St-1) + 3x800(St-2)										
	FY 31-32	72.02	0	6.052	0.2	31.008	48.07	0	0	85.33	118.48%
Fourth	FY 32-33	72.02	0.04	6.052	0.4	31.008	19.156	0.9	0	57.556	79.92%
	FY 33-34	72.02	0.04	6.052	0.4	31.008	19.156	0.9	0	57.556	79.92%
	FY 34-35	72.02	0.04	6.052	0.4	31.008	62.098	1.35	0	100.948	140.17%

Source: MUNPL

- Above Ash Generation is calculated at 85% PLF and with Commissioning of St-II 800 MW Units in FY 2030-31 and FY 2031-32.
- The above data is tentative only and the actual ash generation as well as utilization, shall depend upon a number of factors such as PLF, ash content of coal, demand of ash, etc
- At present details and data with respect to number of HCSD pumps, number of HCSD silos number and capacity of external silos, rail route and ash brick plant are not available.
- It is assumed Dry Fly Ash (DFA) transport through rail route and 01 brick plant will be provided with Stage II.

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2.12. Limestone & Gypsum Handling System

2.12.1. Limestone Handling System

The transportation and handling of limestone to the power plant will be managed through both road transport by trucks and Indian railway wagons. Limestone delivered via rail will be unloaded at the wharf wall and stored in sheds. For limestone delivered by road, two Truck Tipplers with a minimum capacity of 40 tons (Gross vehicle weight 60 tons minimum) will be used to discharge limestone onto Box Feeders, Surface Feeders, or Truck Unloading Hoppers.

To facilitate unloading from trucks, two nos. of Box Feeders/Bulk-material Receiving Units/Surface Feeders will be installed. Limestone will then be conveyed to the Crusher House using a double stream conveyor with a capacity of 150 TPH for crushing and further conveying. One (01) nos. of bucket elevator will transport the crushed limestone to storage silos, of which there will be two covered silos provided.

These storage silos will have the capacity to store limestone equivalent to the consumption of at least 7 days at the Design Point (considering the generation of all units). Belt feeders with regulating mechanisms will be installed below the main storage silos to control the feed of crushed limestone. A single stream conveyor will further transfer limestone to day storage silos. For the limestone crusher house, storage silos, conveyors, and other associated equipment, a comprehensive infrastructure will be established, including dry type dust extraction systems, ventilation systems, drinking water systems, drainage systems, and motorized travelling tripper/flow diverter ploughs on feeding conveyors.

A limestone sampling unit will be provided along with sump pumps in limestone storage silos and ventilation equipment for switchgear rooms, MCC rooms, battery rooms, and toilets. Additionally, conventional enclosure type passenger cum goods elevators, suspended magnets, metal detectors, and electronic belt scales for continuous weighing will be installed.

The plant will feature a service water and potable water system, as well as dust extraction systems for the entire limestone handling plant.

2.12.2. Gypsum Handling System

The gypsum handling system entails conveying gypsum from the vacuum belt filter to a storage shed using double stream conveyors and transfer points/junction towers. A flap gate beneath the filter facilitates gypsum feeding into the conveyor. A covered storage shed, capable of storing a minimum of 7 days' gypsum generation, will be constructed, featuring a 2.0 m wide corridor for equipment movement and emergency access. The shed will enable gypsum transfer to trucks through a telescopic chute system within the shed. Dust suppression measures with water fogging, service water, and potable water systems will be installed to manage dust emissions. Motorized travelling trippers or flow diverters will facilitate gypsum distribution within the shed. Truck bays will allow for efficient loading, with entry and exit points designed for smooth truck traffic flow. Additionally, exhaust fans will maintain optimal conditions inside the storage shed. The entire gypsum handling system will be centrally controlled using PLC-based controls,

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ensuring efficient operation and auxiliary facilities such as equipment handling arrangements and service water systems will be integrated as needed.

2.13. Fire Detection &Protection System

A comprehensive fire detection and protection system is envisaged for the complete power station. This system shall generally be as per the recommendations of TAC (India)/ IS: 3034 & NFPA- 850/equivalent standard. The following protection systems are envisaged:

i. **Fire water pumping system** as provided in Stage-I (existing) shall be used for fire water requirement of Stage-II also. The system shall cater to the both Hydrant & Spray water requirement of Stage-II. However, hydrant booster pumps & drives, spray booster pumps & drives, Batteries and Battery Chargers for the diesel engines drives, required instruments, controls and panels are envisaged. The water for foam system shall be tapped off from the hydrant system network.

ii. **Hydrant system** for complete power plant covering main plant building, boiler area, turbine and its auxiliaries, coal handling plant, biomass handling plant, all pump houses and miscellaneous buildings of the plant. The system shall be complete with piping, valves, instrumentation, hoses, nozzles, hose boxes/stations etc.

iii. **Automatic high velocity water spray system** for all transformers located in transformer yard and transformers having oil capacity of 2000 liters and above located within the boundary limits of plant, Main and unit turbine oil tanks and purifier, oil canal, generator seal oil system, lube oil system for turbine driven boiler feed pumps/lube oil console, boiler burner fronts, fuel oil station rack in boiler, etc. This system shall consist of QB detectors, deluge valves, projectors, valves, piping & instrumentation.

iv. **Automatic Nitrogen Injection system** shall be provided for Transformers 10 MVA and above rating or in case of oil filled transformers with oil capacity of more than 2000 liters located outside plant boundary.

v. **Automatic medium velocity water spray system** for cable vaults and cable galleries of main plant, switchyard control room and ESP control room, FGD building, all cable trestles of main plant area (from transformer yard to chimney) consisting of smoke detectors (as applicable), linear heat sensing cable detectors, deluge valves, isolation valves, piping, instrumentation, etc.

vi. **Automatic medium velocity water spray system** for coal conveyors, biomass conveyors, crusher house, transfer points, Stacker reclaimers consisting of QB detectors, linear heat sensing cables, deluge valves, nozzles, piping, instrumentation, etc.

vii. **Automatic medium velocity water spray system** for un-insulated fuel oil tanks storing fuel oil having flash point 65 degree Celsius and below consisting of QB detectors, deluge valves, nozzles, piping, instrumentation, etc.

viii. **Fixed foam system of bladder tank foam** proportioning tank type, consisting of skid mounted foam bladder tank assembly, foam makers, discharge outlets, interconnection piping, valves, fitting and instrumentation etc., shall be provided for fuel oil tanks.

ix. **Gaseous** based **fire detection and protection system** for biomass silos

x. For protection of Central control room, Control equipment room, Programmer room, UPS room, etc. Inert Gas extinguishing system as per NFPA-2001 would be opted.

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xi. **Fire detection and alarm system**- Microprocessor based analogue, addressable type fire detection and alarm system shall be provided to cover the complete power plant. The following types of fire detection shall be employed.
   1. Multi sensor type smoke detection system
   2. Linear heat sensing cable detector.
   3. Quartzoid bulb heat detection system.
   4. Infra-red type heat detectors for all coal conveyors

xii. Portable and mobile extinguishers, such as pressurized water type, carbon-dioxide type, foam type, dry chemical powder type, shall be provided at strategic locations throughout the plant.

xiii. Complete instrumentation and control system for the entire fire detection and protection system shall be provided for safe operation of the complete system.

xiv. **Control System for Fire Detection & Protection**
Fire detection & protection control system shall consist of PLC based control system, Analogue addressable fire alarm system consisting of fire alarm panels, repeater panel, various types of fire detectors, linear heat sensing cable, infra-red detector, control cabling, centralized monitoring station, etc.

2.14. Pollution Control Measures

Coal combustion in boiler generates particulate matter, sulphur dioxide (SO_2) and oxides of nitrogen (NOx) as main air pollutants. The various environmental measures, pollution control systems and mitigative measures proposed to be adopted are as follows:

2.14.1. Air Emission control & Management

The Stage-II units (3x800 MW) will be designed to comply with the emission standards mandated by the Ministry of Environment, Forest and Climate Change (MoEF&CC) as specified in the notifications dated 07.12.2015 and its subsequent amendment on 26.06.2018. The design will incorporate the necessary systems to achieve these standards.

ESP (Electrostatic Precipitator): To control the ash particles emission, high efficiency ESPs would be installed that would limit the particulate emission to 30 mg/Nm^3. A chimney of suitable height, as per MoEF&CC Notification dated 28.06.2018, will be constructed to facilitate wider emissions, equipped with personal access for regular stack emission monitoring. One Twin Flue Chimney (220 m height) and one Single Flue Chimney (150 m height) is envisaged.

Flue Gas Desulphurization (FGD): A wet limestone-based Flue Gas Desulphurization (FGD) system will be installed behind ESP, at the tail end of the steam generator downstream in which SO_2 gas shall be captured in limestone slurry (to limit SO_2 emission below 100 mg/Nm^3) to produce gypsum. The scrubber will be provided with a bypass system. The FGD System shall also include auxiliary equipment and systems like mills, cyclones, vacuum filters, belt conveyors, pumps, storage vessels, piping and fittings, etc.

NO_x Control System: NO_x emission from the steam generator shall be controlled by low NO_x Burners/System and combustion staging.

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Chimney: To enhance the dispersion of emissions over a broader area, the project proposes the installation of One Twin Flue Chimney (220 m height) and one Single Flue Chimney (150 m height) is envisaged. These chimneys will be designed to include personal access points for routine monitoring of stack emissions. This setup aims to promote effective and efficient management of emissions by ensuring proper monitoring and dispersal of pollutants into the atmosphere

Fugitive Dust control: For the control of Fugitive dust emission in and around the coal handling plant, coal dust extraction and suppression systems would be provided. Dust Suppression System would be installed at all requisite points in CHP and coal stock yard and ash dykes.

2.14.2. Water pollution control & Management

Water Pollution Control System: An Effluent Management Scheme would be implemented to reduce the intake water requirement resulting in zero liquid discharge and would essentially include collection, treatment and recirculation/disposal of various effluents. The make-up water requirement for the Stage-II Project would be about 3000 m^3/Hr (approx. 30 cusecs). About 2056 m^3/Hr effluent shall be generated from the proposed project. The effluent shall be treated in Effluent Treatment Plant.

Adequate treatment facilities would be provided to all the waste streams emanating from the plant to control water pollution including physico-chemical and biological treatment for other effluents as well:

- The filter backwash water of PT plant shall be collected and recycled back to the respective System Clarifier.
- The sludge from the clarifiers of PT plant shall be collected in a sump/pit and shall be pumped to Bottom Ash Slurry tank for disposal to ash dyke.
- The waste effluents from neutralization of DM plant and Condensate Polishing Plant shall be collected in the respective neutralization pit and neutralized before Bottom Ash Slurry Tank before final disposal.
- ACW system blow-down will be reused in various plant systems; excess blow-down will undergo further treatment.
- Coal Settling System and Clarifier System for coal settling area shall be provided for removal of coal particles from coal handling plant waste. Decanted water shall be pumped back to the coal dust suppression system. To receive and treat excess storm water (considering rainstorm condition), Clarifier feed pumps, Reactor Clarifiers, Belt filter press, Clarified Water Transfer Pumps and required chemical storage and dosing system shall also be provided.
- Service water effluents will be treated in clarifiers and sent back for reuse; excess water will undergo further treatment
- A wastewater treatment plant will be provided for treating wastewater and reusing it in the plant
- The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. Arrangements shall be made that plant effluents and storm water do not get mixed.

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2.14.3. Solid & Hazardous Waste Management

Solid waste generated during construction will be managed as per Construction and Demolition Waste Management Rules, 2016.

Operation Phase:

Used oil, Empty/ contaminated drums and ETP Sludge will be generated and same shall be disposed as the Hazardous & Other Waste (Management and Transboundary Movement) Amendment Rules, 2022. From Stage-II Project, Ash and Gypsum will be the major solid waste generated. Details of the waste generated from the proposed Ash shall be generated due to combustion of coal. About 80% of the ash shall be generated as Fly Ash, while 20% of the ash shall be generated as Bottom Ash. The Ash Management Scheme would involve collection of fly ash and bottom ash through dewatering bins, supply of ash to entrepreneurs for utilization and safe disposal of unused ash (if any). MUNPL shall make maximum efforts to utilize ash for various purposes. Unused fly and bottom ash shall be disposed-off through HCSD system, in case of emergency. A blanket of water shall be maintained over the entire bottom ash pond to control fugitive dust emission.

Gypsum generated from the FGD (Flue Gas Desulphurisation) system shall be utilized/ disposed-off in an environmentally suitable manner.

Anticipated waste generation and their disposal methodology is mentioned in table below 2.14

Table 2.14 : Anticipated Waste and its Management

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
Empty barrels/container / liners contaminated	Operation and Maintenance works (O&M works)	60	Sale/disposal to authorized recyclers / TSDF.	Road
Spent Ion exchange resin containing toxic metals	Water treatment	2	Sale/disposal to authorized recyclers / TSDF.	Road
Used or spent Oil	O&M works	100	Sale/disposal to authorized recyclers / TSDF.	Road
Asbestos	O&M works	0.1	Disposal through TSDF	Road
Waste residue containing oil	O&M works	10	Sale/disposal to authorized recyclers / TSDF.	Road
Insulation waste	(O&M works)	10	Disposal through TSDF	Road

Other Waste generated:

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S. No	Type	Quantity After Expansion	Disposal Plan
1.	Fly Ash	3.024 MTPA	It shall be sent to all users as per list of avenues mentioned in MOEF&CC Notification
2.	Bottom Ash	0.756 MTPA	It shall be sent to all users as per list of avenues mentioned in MOEF&CC Notification
3.	Gypsum	4,34,250 TPA	MUNPL/ NTPC has an approved policy for management and sale of gypsum generated from its power projects. The policy includes the following options for 100% utilisation of gypsum ➢ Installation of POP/Gypsum Plaster Plant at NTPC Stations ➢ Sodic soil reclamation: as an initiative for community development ➢ Sale of Raw Gypsum on as where basis

2.14.4. Noise Pollution Control

The major noise generating sources are turbines, generators, compressors, pumps, fans, coal handling plant, etc. Acoustic enclosure shall be provided to control the noise level below 90 dB(A). Personal Protective Equipments (PPEs) shall be provided to the people working in high noise area.

2.15. Clean Development Mechanism (CDM)

Kyoto Protocol of United Nations Framework Convention on Climate Change (UNFCCC) has come into force from February 2005. Clean Development Mechanism (CDM) contained in Article 12 of the protocol allows governments or private entities in the industrialized countries to implement and / or purchase emission reduction from projects in developing countries and receive credit in the form of “Certified Emission Reductions” (CERs). With the completion of tenure for second commitment period on 31 December 2020, Kyoto Protocol/CDM is no more valid at present. Sustainable Development Mechanism (SDM) under article 6.4 or Bilateral/ Multilateral crediting mechanisms under article 6.2 provides an opportunity to earn revenue through the reduction of greenhouse gas emissions (GHG). The revenue will play an important role as it will further ameliorate the project IRR. Accordingly, SDM benefits under article 6.4 or Bilateral/ Multilateral crediting mechanisms under article 6.2 are proposed to be availed in this project to improve the Project IRR, whenever these will be operationalized.

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Chapter 3. DESCRIPTION OF THE ENVIRONMENT

This Chapter describes the baseline environmental conditions around the project site for various environmental attributes, i.e., physical, biological, and socio-economic conditions, within the 10 Km radial zone of the proposed project site, which is termed as the study area. Topography, drainage, meteorology, air, noise, water, soil and land constitute the physical environment, whereas flora and fauna constitute the biological environment. Demographic details and occupational pattern in the study area constitute socio-economic environment.

3.1. Background and Salient Environmental Features of the Study Area

Generation of environmental baseline of a project area is an important phase of any Environmental Assessment process. Baseline data provide vital information on the existing environmental quality in which a development is planned. It is also useful for delineating environmental sensitive areas and for preparing an Environmental Sensitivity Map for contingency planning. In this study, the environmental characteristics of the project area (10 Km radial zone Study Area) are established through extensive literature search, field sampling/measurements, laboratory analysis, consultation and data interpretation.

3.2. Study Area and Period of Monitoring

As per the ToR prescribed by MoEF&CC for proposed project 10 Km radial zone area around the proposed site has been considered as the Study Area. Study Area map provided in **Figure 3.4.** Primary and Secondary data has been collected for Study Area of the proposed project. Secondary data from literature search were also obtained from the Govt. sources i.e. Meteorological Department, CPCB publication, Forest Department and other Govt. Sources. The baseline environmental data generation has been done for the period of 1st October 2023 to 31st December 2023. Baseline data for the period from January 2024 to June 2024 has been generated and is compiled in **Annexure-9.**

3.2.1. *Primary Data Collection: Monitoring Plan and Quality Assurance Procedures*

Primary baseline data has been collected as per the ToR prescribed by MoEF&CC. Baseline data has been generated during 1st October 2023 to 31st December 2023 for one complete season. The study period and methodology for primary data collection is summarized in **Table 3.1.**

Table 3.1 : Summary of Methodology for Primary/Secondary Data Collection

Parameters	No. of Sampling Stations	Frequency	Remark
Meteorology			

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Parameters	No. of Sampling Stations	Frequency	Remark
Temperature, Humidity, Wind speed, Direction, storm, barometric pressure, Rainfall etc.	One Season Data	Hourly Data for Day & Night	Hourly Meteorological data was collected for one season.
Ambient Air Quality			
PM_{10}, $PM_{2.5}$, SO_2, NOx, O_3, CO, NH_3, (C_6H_6, Ba, P, As, Ni and Pb)	10 locations	Twice a Week	AAQ monitoring was carried out at 10 locations within the study area. 24 hours sampling at each location was carried out as per CPCB guidelines (CPCB Gazette notification dated 18.11.2009 on AAQ).
Noise Quality			
Noise profiling for 24 hrs	10 Locations	Once in season	Noise monitoring was conducted within the study area. For noise profiling 24 hrs monitoring were conducted using integrated sound level meter, as per CPCB guidelines.
Ground Water Quality			
pH, Temperature, Conductivity, Turbidity, TDS, Aluminium, Calcium, Chlorides, Copper, Fluoride, Free residual chlorine, Iron, Magnesium, Manganese, Nitrate, Phenolic compounds, Sulphate, Sulphide, Total Alkalinity, Total Hardness, Zinc, Cadmium, Cyanide, Lead, Mercury, Nickel, Total Arsenic, Total Chromium **Biological Parameter:** Total coliform (MPN/100 ml)	12 locations	Once in a season	Ground water sampling was conducted at 12 locations within study area (10 km area) as they will be impacted most if any pollution occurs due to project development. Samples were preserved, transported and analyzed for different parameters based on APHA/IS methods. Temp, conductivity and pH were measured at site itself.
Surface Water Quality			
pH, Temp., Conductivity, Turbidity, TSS, TDS, DO, BOD, COD, metals, oil & grease, Faecal, coliform and total	6 Locations	Once in a season	Surface water sampling was conducted at six locations within the study area. Samples were preserved and transported for analysis for different

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Parameters	No. of Sampling Stations	Frequency	Remark
coliform etc. as per surface water criteria.			parameters based on APHA/IS methods.
Soil			
Texture, bulk density, pH, conductivity, cation exchange capacity, organic matter, Total N,P,K, and Heavy metals	10 Locations	Once in a season	Soil samples were collected at 10 locations and analyzed as per IARI Manual.
Ecology			
Flora & Fauna		Once in a season	Primary survey and Secondary sources
Socio-economics			
Demography & Socioeconomic	-	Once in a season	Primary survey/ Secondary sources

Standard methods and procedures have been strictly adhered to in the course of this study. QA/QC procedures were strictly followed which covers all aspects of the study, and includes sample collection, handling, laboratory analyses, data coding, statistical analyses, presentation and communication of results. All analysis was carried out in NABL/MoEF&CC accredited/recognized laboratory.

3.2.2. *Environmental Setting and Salient Environmental Features of the Project Area*

Proposed 3x800 MW Coal based thermal power plant of **M/s Meja Urja Nigam Private Limited (MUNPL),** is located near Villages- Kohdar, Mai Khurd and Patai Dandi, Tehsil: Meja, Prayagraj, Uttar Pradesh. The total plot area of site is 1295 Ha, out of which 535 Ha land is government land, 760 Ha is private land. An additional land of 110 Ha, shall be required for proposed Ash Dyke (89 Ha), greenbelt and other (21 Ha). No forest land is involved. Corner cordinates of the proposed site are presented in **Figure 3.1.**

Proposed site is well connected through the rail and road. Nearest rail station is Meja Road Railway Station on Prayagraj-Mughalsarai section of North Central Railway is about 14.23 km from the project site, NE. The site is in south-west of Prayagraj-Mirzapur Highway. National Highway-135 C is passing about 0.7 km, east of the site. The nearest commercial airport is Prayagraj Airport approximately at an aerial distance of 36.76 Km, NNW. Varanasi Airport is at a distance of about 95 Km, ENE and Lucknow (Chaudhary Charan Singh International Airport) is at a distance of about 207.94 Km. Site connectivity Map showing coordinates of the study area is presented in **Figure 3.2.**

Nearest settlement is Mai Khurd Village abutting the project site. Other villages located within 1 km area of the proposed site are Korhar (0.37 Km, NNE), Jhadiyahi (0.40 Km, WNW). Tons River is located at about 0.95 km, WNW of the project site. River Ganga is located at a distance of

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about 23.24 Km, NNW from the project site. No National Park, wildlife sanctuary, biosphere reserve is present within the 10 Km area of the proposed site. Few reserved and protected forests are present in the study area. The locational environment features presented in **Table 3.2.** Location map provided in **Figure 3.3.** Topo map of 10 Km radius map is given in **Figure 3.4.** The Google satellite image of the 10 km area of the site is given in **Figure 3.5.**

Table 3.2 : Salient Environmental Features of Proposed Site

S. No	Parameter	Description
1.	Presence of Wildlife Sanctuary/National Park/Biosphere Reserves	None within 10 km study area.
2.	Reserved /Protected Forests (refer Figure 1.5)	• Badiha Reserved Forest (7.00 Km, SW) • Gadaria Reserved Forest (5.00 Km, SW) • Singhpur Khurd Reserved forest (0.90 Km, SW) • Salaiya Kalan Reserved Forest (Along Southern Boundary) • Salaiya Khurd Reserved Forest (Along Southern Boundary) • Kohdar Reserved Forest (Along Eastern Boundary) • Murpela Reserved Forest (2.70 Km, E) • East Chandhs Reserved Forest (8.00 Km, E) • Sukh Protected Forest (8.50 Km, E)
3.	Wetland of State and National Interest	None within study area
4.	Presence of Schedule-I Fauna	Peafowl, Jungle Cat, Porcupine, Black buck, Hyaena, Rat snake and Russel's Viper
5.	Critically Polluted Area	None within study area
6	Site connectivity	The site is connected to NH-135 C through NTPC Meja Road which passes close to the site. NH-135 C, 0.7 km, east
7	Nearest Rail Station	Meja Road Railway Station, 14.23 km, SE.
8	Nearest Airport	Prayagraj Airport – 36.76 km, NNW
	Nearest Habitat	Mai Khurd Village abutting the project site.
9	Archaeologically important places	None
10	Water Bodies	➢ Tons River (0.95 Km, WNW) ➢ River Ganga (23.24 Km, NNW)
11	Seismic zone	Seismic Zone-III (Moderate Risk Zone)
12	Physical Sensitive Receptors	School: Vijay Degree College, Salaiya, Meja, Prayagraj (0.68 Km, SSW) Hospitals: Ma Isaraja Devi Charitable Hospital, Sirihir, Meja, Prayagraj (3.05 Km, SSW)
13	Archaeological Monuments	None

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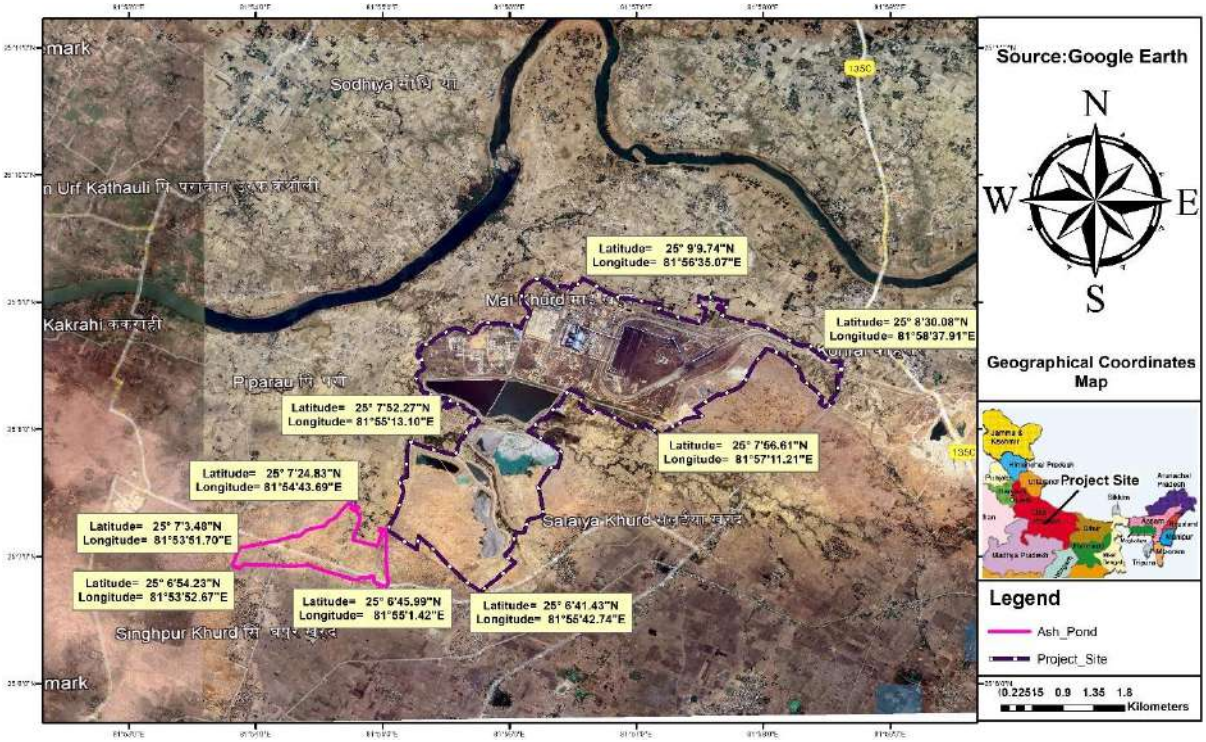


Figure 3.1 : Close View of the Site along with Corner Coordinates

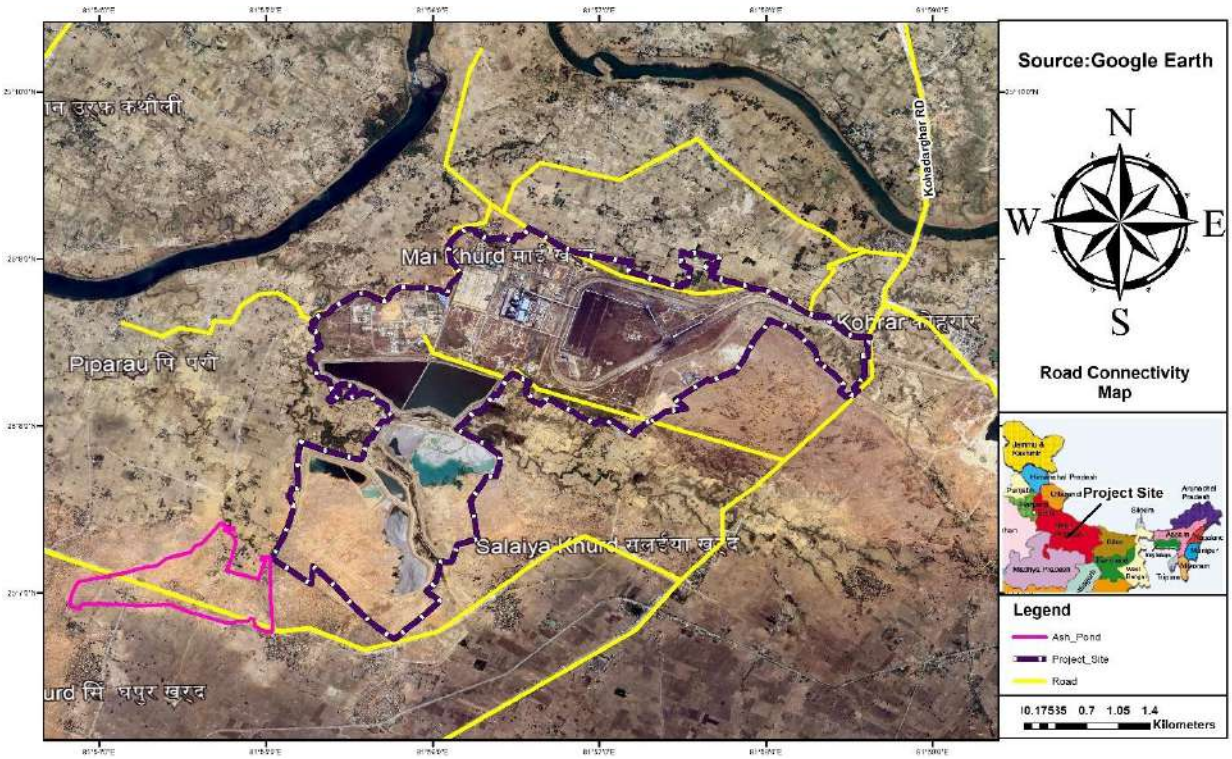


Figure 3.2 : Road Connectivity Map

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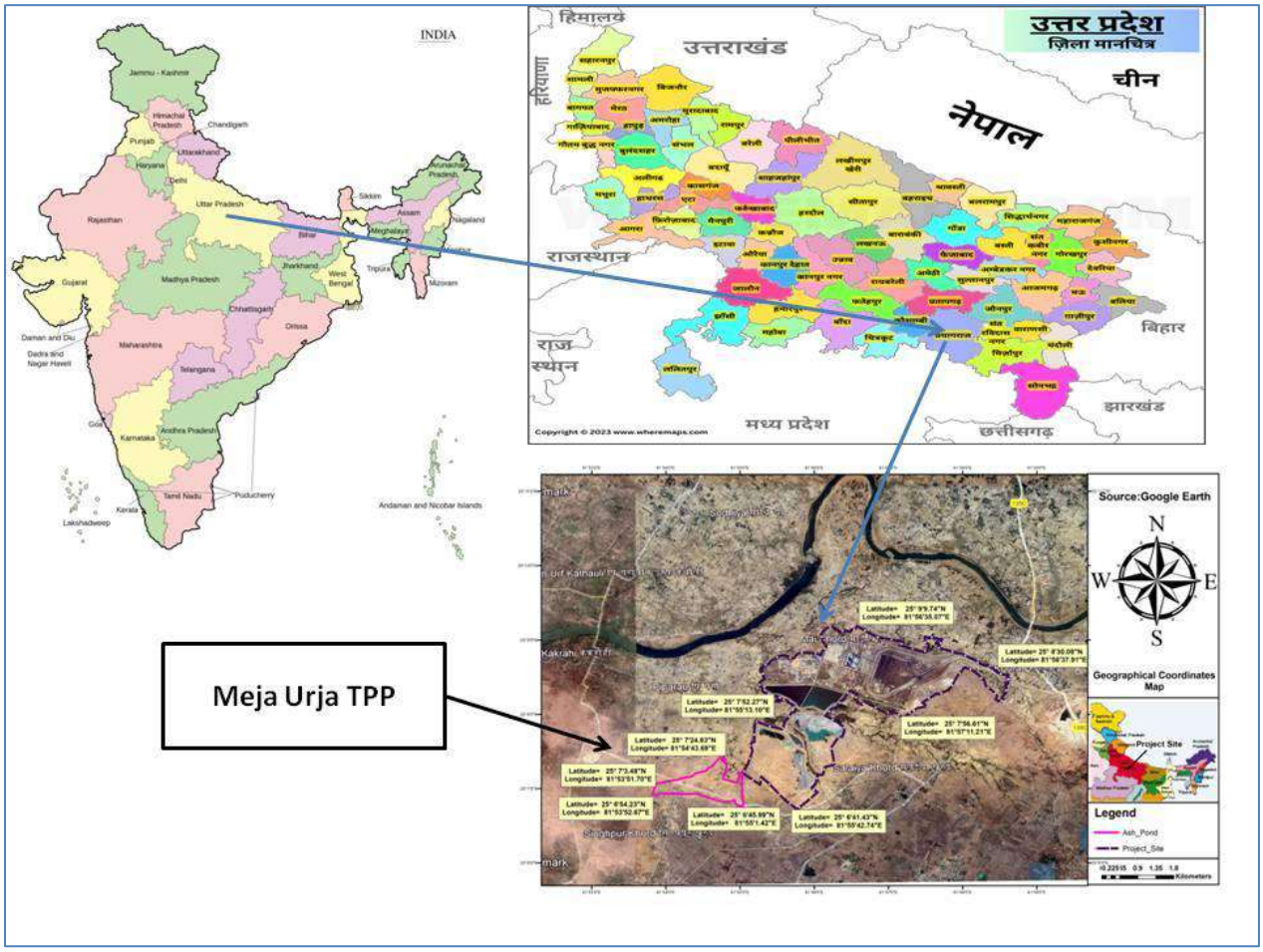


Figure 3.3 : Location Map

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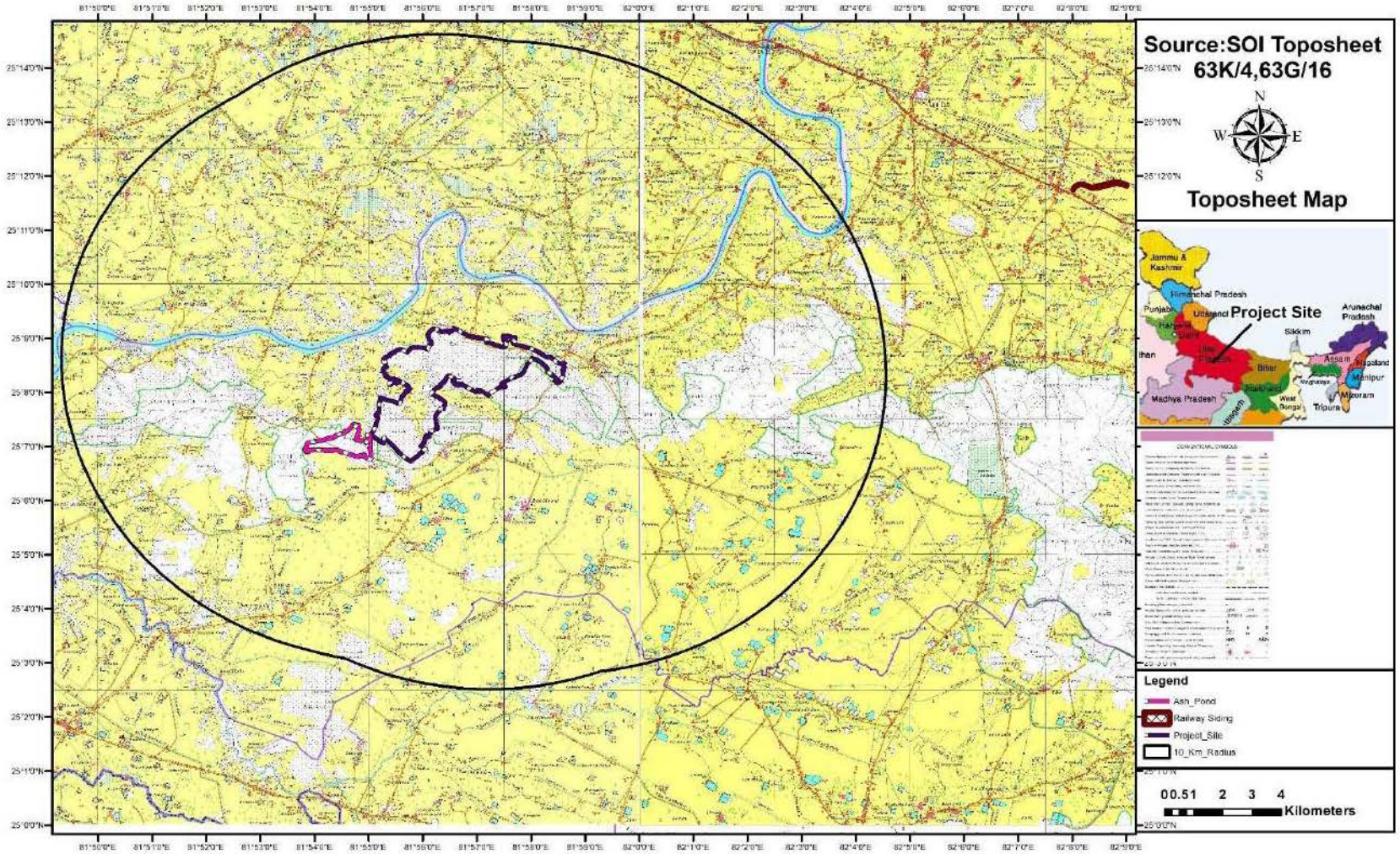


Figure 3.4 : Topo Map of Study Area

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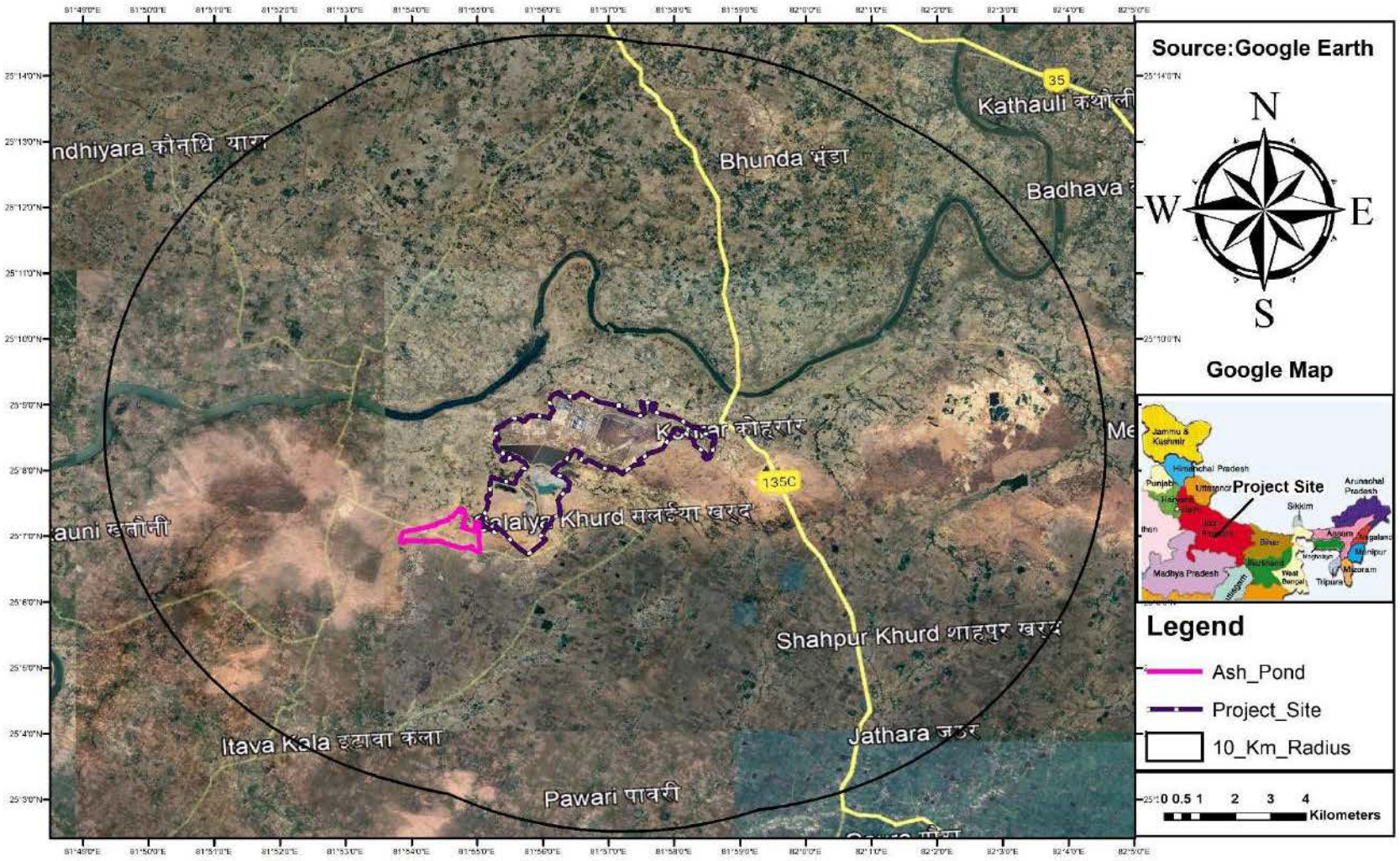


Figure 3.5 : Google Map of the study area

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3.3. Physical Environment

3.3.1. *Topography*

The Uttar Pradesh State is broadly classified into two (categories) physiographic units- the Central Ganga Plain (85%) and Bundelkhand and Vindhyan Plateau (Southern part). The Ganga Plain is a vast, flat expanse of alluvium with a gentle south-easterly regional slope. The plain is further sub-divided into Terai (Northwest), Central Ganga Plain (Centre) and Marginal Alluvial Plain (South). The study area and Prayagraj district belongs to Central Ganga plain. The elevation ranges from 350 m amsl in the north-western parts to 60 m amsl in the extreme south-eastern part with slope ranging from 1m/km to 5m/km.Bundelkhand and Vindhyan Plateau, south of the Marginal Alluvial Plain is an undulating hilly terrain with a northerly regional slope. The elevation ranges from 550-130 m amsl in the western part and 650-100 m amsl in the eastern part, steeper as compared to northern Ganga plain.

Topography within Project Site: The topography of the proposed site is slightly undulating. The site is already developed, and expansion is to be done within the existing premises. The elevation of the project area including ash pond ranges between 81 to 128 amsl. The project site is sloping slightly towards west and southwest direction. The tons river[2] is located about 950 m away from the site. HFL of the Tons River is 87.18 m at Meja Road CWC Gauge near project site. (HFL at CWC Gauge station Meja Road CWC Gauge and Tons Aqueduct/Tons has already been established by the CWC department and HFL for the waterway was derived as per change in the ground profile of the river.) The elevation of the site towards river side is more than 90 amsl, hence no chance of flooding is anticipated. Certificate received from Chief Engineer (Water Resources) Irrigation and Water Resources Department, Govt of UP, regarding HFL level of River Tons dt.10.01.2025 has been received and attached as **Annexure-26**. Digital elevation map of project site is presented in **Figure 3.6.**

Topography of Site and Surrounding 10 Km Area: The topography of the project site and the surrounding 10 km radial zone is undulating. The elevation of Study area ranging between 66 to 148 amsl. The study area is sloping towards south to north direction. Digital Elevation Map (DEM) of study area is presented in **Figure 3.7.**

[2] FINAL FEASIBILITY REPORT ON DETAILED HYDROGRAPHIC SURVEY TONS RIVER by IWAI

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मेजा ऊर्जा निगम प्रा० लिमिटेड MEJA URJA NIGAM (P) LIMITED	Final EIA report for Meja Thermal Power Project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh.	Doc. No.: EIA-MUNPL-STG-II/2024/001 Rev. No.: Version 4.0 Rev. Date: 16.04.2025 Title: MUNPL-STG-II EIA

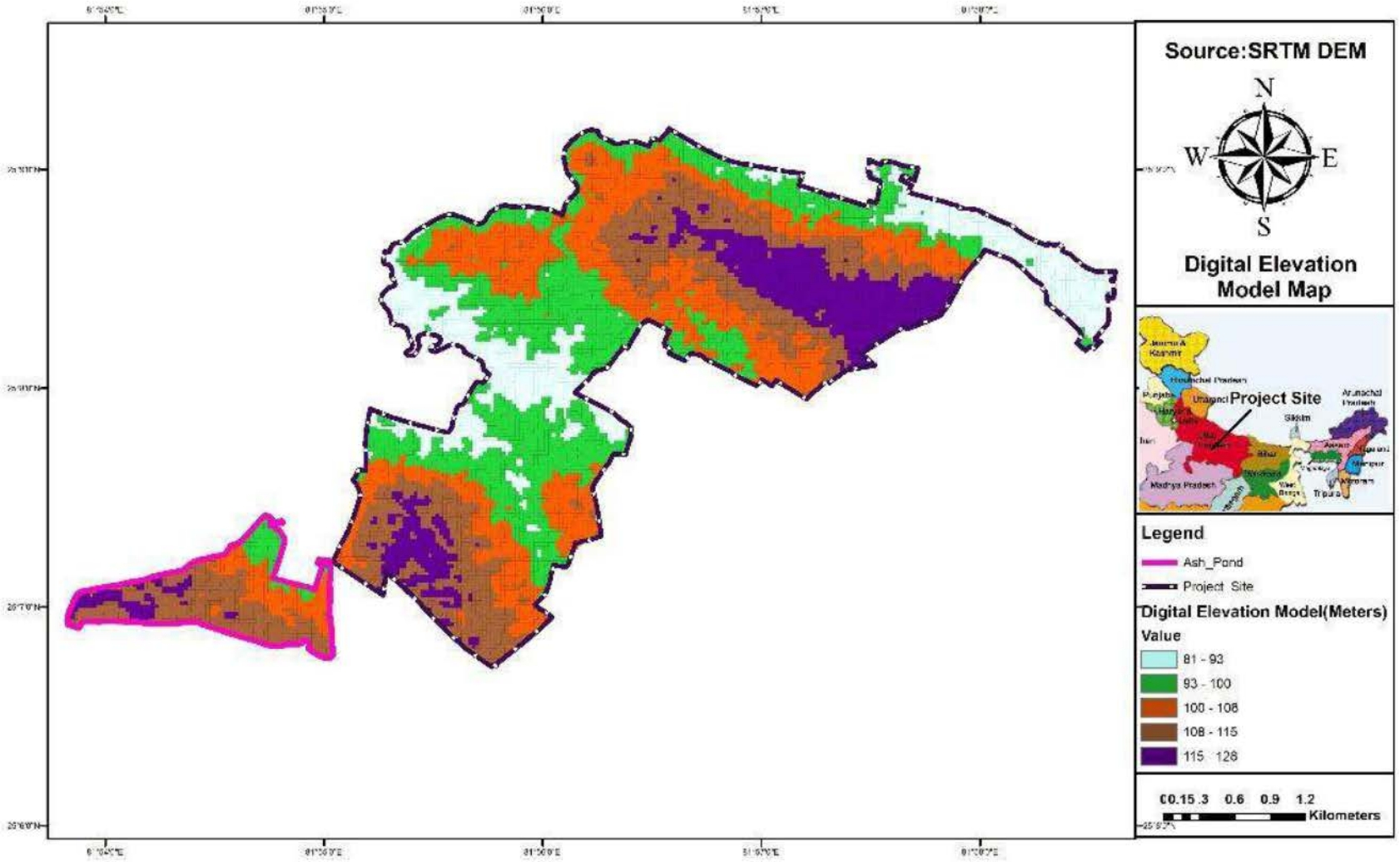


Figure 3.6 : DEM of Project Site

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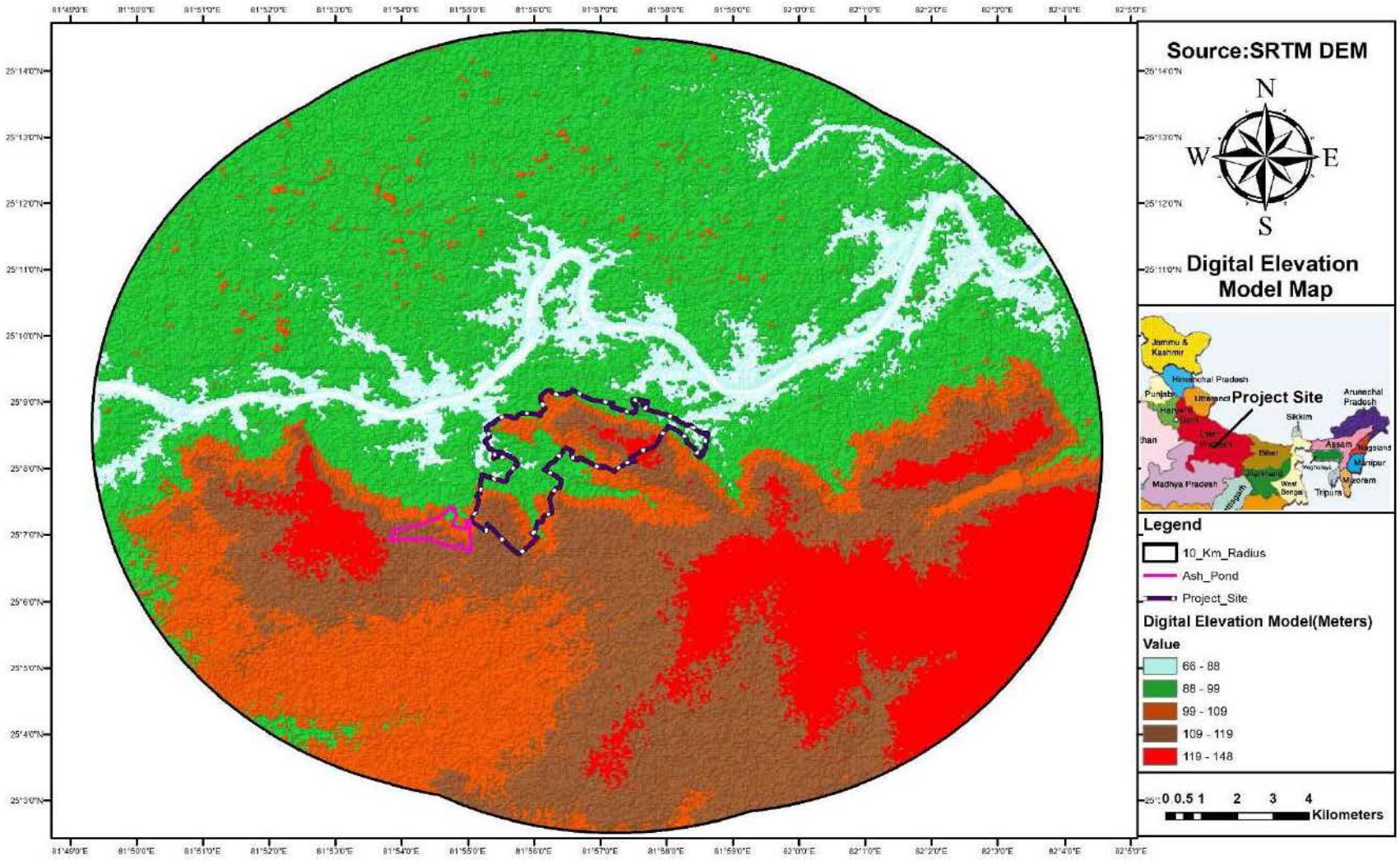


Figure 3.7 : DEM of Study Area

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3.3.2. *Drainage*

Prayagraj district falls in Ganga basin and Yamuna Basin. The Northern half of the Prayag Raj district occupies part of Ganga basin and Sothern part of the district occupies the part of Yamuna and Tons Sub- basin. The district belongs to Ganga Drainage system. The important tributaries of the Ganga are Yamuna and Tons.

The study area falls in southern part of the district and occupies the part of Yamuna and Tons basin. Yamuna has more constant channel and steeper banks. The drainage pattern of the study area is mainly controlled by the Tons River and its tributaries. The drainage pattern of the study area is mainly dendritic to sub dendritic type. There is no stream/ nalla is passing through the project site. Drainage map of the study area is presented in **Figure 3.8.**

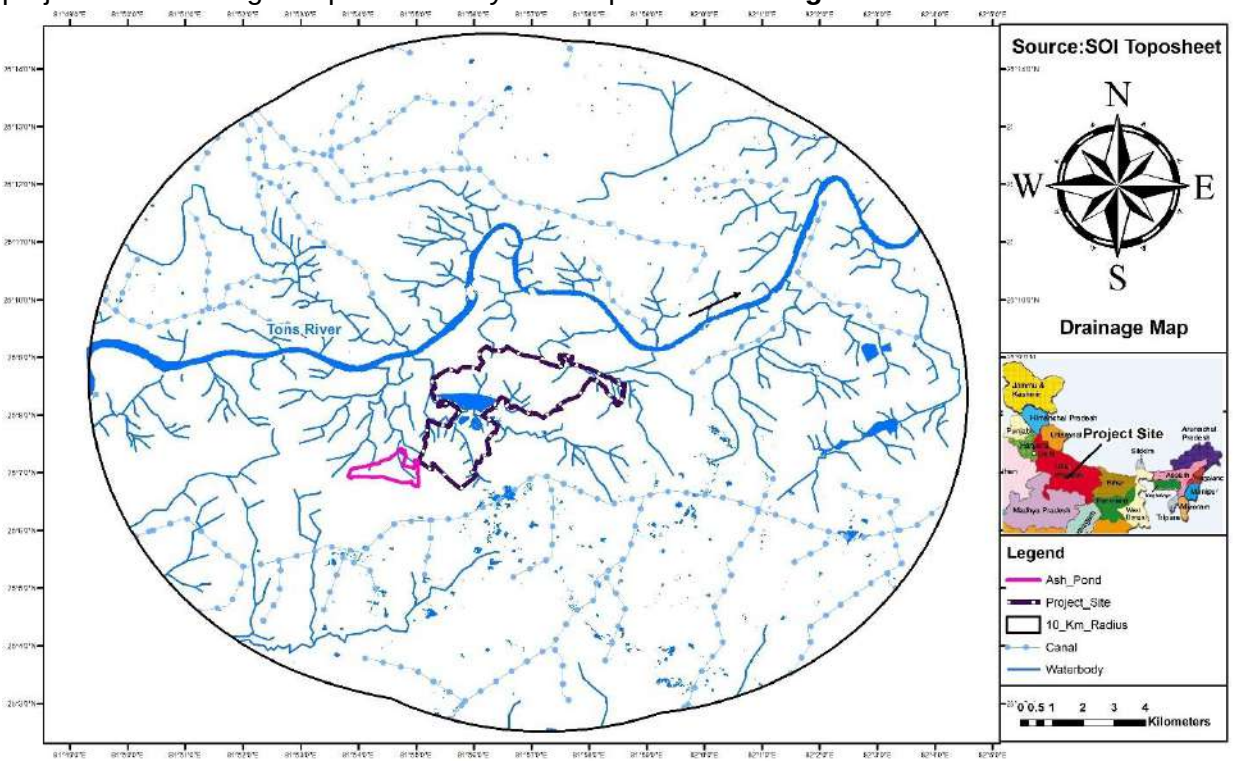


Figure 3.8 : Drainage Map of the Study Area

3.3.3. *Hydrogeology of 10 km study area (Findings)*

Detailed hydrogeological study of the project site and surrounding 10 Km study was conducted by National Institute of Hydrology (NIH), Roorkee, Uttarakhand. Detailed report is attached as **Annexure-17.** The summery of the report is as below:

The study area is characterized by Active Flood Plains, Older Alluvial Plain and Rocky Surface (Denudational hills). The active flood plain is quite localized and confined only to the river system, whereas the older alluvial plain is characterized by depositional and erosional terraces found in patches along the active plain. The denudational hills found prominent in trans Yamuna area formed mainly of quartzite and the core area of the Meja Power Plant is situated on the denudational hills. The MUNPL area is occupying part of Ganga basin and another part of Tons

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Sub- basin. The seasonal rivers as well as tributaries are ephemeral and flow only in response to heavy precipitation.

The district represents a complex geology with the formation belonging to Quaternary (Alluvium – Sand, silt, clay and Kankar, Laterite.) period covering major part in the northern side of the district overlying the Vindhyan formations (Sand stone and shale Kaimur sandstone and Bijaigarh Shale) in the southern plateau. The oldest formations exposed are Bijaigarh Shale in the edge of the district around Hanumangunj in Koraon block. Further to the north the sandstone and quartzites, representing the uppermost part of the Kaimur series, are seen as isolated part of the district covering the blocks of Meja,Manda, Koraon and Shankargarh, The Vindhyans forms the floor of the younger sediments in the Cis-Yamuna area. The Laterite normally overlies Vindhyans at certain places. It is reddish brown to chocolate in color, highly ferruginous, and perforated mass. Alluvium found in the whole of Trans-Ganga, Doab and Part of Trans – Yauna tract of Quaternary age. The alluvium detritus of Vindhyan is found at some places in the southern part of the Doab. In Trans – Yamuna tract, The Vindhyan detritus merges with the Yamuna sand and silt. The thickness of the alluvial sediments gradually increases in the north and maximum thickness is encountered within the flood plain area of river Ganga and Yamuna. Greater thickness is encountered within the Trans – Ganga area where it exceeds 300 meters followed by doab region where it is less than 250 meters and ultimately less than 50 meters in the Trans-Yamuna region. The alluvial sediments essentially composed sands of various grades, clay and silts within the unconsolidated granular mass assemblage of nodular concretions of Calcium Carbonate have been recorded at different depths (CGWB, 2019).

Groundwater occurs in alluvium and in the weathered and joint sandstones in areas which are underlain by the hard rocks. Two broad hydrogeological units, namely, unconsolidated (Alluvium) and consolidated (hard rock) are the major components. The Alluvial formations occur in the Trans-Ganga and Doab region. Occurrence of consolidated formations is restricted primarily to Trans Yamuna tract. In the study area, the thickness of alluvium is more than 300 m with the discharge rates of 2000-3000 lpm.

In the study area wells and tube wells are the main ground water abstraction structures. Ground water is being developed in the area by medium to deep tube wells, dug wells, dug-cum bored wells. Based on 3 exploratory wells data in the area CGWB observed yield at Pipraon village was about 770 lpm (good to excellent on groundwater prospective) whereas yield of 107 lpm encountered at Saliya Khurd village belongs to very poor prospective area.

Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period in September 2023. In Monsoon 23-24, it was observed that water levels are higher which are going down by about 5-10 m down in the pre-monsoon period.

Analysis of long series daily rainfall data of 36 years (1985-2021) of the study area showed that annual rainfall varied from year to year ranging between 379. mm to 1300 mm with an average of 858 mm. About 921 mm (89.07 % of the annual rainfall) is received during the monsoon months, June through September. Probability analysis of the annual rainfall data carried out at various dependability levels showed that the quantity of rainfall at 20%, 50%, and 90% probability of exceedance is 370, 250, and 130 mm, respectively.

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In the pump test, Thesis's Time-drawdown curve matching method show Transmissivity value of the piezometer around 0.40 m^2/day, whereas Theis's recovery method the Transmissivity of the aquifer is coming approx. to 0.37 m^2/day. Indicating very low value of transmissivity and that can result to low yield.

The bore hole drilling data reveals that the lithology of the region is basically, Sandstone of various grade and composition. The water bearing zone in the area is comprises of fractured sandstone basically between 200-240, 260-280 ft bgl.

Ambient groundwater and surface water from various locations of the buffer zone have been analysed based on the samples collected from the field. The sampling locations were widespread in and around the study area. In general, mostly the water quality parameters were found within the permissible limits and some exceeding the limits.

In monsoon 2022, iron in 60% of the groundwater samples and 20% of surface water samples are found within the acceptable and permissible limits, respectively. There is no relaxation for the permissible limit. Zinc is found within the acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

No impact of MUNPL effluents is found on the surface and ground water regime because no effluents are discharged out by the MUNPL and the effluents from the ash dyke also do not indicate any harmful parameter.

3.3.4. *Geology/Hydrogeology of Prayagraj and study area*

The Prayag Raj district represents a complex geology. The geological formation of the district belongs to Ganga alluvium of Quaternary age. The larger part of the district directly overlies the alluviums. The thickness of the alluvial sediments gradually increases in the north and maximum thickness is encountered within the flood plain area of river Ganga and Yamuna. The southern plateau area constitutes the upper Vindhyan sediments whereas the Quaternary covers the northern part of the district. The geological sequence of the district is s below:

S. No	Age	Group	Sub-group
1	Quaternary	Alluvium	Sand, silt, clay and Kankar, Laterite.
2	Pre Cambrian	Vindhyan sediments	Sandstone and shale (Kaimur sandstone and Bijaigarh Shale)

Geologically the study area belongs to Vindhyan sediments comprised of Sandstone and shale (Kaimur sandstone and Bijaigarh Shale). This is also called hard rock area. The Ground water in the widely covered Vindhyan Plateau region primarily occurs under unconfined condition within the secondary porosity of the formation. However, exploration data indicates that Kaimur sandstone found at depths does have enough potentiality. These sandstones after leaching of cementing material get disintegrated and reduce to silica sand which are loose and act as promising repository of ground water. Below the sandstone particularly in the western part of the plateau region shales have been encountered which possess reasonable development of secondary porosity and projects moderate prospect of occurrence of ground water.

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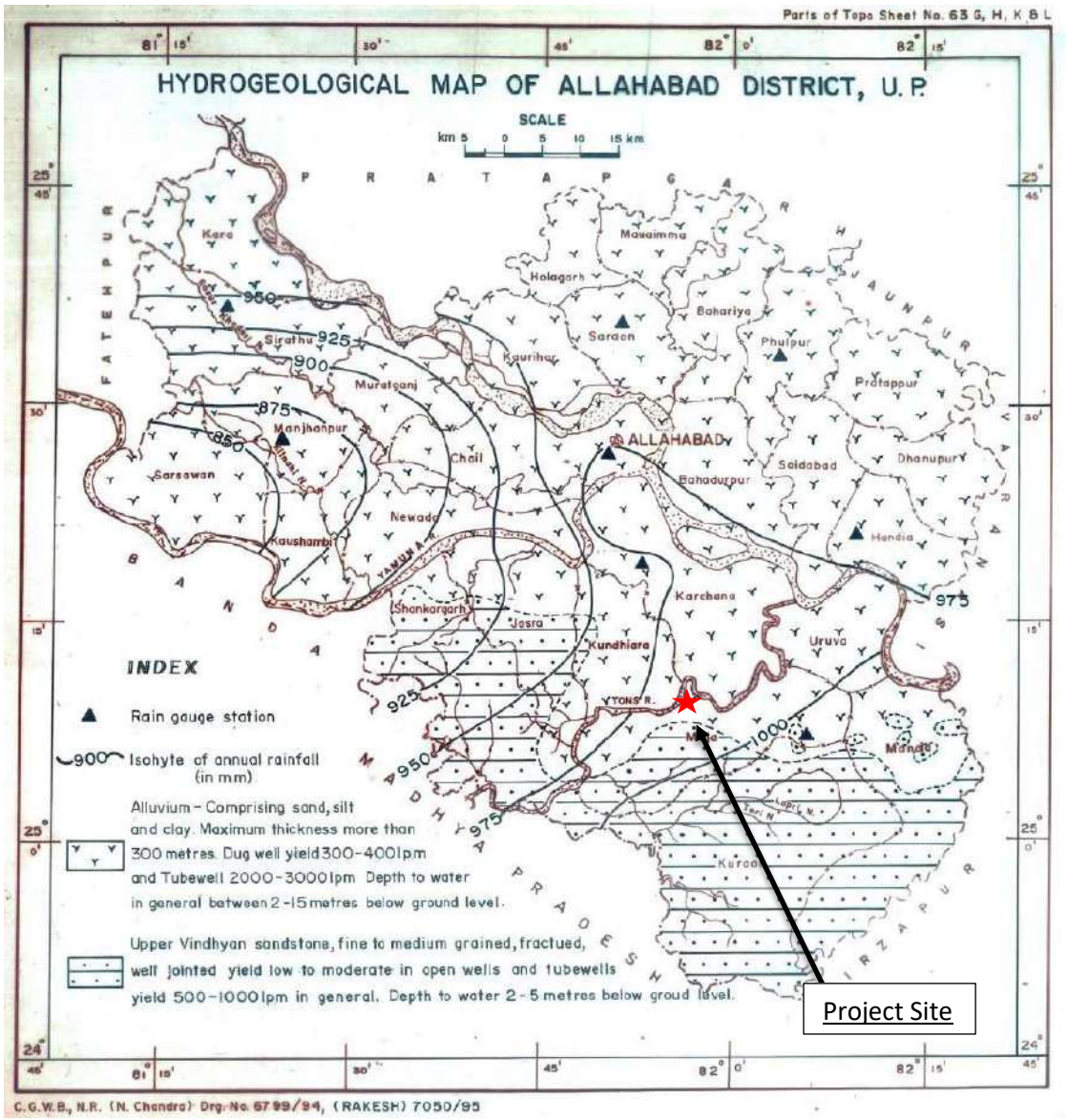


Figure 3.9 : Hydrogeological Map of Prayagraj District

(Source: Aquifer Mapping And Management of Ground Water Resources of Prayagraj by CGWB)

3.3.5. *Mineral Map of the study area*

There is no minerals reported at the project site. The mineral map of the study area is presented in **Figure 3.10.**

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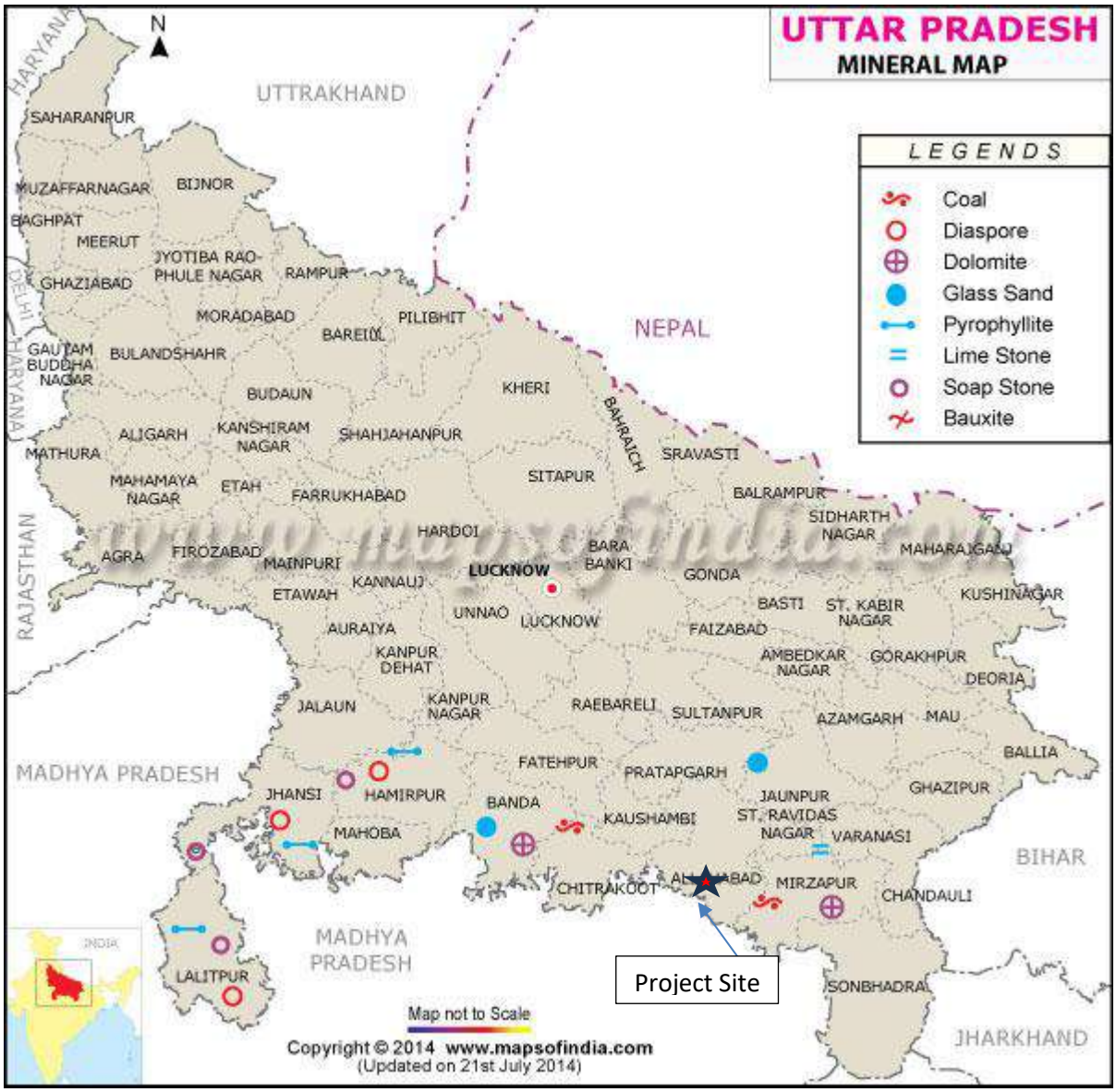


Figure 3.10 : Mineral Map of Uttar Pradesh

3.3.6. *Depth to Ground Water Table:*

Study area falls in Meja block of Pyrayagraj district. With respect to depth of ground water druing pre-monsoon the depth to ground water table in study area varying between 5 to 10 mbgl. Similarly, during post monsoon season the depth to ground water table in study area 2 to 5 mbgl. During the study period the ground water table were checked at few locations the water table were observed is found between 7 to 14 m bgl. The depth to ground water level map of the district of pre-monsoon and winter season presented in **Figure 3.11** and **3.12**.

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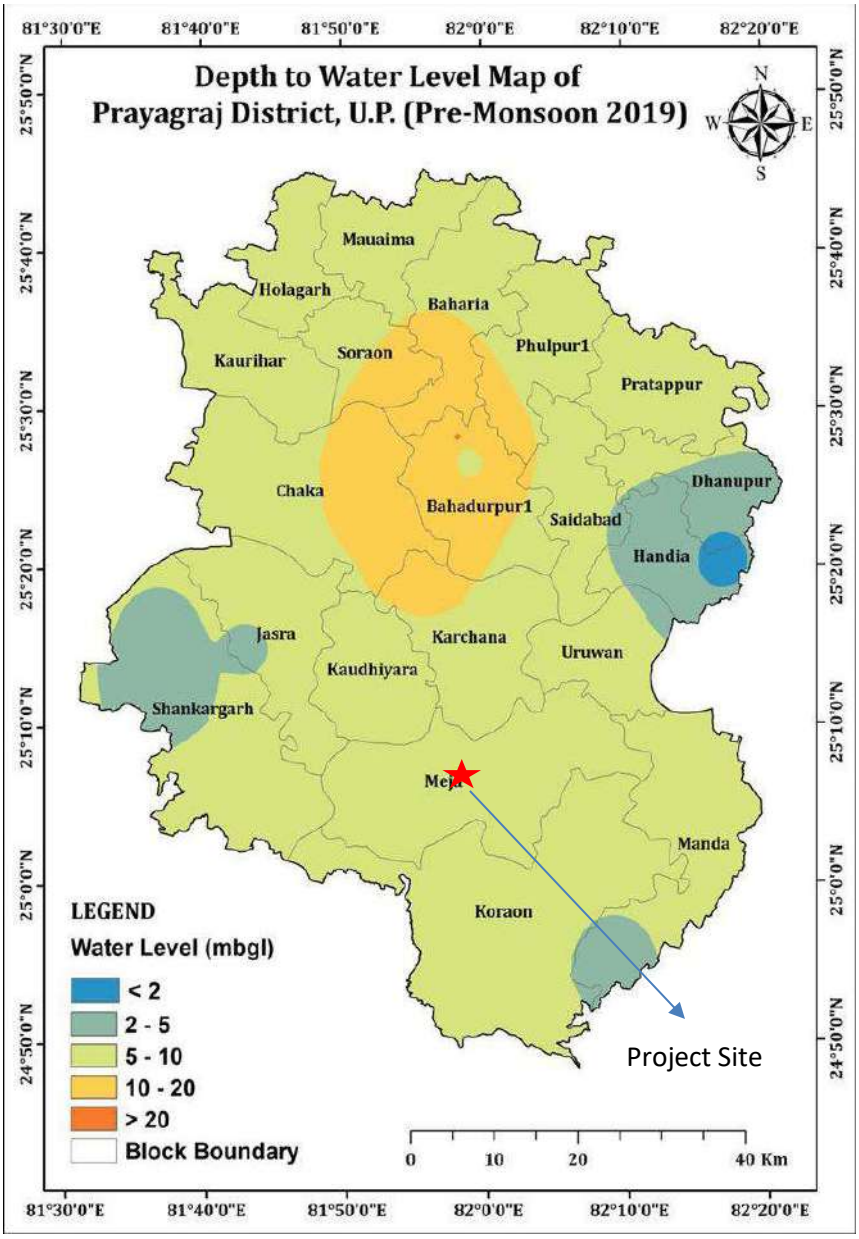


Figure 3.11 : Depth to ground water in Pre-monsoon season (2019)

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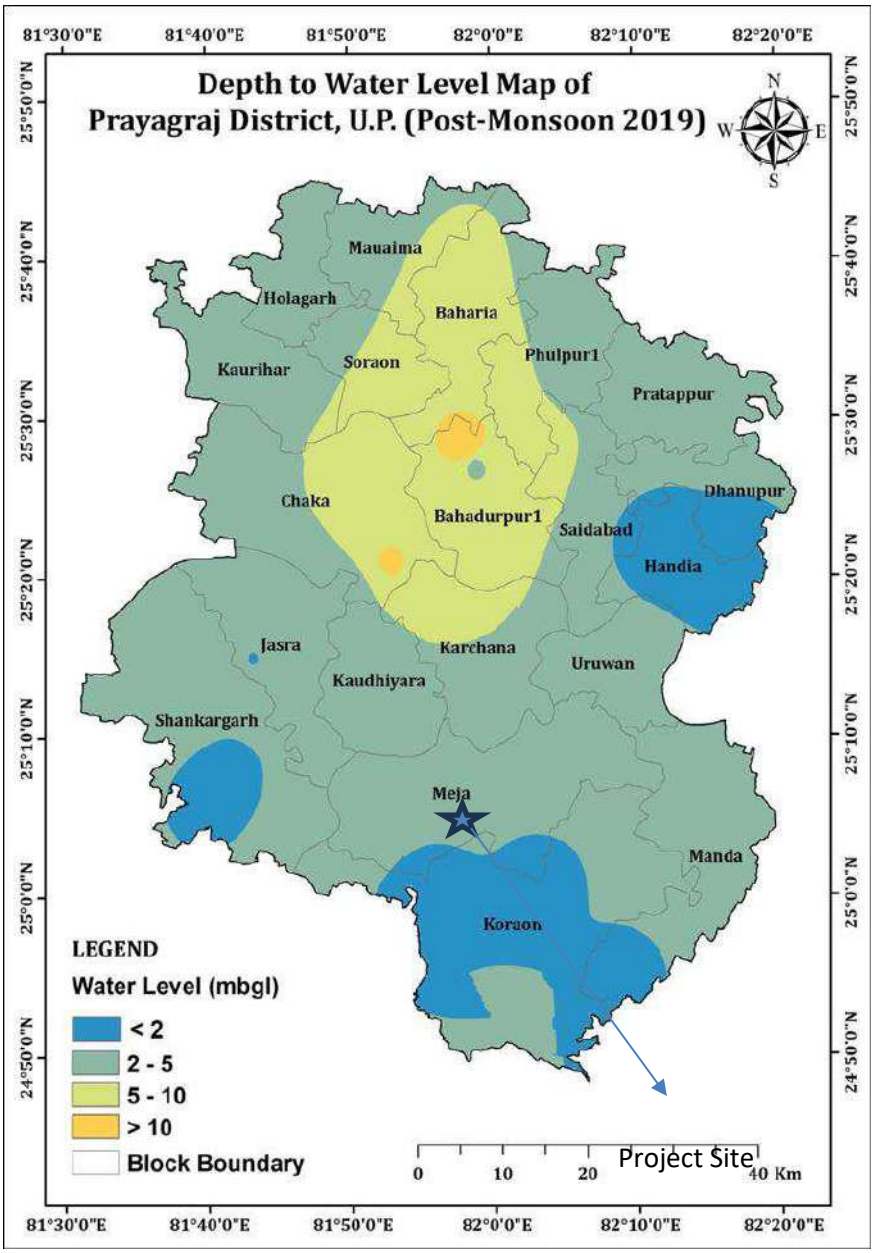


Figure 3.12 : Depth to ground water in post-monsoon season (2019)

3.3.7. *Ground Water Resources*

The study area falls in Meja block of Prayagraj District. The stage of ground water development in Meja block block is 51.25% and is in safe category. The ground water potential of the Meja block is presented in **Table 3.3.** dynamic ground water resources of the district is presented in **Figure 3.13**.

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Table 3.3 : Groundwater Resources Potential of the Prayagraj District

S. No	Assessment Unit Name	Annual GW Allocation for for Domestic Use as on 2025 (Ham)	Net Ground Water Availability for future use (Ham)	Stage of Ground Water Extraction (%)	Category
1	Bahadurpur	962.23	1177.13	84.10	Semi- critical
2	Baharia	790.97	105.38	97.75	critical
3	Chaka	591.99	283.88	93.29	critical
4	Dhanupur	691.66	802.3	85.78	Semi- critical
5	Handia	712.28	1428.95	67.46	safe
6	Holagarh	518.76	1291.77	77.86	Semi- critical
7	Jasra	513.5	2243.46	69.69	safe
8	Karchana	679.03	2659.09	65.63	safe
9	Kaudhiyara	514.57	2642.18	60.22	safe
10	Kaurihar	1067.83	2780.7	66.28	safe
11	Koraon	685.68	3973.23	57.79	safe
12	Manda	634.96	1743.76	64.31	safe
13	Mauaima	607.23	931.95	81.83	Semi- critical
14	**Meja**	**775.07**	**3580.18**	**51.25**	**Safe**
15	Phulpur	631.63	2077.97	66.75	safe

(Source: Aquifer Mapping And Management of Ground Water Resources of Prayagraj by CGWB)

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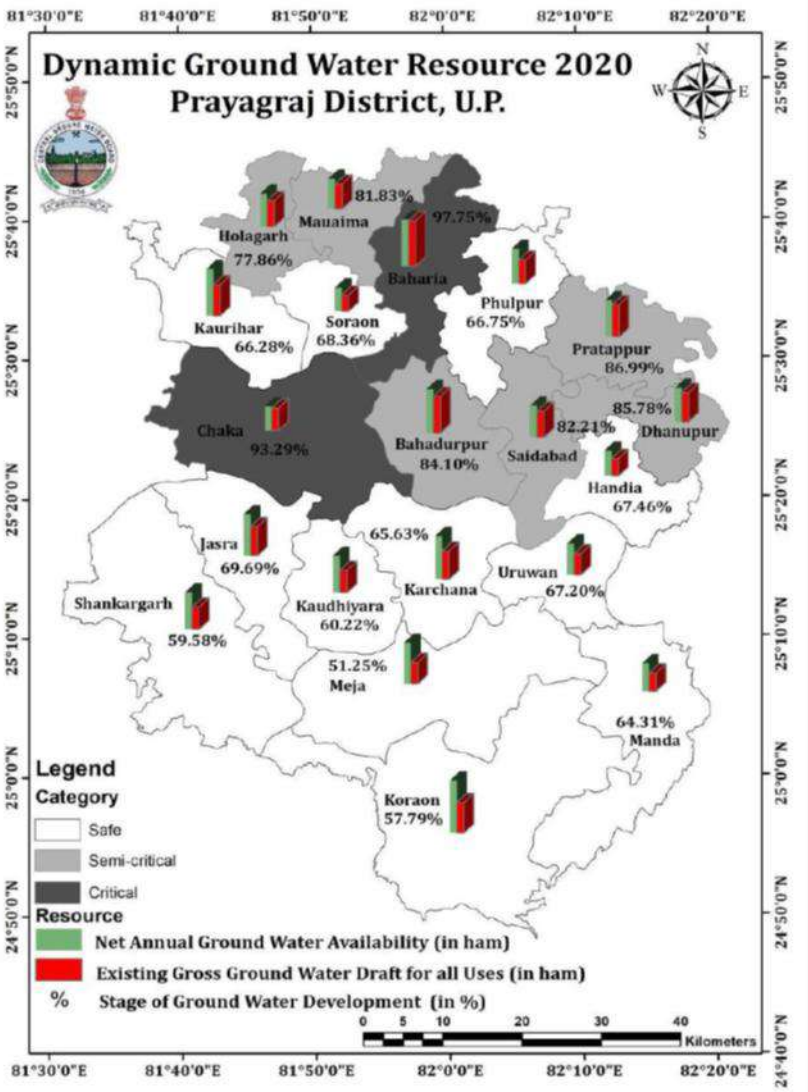


Figure 3.13 : Ground water resources of Prayagraj district

3.3.8. *Seismicity of the Study Area*

Earthquake is a natural disaster so necessary safety measures may be adopted considering the vulnerability to avoid enhanced risk. According to Vulnerability Atlas of India, Third Edition 2019, the state of Uttar Pradesh falls in a region of low damage risk zone to very high damage risk zone. The Proposed Power Plant site falls under the Seismic Zone III (MSK VII) as defined in seismic zoning classification system, i.e. moderate damage risk zone with MSK intensity VII. Seismic m ap showing location of the project site is presented in **Figure 3.14.**

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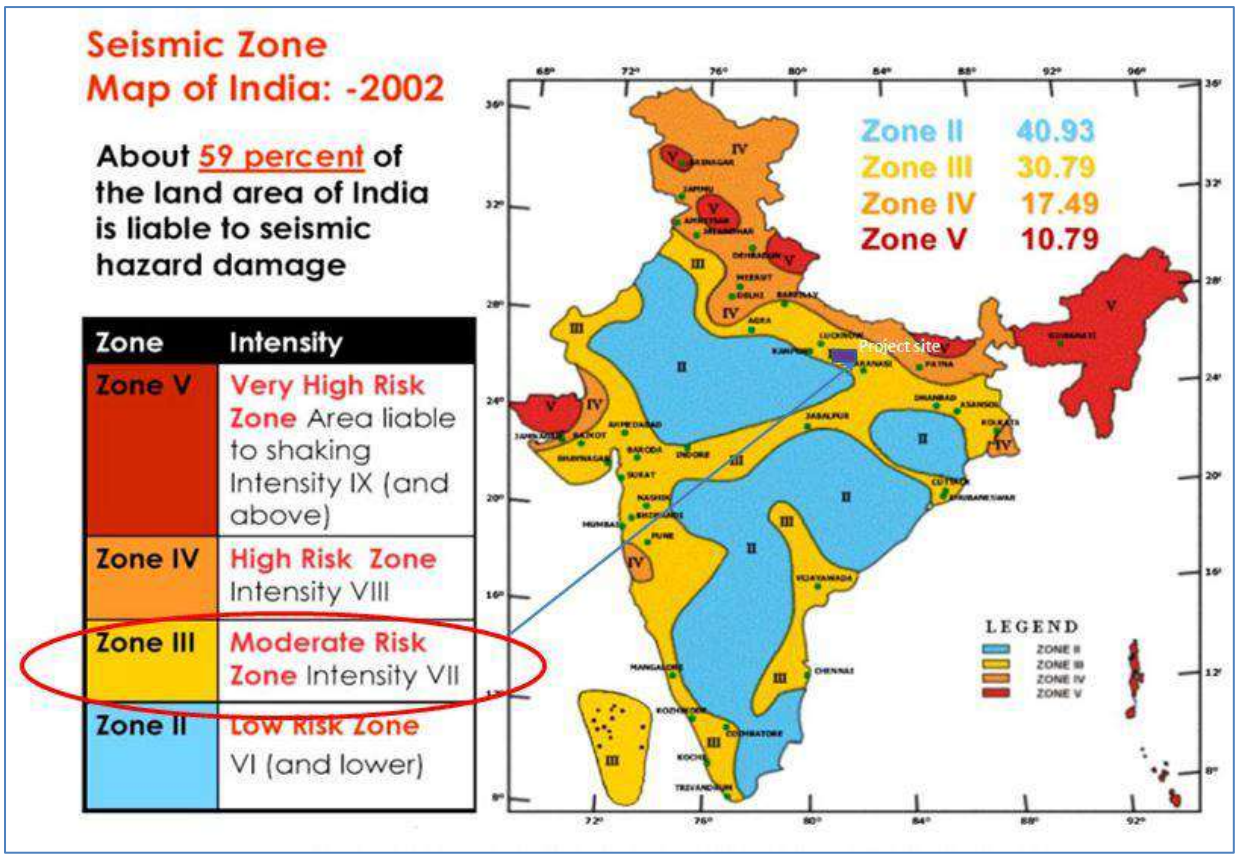


Figure 3.14 : Seismic Zone Map

3.4. Land use

Land use analysis was carried out using remote sensing data. Interpretation approach based on systematic digital imaging was used for delineating the land use classes. The demarcation of boundaries falling under different land use/land cover units is done using different colours assigned to different land use/land cover units of satellite imagery.

Land use of project site: It is an existing plant, and the land use of the site is industrial. No further change in land use is anticipated. The proposed expansion shall be done within the existing plant boundary. For development of ash pond for the Stage-II additional land of 89 Ha. and 21 Ha for greenbelt and other shall be required for acquisition. The current land use of this land shall change to industrial uses.

Land use within 10 km study Area: As per the satellite image of year (Oct 2023) analysis the predominant land use of study area is under agriculture. As per the land use based on satellite image, about 59.20% of the land is under agriculture. About 18.19% land is under open scrubs, 11.57% area is covered under settlement, 2.54% land area is found under waterbodies and 8.50% of the land is under open vegetation (Refer **Table 3.4).** Geographical representation of land use in 10 km area is presented in **Figure 3.15.** Land use and land cover map is provided in **Figure 3.16.** FCC Image provided in **Figure 3.17.**

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Table 3.4 : Land Use of the Study Area (10 Km area)

S. No.	Land use distribution	Area (ha)	Percentage
1	Agricultural Land	267.15	59.20
2	Open Shrub Land	82.1	18.19
3	Settlement	52.22	11.57
4	Waterbody	11.47	2.54
5	Vegetation	38.34	8.50
Total		**451.28**	**100**

Source: Analysis of Satellite Image

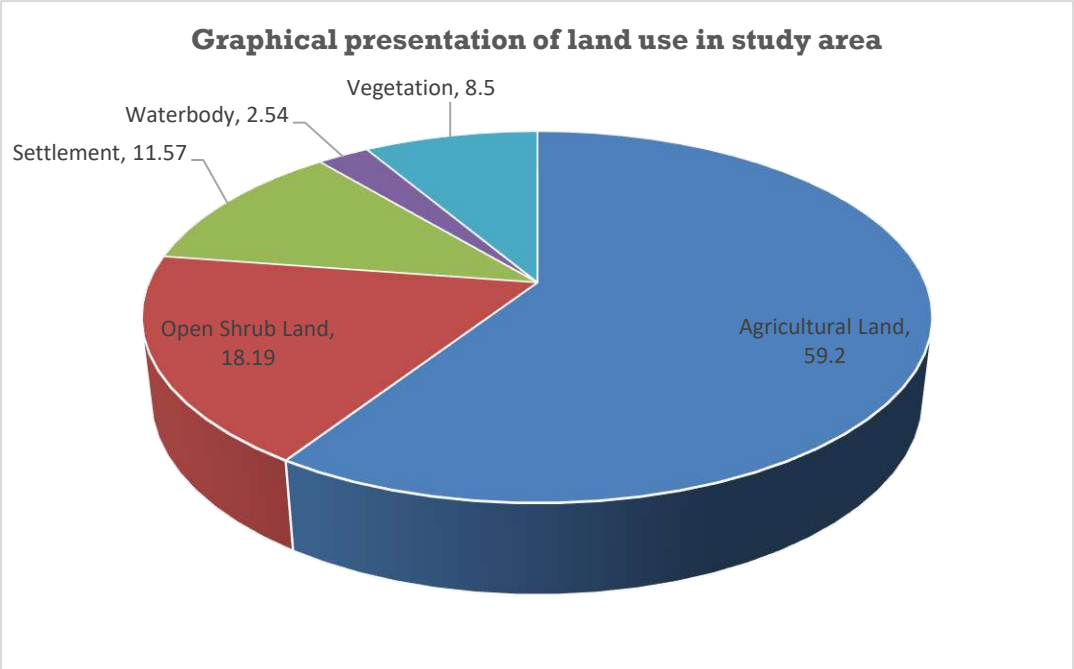


Figure 3.15 : Graphical presentation of land use in study area

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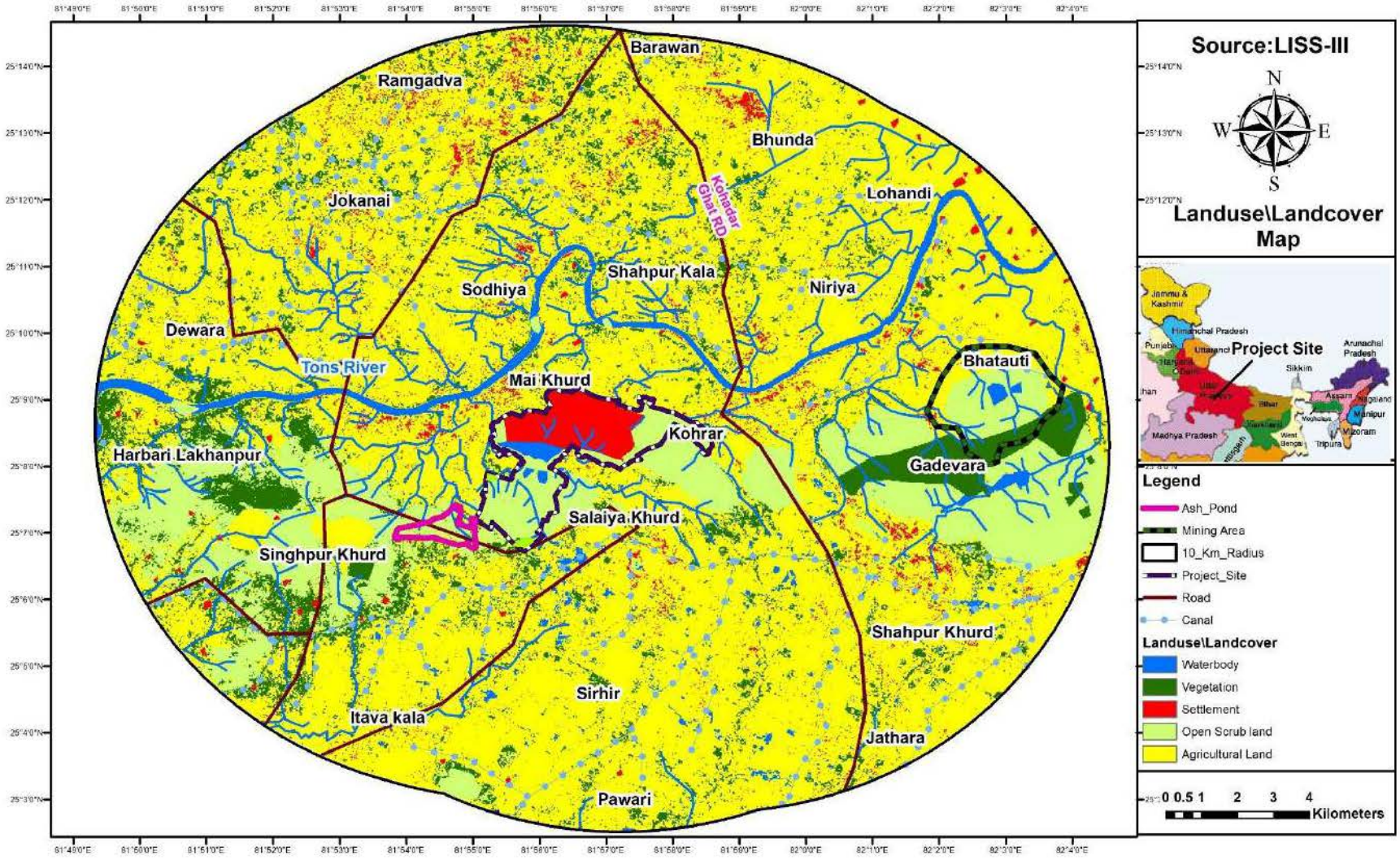


Figure 3.16 : Land Use Map of the Study Area (10 km Radial Zone)

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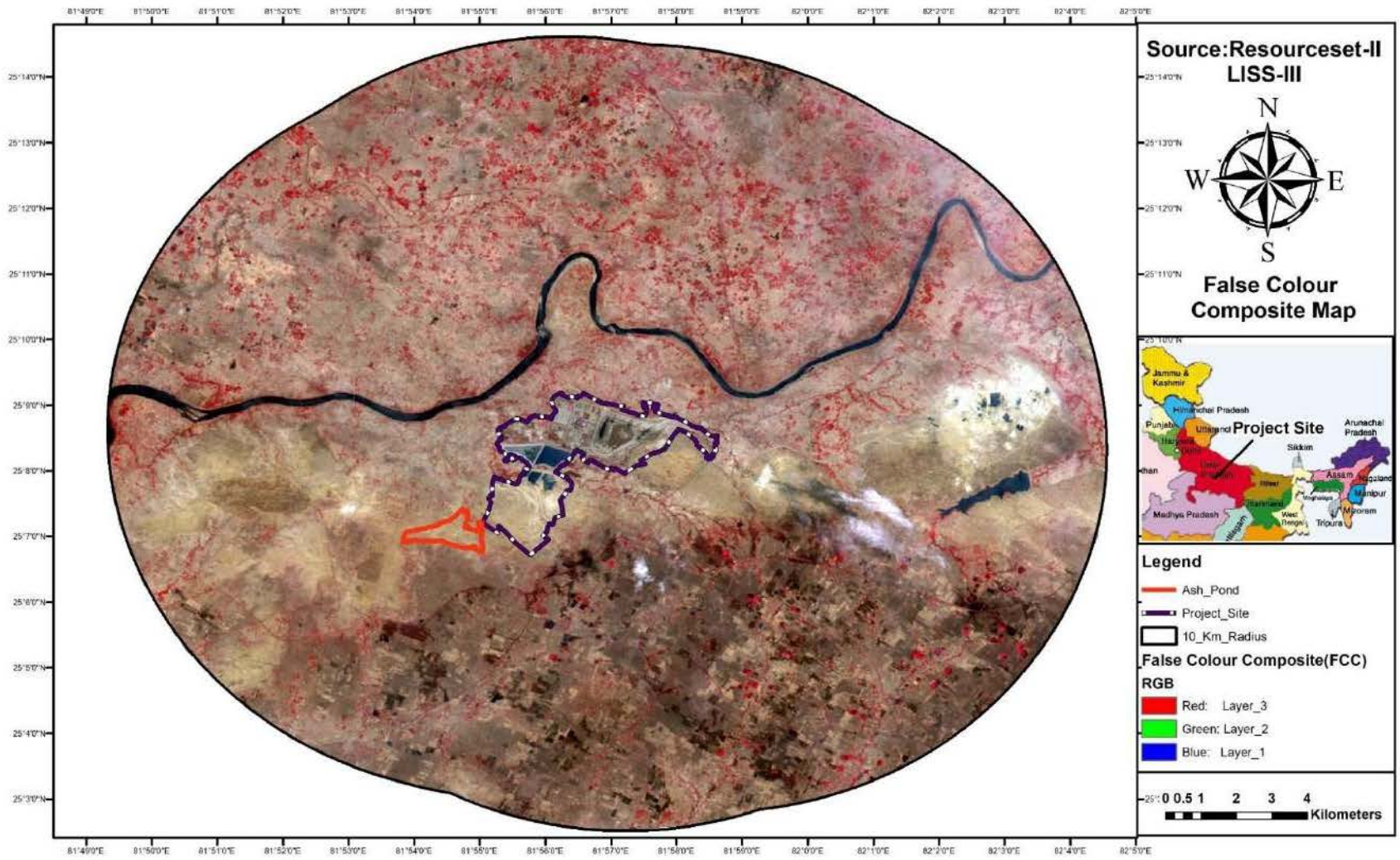


Figure 3.17 : False Colour Composite Map of the Study Area (10 km Radial Zone)

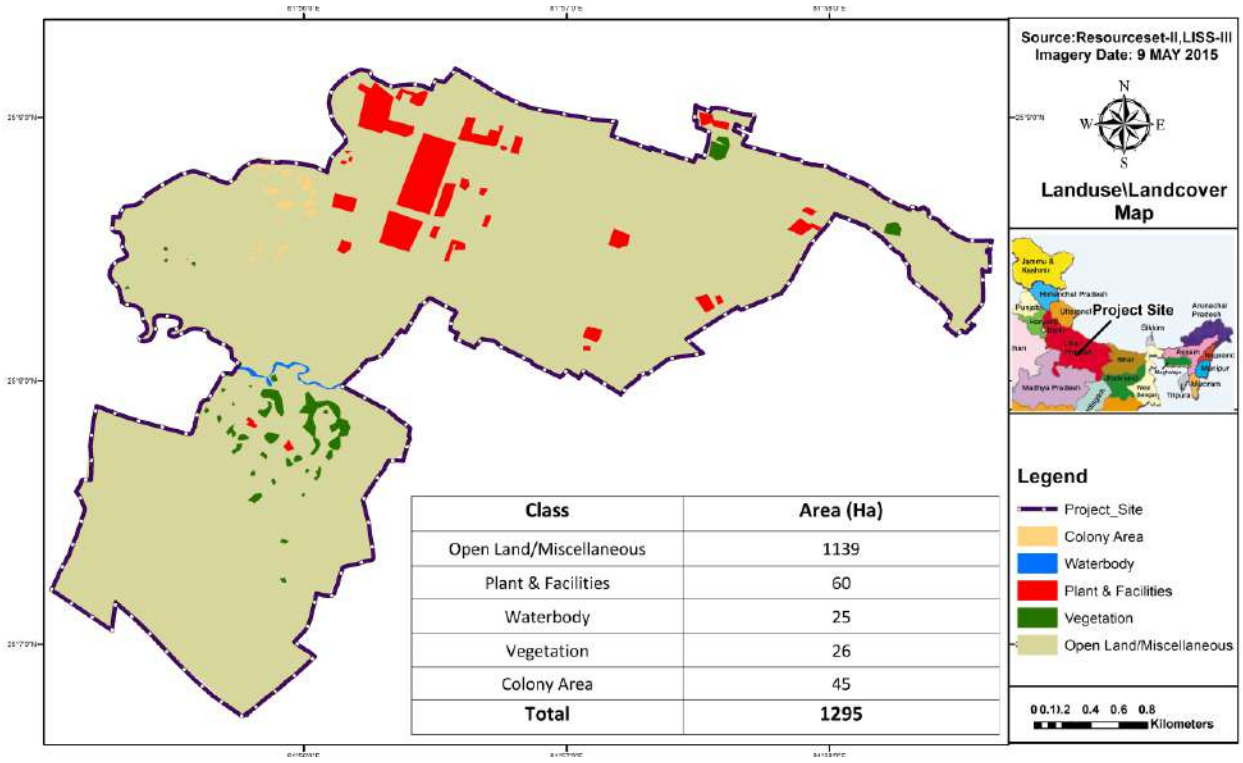
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3.4.2. *Land use Change detection in Project site and Study area*

Land use change detection has been conducted over the past 10 years (as per the data available from NRSA) using data from Bhuvan NRSA for the years 2015, 2018, and the most recent data from 2023. Land use analysis was carried out for project site as well as for the study area by using remote sensing data. Interpretation approach based on systematic digital imaging was used for delineating the land use classes. The demarcation of boundaries falling under different land use/land cover units is done using different colours assigned to different land use/land cover units of satellite imagery.

A. Land use change detection (Project site)

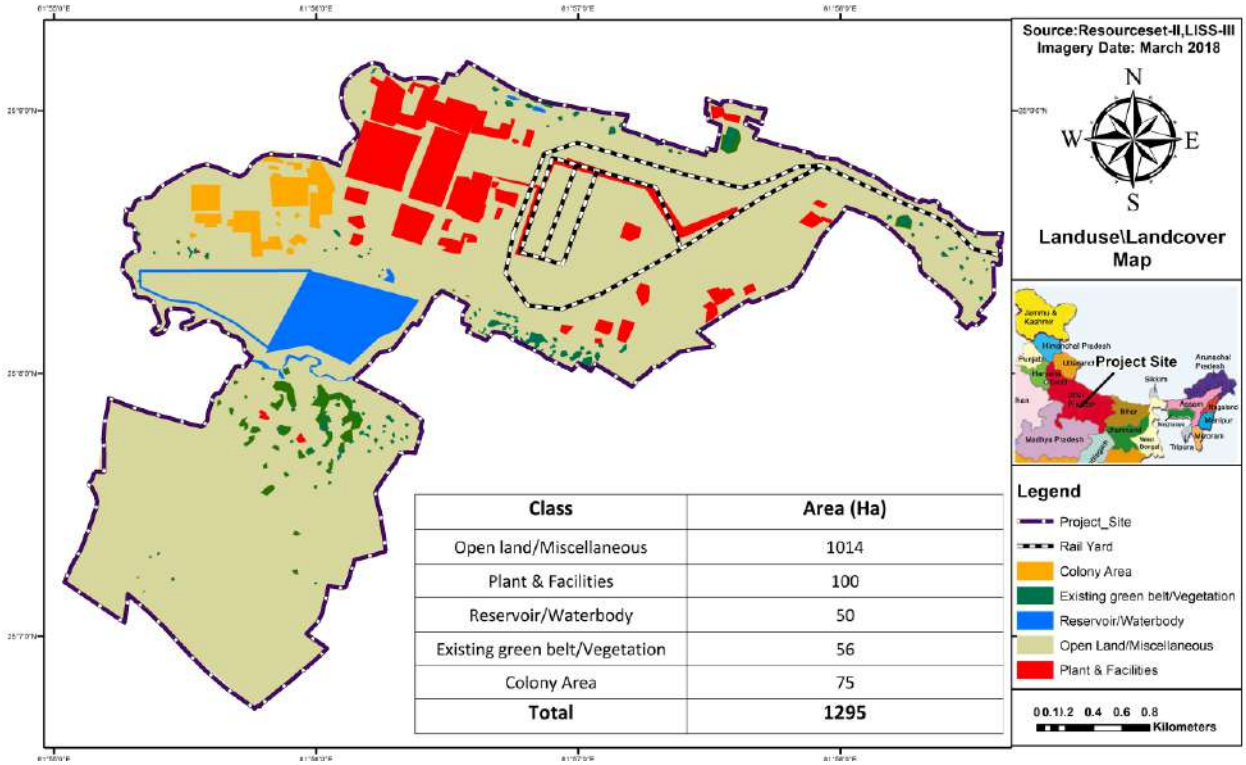
Satellite imagery from different years shows the gradual change in the existing land use where the open scrub land gradually converted in the industrial, greenbelt township and other land use classes. The vegetation in year 2015 was remarkably increase from 26 ha to 163 ha due to greenbelt development done by MUNPL in the project area. Land use and land cover map of project site for year 2015, 2018 and 2023 is provided in **is provided in Fig 3.18 & 3.20**



Class	Area (Ha)
Open Land/Miscellaneous	1139
Plant & Facilities	60
Waterbody	25
Vegetation	26
Colony Area	45
Total	**1295**

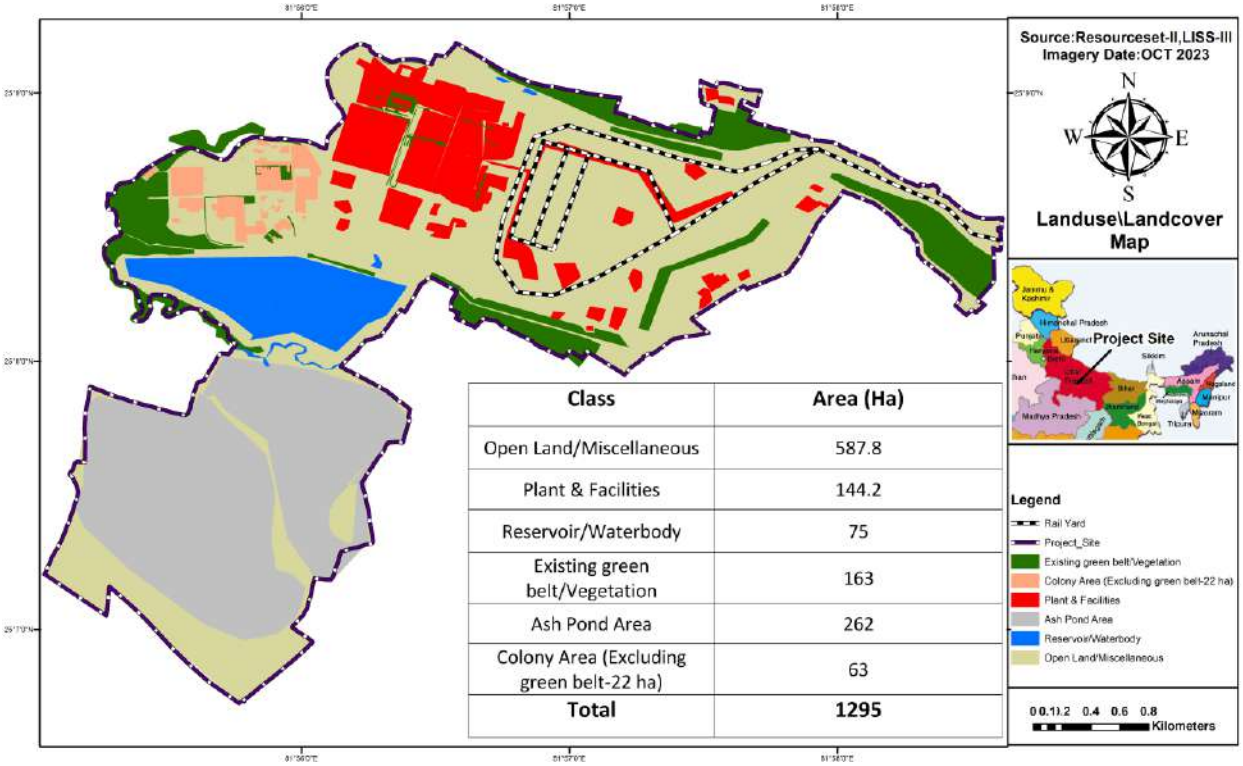
Figure 3.18 Land Use Map of the project Area (year 2015)

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Class	Area (Ha)
Open land/Miscellaneous	1014
Plant & Facilities	100
Reservoir/Waterbody	50
Existing green belt/Vegetation	56
Colony Area	75
Total	**1295**

Figure 3.19 Land Use Map of the project Area (year 2018)



Class	Area (Ha)
Open Land/Miscellaneous	587.8
Plant & Facilities	144.2
Reservoir/Waterbody	75
Existing green belt/Vegetation	163
Ash Pond Area	262
Colony Area (Excluding green belt-22 ha)	63
Total	**1295**

Figure 3.20 Land Use Map of the project Area (year 2023)

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B. Land use change detection (10 km study Area)

Land use within 10 km study Area: Satellite imagery from different years shows that the dominant land use in the study area has consistently been agricultural. There has been no significant change in land use overall. However, a slight increase in settlement area from 7.57% in 2015 to 11.57% in 2023 has been observed, while other land use categories have remained largely unchanged. (Refer **Table 3.5).** Land use and land cover map of year 2015, 2018 and 2023 is provided in **is provided in Fig 3.21 & 3.22**

Table 3.5 Land change detection in Study Area (10 Km area)

Land use Class	Year 2015		Year 2018		Year 2023 (refer Fig 3.16)	
	Area (Sq. km)	Percentage (%)	Area (Sq. km)	Percentage (%)	Area (Sq. km)	Percentage (%)
Agricultural Land	274.5	60.83	272.15	60.31	267.15	59.20
Open Shrub Land	89.29	19.79	81.2	17.99	82.1	18.19
Settlement	34.17	7.57	48.22	10.69	52.22	11.57
Waterbody	12.23	2.71	12.37	2.74	11.47	2.54
Vegetation	41.09	9.11	37.34	8.27	38.34	8.50
Total	451.28	100	451.28	100.00	451.28	100.00

Source: Primary Analysis satellite imagery

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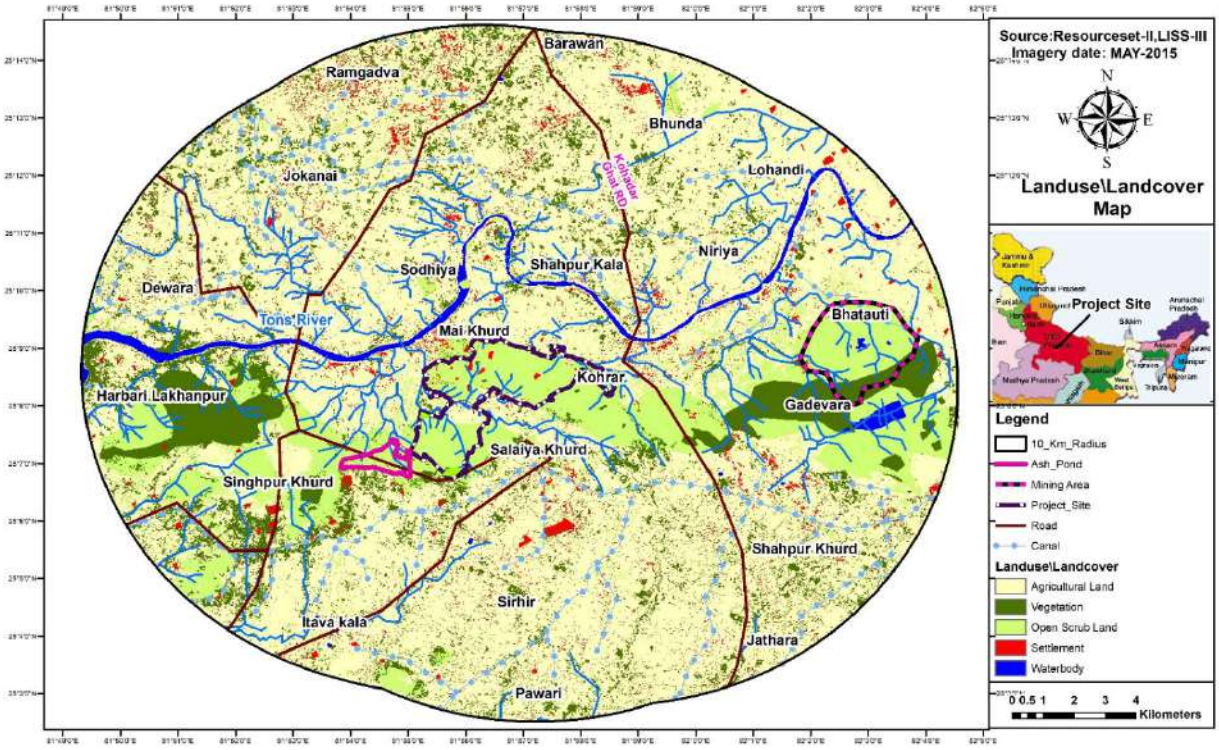


Figure 3.21 Land Use Map of the Study Area (year 2015)

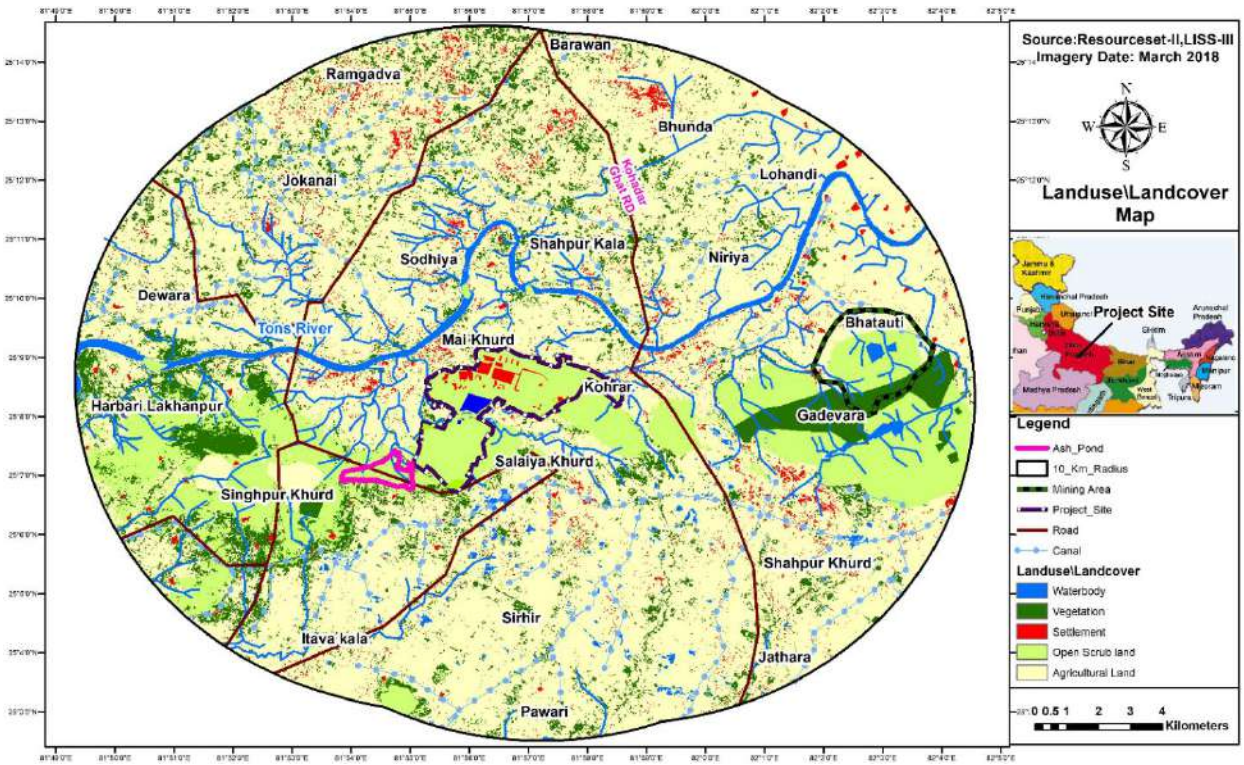


Figure 3.22 Land Use Map of the Study Area (year 2018)

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3.5. Meteorology

3.5.1. *Meteorology (Historical Met Data):*

Historical meteorological data were obtained from climatologically tables pertaining to nearest representative IMD station located at Prayagraj and is presented in **Table 3.6.** As per the IMD Prayagraj station, the summer begins in early March and lasts until June. April and May are the hottest months. Monsoon begins in late June. October and November see the retreat of the monsoon and a return of high temperatures until late November. Winter starts in December and ends in late February.

Table 3.6 : Meteorological Data of Prayagraj, 1991-2020

Month	Temperature (°C) Daily		Relative Humidity (%)		Rainfall (mm)	Rainy Days	Predominant Wind Direction		Cloud Amounts (all cloud)		Wind Speed (Km/hr)
	Max	Min	8:30	17:30			8.30	17.30	8:30	17:30	
January	28.7	4.8	84	64	17.0	1.6	W, E	W, NW	3.2	2.2	1.8
February	33.0	8.2	75	53	17.6	1.5	W, E	W, NW	1.9	1.9	2.2
March	39.4	12.4	57	37	8.8	1.0	W, SW	NW, W	1.7	2.0	2.7
April	44.1	18.2	40	24	7.0	0.7	W, E	NW, W	1.6	2.0	3.0
May	45.9	21.8	46	29	13.9	1.2	E, W	NW, W	1.7	1.8	3.4
June	45.1	24.3	61	48	113.5	5.5	E, W	NW, W	4.0	4.5	3.6
July	39.7	24.4	80	72	268.0	12.0	E, W	E, W	6.3	6.7	3.4
August	36.7	24.5	84	76	238.5	11.8	E, W	E, W	6.3	6.6	2.9
September	36.6	23.2	81	73	184.9	8.4	E, W	E, W	4.4	5.0	2.5
October	36.7	16.7	74	63	34.7	1.5	E, W	NW, E	1.8	2.1	1.4
November	33.6	11.0	74	60	4.6	0.4	W, SW	W, NW	1.0	1.2	1.1
December	29.5	6.3	82	65	6.8	0.5	W, NW	W, NW	2.0	1.5	1.4

Source-IMD Prayagraj

Observation on Meteorology: The meteorological parameters play a vital role in transport and dispersion of pollutants in the atmosphere.

Temperature– The Annual mean minimum temperature of around 4.8^{0}C (Jan) and annual mean maximum temperature of around 45.9^{0}C. May is the hottest month with daily mean maximum temperature at 45.9^{0}C and January is the coldest month with daily mean minimum temperature of 4.8^{0}C.

Relative Humidity– Most humid conditions are found maximum in the monsoon's months, followed by summer, post-monsoons, and winter in that order. Mornings are more humidity than evenings; the highest relative humidity is recorded as 84% in the Months of August.

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Rainfall– Total annual mean rainfall was observed to be 915.4 mm. Around 86% of total rainfall occurs in the months of June to Sep. The maximum total monthly rainfall is 268 mm and minimum monthly rainfall during monsoon is 4.6 mm.

Wind Direction– The wind pattern of the region shows that the predominant wind direction is W, and NW. Mean wind speed ranges 1.1 to 3.6 km/hr. Annual Windrose of Prayagraj is presented in **Figure 3.23** and monthly Windrose provided in **Figure 3.24.**

Calm Periods – The calm period constitutes an important factor in the dispersion of air pollution. The maximum calm period occurs during Oct to Feb months. Monthly calm conditions are shown in **Table 3.7**.

Table 3.7 : Monthly Percentages of Calm Periods (IMD Prayagraj)

Calm, %	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
08:30 am	62	56	50	44	36	33	37	40	47	74	77	72
05:30 pm	66	55	35	25	22	24	40	44	56	81	93	87

(Source-IMD Prayagraj)

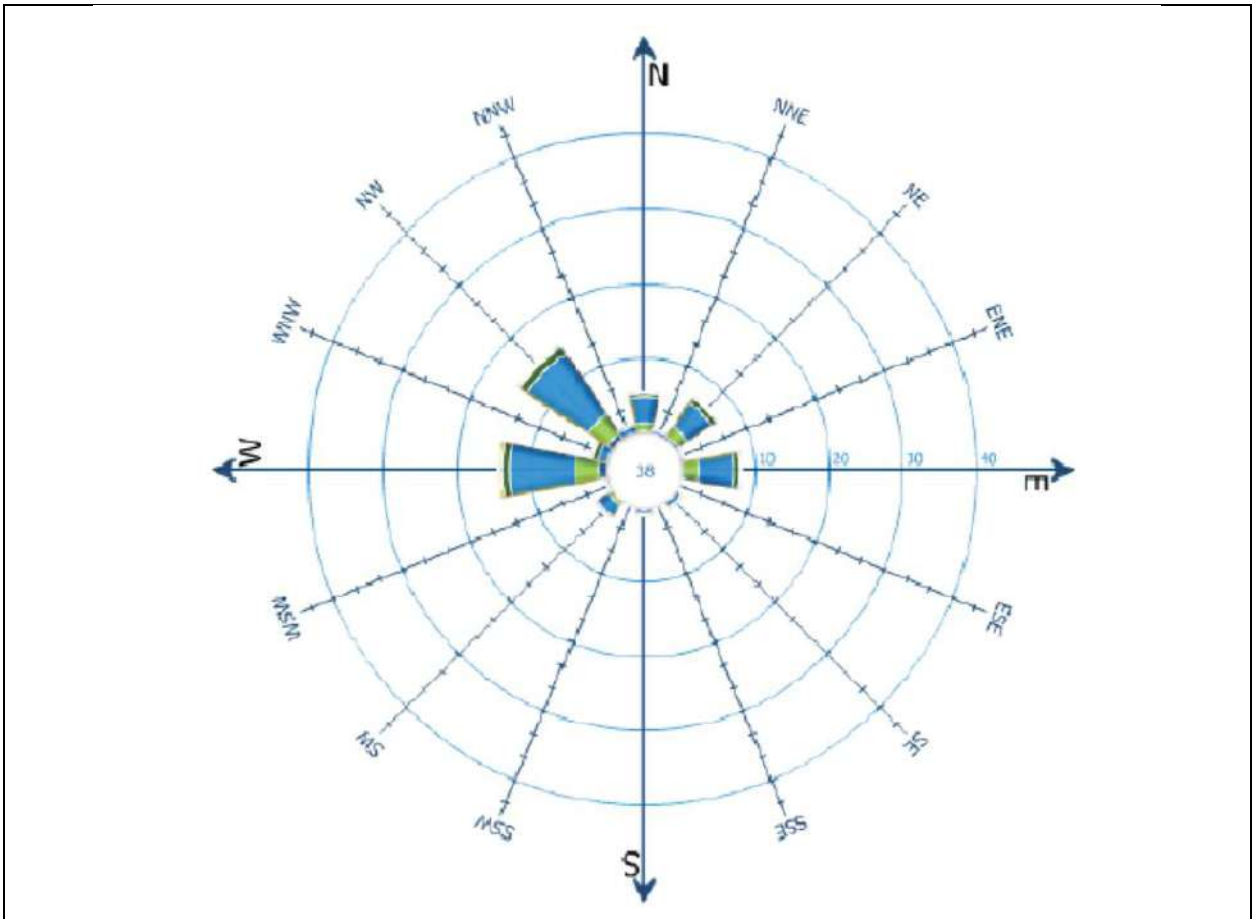
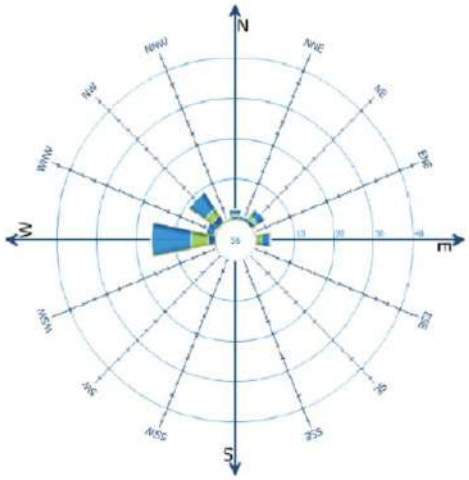
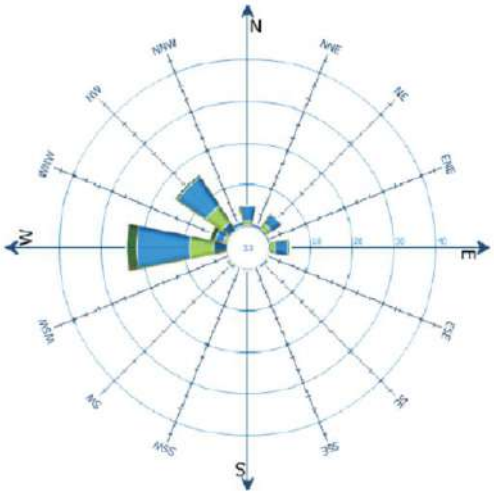
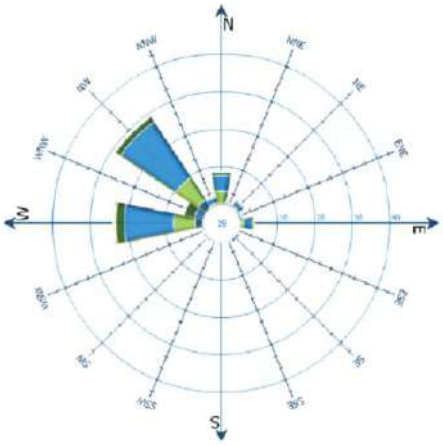
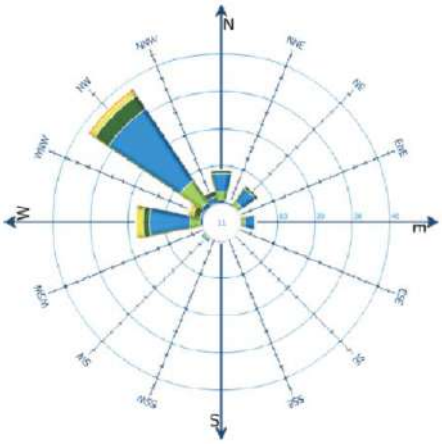
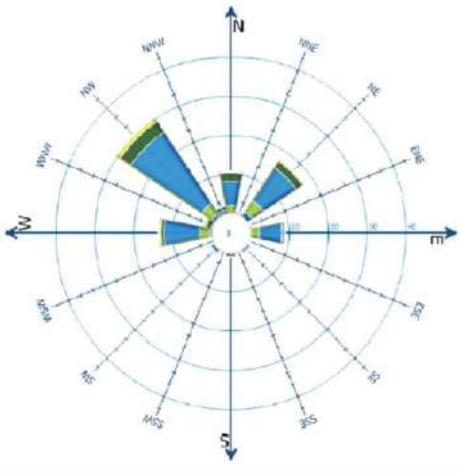
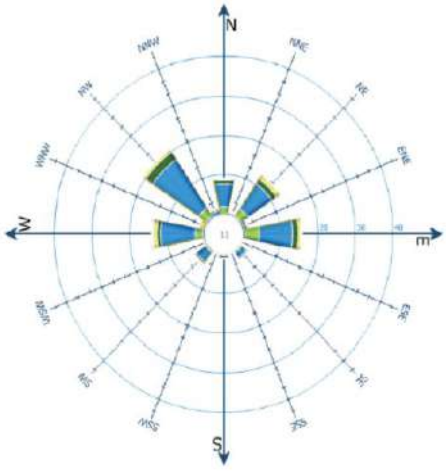


Figure 3.23 : Windrose Diagram Of Prayagraj (Annual) IMD Prayagrajn (1991 – 2020)

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January	February
	
March	April
	
May	June

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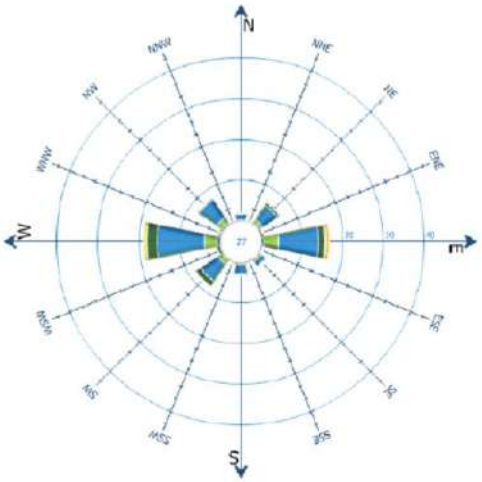
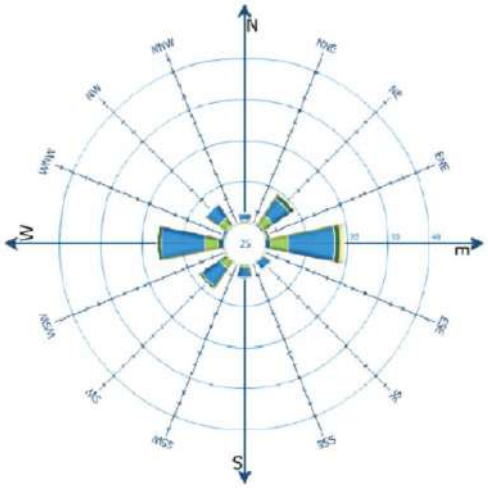
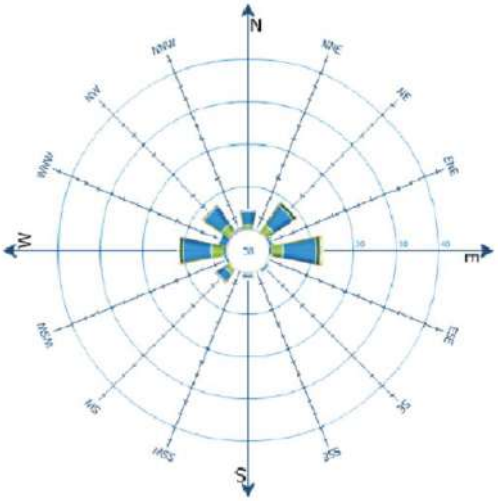
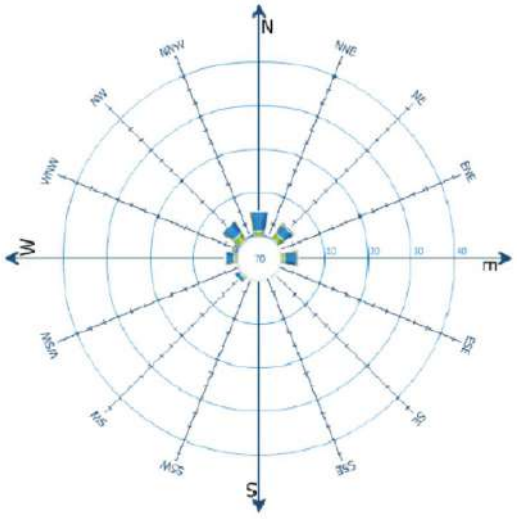
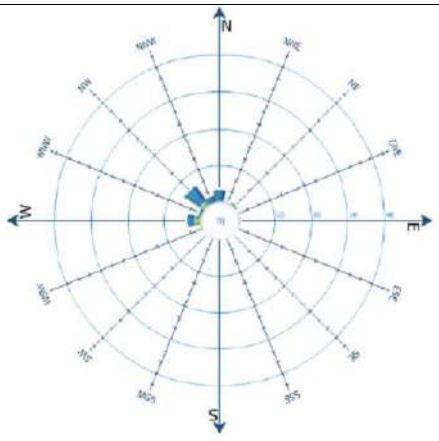
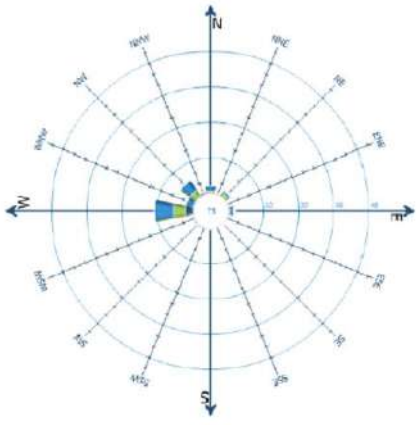
	
July	Augast
	
September	October
	
November	December

Figure 3.24 : Monthly Windrose Diagram Of Prayagraj (IMD Prayagraj)

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3.5.2. *Meteorological Data Generated at Site*

Meteorological data for post monsoon 2023 was generated near site. An automatic weather monitoring station was installed near Project site, keeping the sensors free exposed to the atmosphere and with minimum interference with the nearby structures. The micro-meteorological data like wind speed, wind direction, temperature, relative humidity and atmospheric pressure were collected using the weather stationed cloud cover was recorded manually for the study period. Summary of the site-specific met data is given in **Table 3.8.** Wind frequency and wind rose provided as **Figure 3.25** and **3.26** respectively**.**

Table 3.8 : Site Specific Meteorological Data

Parameter		Oct- 2023	Nov-2023	Dec-2023
Temperature (ºC)	**Max**	37	32	31
	Min	22	14	11
	Avg	29.84	24.86	21.07
Relative Humidity (%)	**Max**	80	71	70
	Min	18	15	19
	Avg	44.80	31.44	35.94
Rainfall (mm)	**Avg.**	18.7	2.3	4.3
Wind Speed (m/s)	**Avg**	1.21		
Predominant Wind Direction	**(from)**	W, SW		
Calm Period	**%**	30.34%		

(Source: Primary data generated at site)

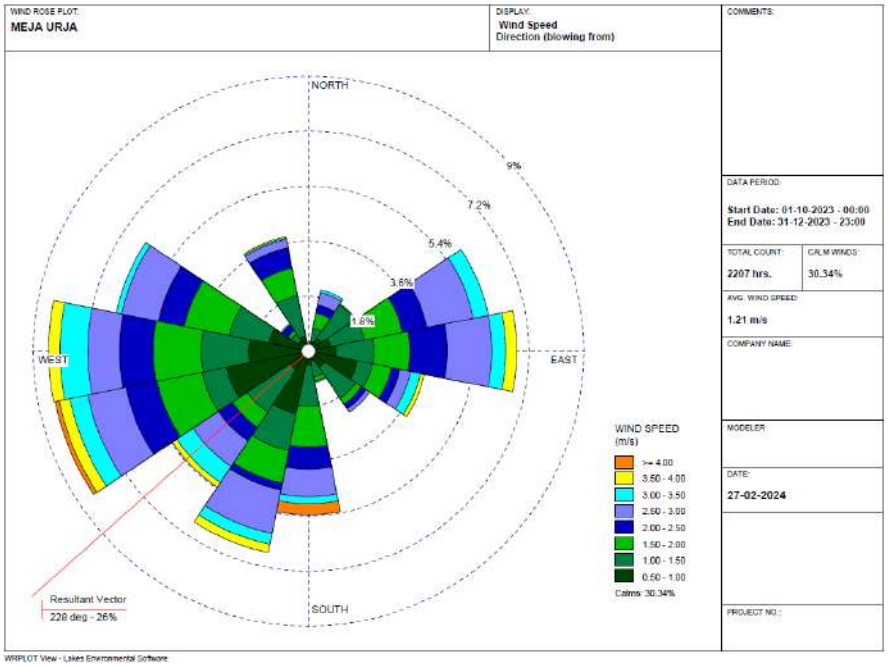


Figure 3.25 : Wind Rose Diagram (1st Oct 2023 – 31st Dec 2023)

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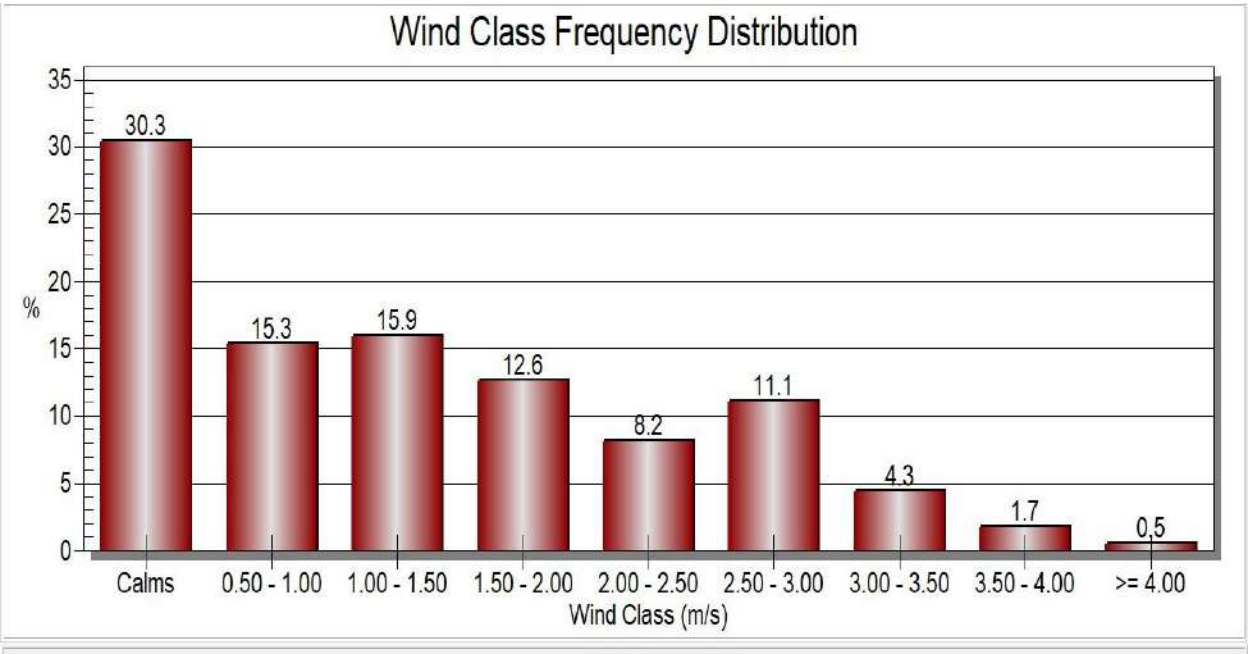


Figure 3.26 : Wind Frequency Distribution Graph (1st Oct 2023 – 31st Dec 2023)

3.6. Ambient Air Quality

Air pollution can cause significant effects on the environment and subsequently on human, animals, vegetation and materials. In most cases, air pollution aggravates pre-existing diseases or degrades health status, making people easily susceptible to other infections and development of chronic respiratory and cardiovascular diseases. Further, environmental impacts from air pollution can include acidic deposition and reduction in visibility. The objective of the study is to analyse the existing ambient air quality within the study area and compare it with the NAAQ standards specified by CPCB to know about the pollution status of air in and around the project area. To quantify the impact of the construction and operational manufacturing activities on the ambient air quality at the project site and its surrounding area during construction phase and operational phase, it is necessary to evaluate the existing ambient air quality in those areas.

3.6.1. *Causes Attributing to Air Pollution in and Around Project Area*

It is an existing plant where expansion is proposed. The 10 km of the study area consists majorly of rural residential areas. There is no industry located within the 10 km radius area. The only source of air pollution in and around project area are vehicular movement, dust arising from unpaved village roads and domestic fuel burning. Increase in air pollution is envisaged during construction and operation phase of the proposed project.

3.6.2. *Rationale for Selecting Monitoring Station*

The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network and was based on the following considerations:

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- Meteorological conditions.
- Topography of the study area.
- Representatives of regional background air quality.
- Representatives of likely impact areas within the study area; and
- Location of residential areas representing different activities.

The monitoring station were selected keeping in view the sites like High density Residential area, near mixed use zone if any in upwind of the site and downwind of the site to understand the impact of the proposed project in the downwind direction compared to upwind polluting load from the vehicular traffic emission, community activities, and other sources. Details of monitoring locations are shown in **Table 3.9.** Monitoring Location map is shown in **Figure 3.27.**

Table 3.9 : Ambient Air Quality Monitoring Locations

S. No	Location	Direction wrt project site with approx. distance	Zone	Tentative Geo-coordinates
AAQ-1	Project Site (Meja TPP Main Entry Gate)	Plant site	Industrial	25° 8'17.25"N 81°56'26.30"E
AAQ-2	Salaya Kala near Ash Pond	0.7 km, SW (Located in upwind direction)	Industrial	25° 6'42.13"N 81°55'13.85"E
AAQ-3	Patai Dandi Village	1.5 km. NE (Located in downwind direction)	Residential/Rural	25° 9'43.77"N 81°57'34.34"E
AAQ-4	Rithaiya Village	5.25 km NE (Located in crosswind direction)	Residential/Rural	25°10'55.63"N 81°59'55.12"E
AAQ-5	Sukath near meja tehsil	9.42 km. E (Located in upwind direction)	Residential/Rural	25° 8'42.85"N 82° 4'9.53"E
AAQ-6	Son Barsi	2.00 km. S, (Located in downwind direction)	Residential/Rural	25° 7'3.16"N 81°58'35.27"E
AAQ-7	Gadeva Village	3.51 km ENE (Located in downwind direction)	Residential/Rural	25° 8'48.47"N 82° 0'42.56"E
AAQ-8	Piprau Village	2.11 km W (Located in downwind direction)	Residential/Rural	25° 8'31.66"N 81°54'2.86"E
AAQ-9	Korhar Village	0.9 km East (nearest settlement and located in downwind)	Residential/Rural	25° 8'29.61"N 81°59'13.47"E
AAQ-10	Bhendewara Village	7.0 km NE (located in downwind direction)	Residential/Rural	25°12'11.69"N 81°59'5.81"E

Source: Monitoring Plan

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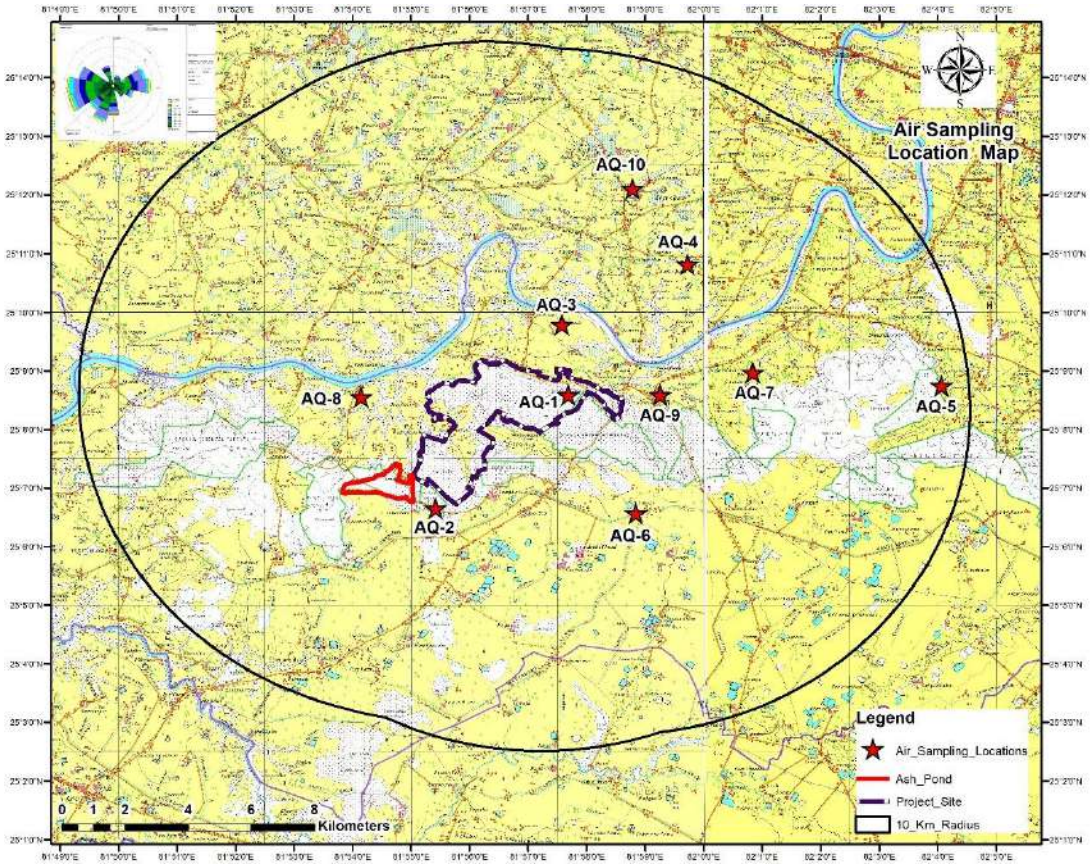


Figure 3.27 : AAQ Location Map

3.6.3. *Protocol for Ambient Air Monitoring*

The ambient air quality monitoring for pollutants was done by following Guidelines for Manual Sampling and Analyses (Volume-1) issued by CPCB in May 2011. Sampling methodology is as mentioned in **Table 3.10**.

Table 3.10 : Sampling methodology

Sampling Parameters	Standard referred	Sample Collection	Sample Analysis	Methodology
		Sampling Equipment	***Analytical Equipment***	
PM_{10}	IS 5182-Part 23	Respirable Dust Sampler	Electronic Balance	Gravimetric method
$PM_{2.5}$	IS 5182-Part IV	Fine Dust Sampler	Electronic Balance	Gravimetric method
SO_2	IS 5182 - Part 2	RDS with impinger	Spectrophotometer	EPA assessment modified West and Gaeke Method

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Sampling Parameters	Standard referred	Sample Collection	Sample Analysis	Methodology
		Sampling Equipment	*Analytical Equipment*	
NOx	IS 5182-Part 23	RDS with impinger	Spectrophotometer	Arsenate modified Jacob and Hocchheiser Method
CO	IS 5182 - Part 24	Tadler bag	GC-FID	Gas Chromatography
NH_3	IS 5182 (Part-25)	RDS with impinger	Spectrophotometer	Indophenol Blue method/ Spectrophotometry
C6H6	IS 5182 - Part 11	Filter Paper	Gas Chromatography	Gas Chromatography (GC) based continuous analyzer – Adsorption and desorption followed by GC analysis
Benzo (a) Pyrene (BaP) Particulate phase only	NAAQMS/ IS 5182 (Part-12)	Filter paper	HPLC/GC	Solvent extraction followed by HPLC/GC analysis
Metals	NAAQ standard methods	Filter Paper	AAS/ICP	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper

Table 3.9 continued….: Monitored Parameters and frequency of Sampling

Parameter	Sampling Frequency
Particulate matter PM_{10}	24 hourly sample twice a week for three months
Particulate matter $PM_{2.5}$	24 hourly sample twice a week for three months
SO_2	24 hourly sample twice a week for three months
NOx	24 hourly sample twice a week for three months
CO	08 hourly samplefor 24 hr twice a week for three months
NH_3	24 hourly sample twice a week for three months
C6H6	24 hourly sample once a week for three months
Benzo (a) Pyrene (BaP) Particulate phase only	24 hourly sample once a week for three months
Metals	24 hourly sample once a week for three months

3.6.4. *Monitoring result*

The ambient air quality monitoring during study period was conducted, on 24- hourly twice a week basis for PM_{10}, $PM_{2.5}$, SO_2, NOx, NH_3 and CO for a season, through NABL accredited Laboratory. Metals, BAP and C_6H_6 were monitored weekly once. Details of the air pollutants, its sources and their effect on humans is as shown in **Table 3.11**. Summary results of ambient air quality monitoring data are shown in **Table 3.12.**

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Table 3.11 : Air Pollutants, Their Sources and Their Effects on Humans

Pollutant	Sources	Effects
Particulate Matter (PM_{10}& $PM_{2.5}$)	Road dust re-suspension, Vehicles, industrial emissions, domestic fuel burning etc.	• Cardiovascular and respiratory diseases • Acute Lower Respiratory Infection
Sulphur-dioxide (SO_2)	• Burning of sulphur containing fuel like coal, diesel, etc • Extraction of metals from sulphide ores. • Paper industries;	• Affects respiratory system and lung function, cough, mucus secretion, asthma and chronic bronchitis • Causes acid rain
Oxides of Nitrogen (NOx)	• Combustion processes (heating, power generation, and vehicles) • Paper Industries. • Smelting of metals. • Petroleum refineries	• Inflammation of the respiratory airway • Decrease lung function, increase the risk of respiratory conditions and increases the response to allergens. • Ground level ozone formation, • Causes acid rain
Carbon Monoxide (CO)	Incomplete fuel combustion (as in motor vehicles)	• Reduces the oxygen carrying capacity of blood, • Causes headaches, nausea, and dizziness
Ammonia (NH3)	• Agriculture (animal husbandry & fertilizer application) • Volatilization from land and oceans • Industrial processes (including fugitive emissions) • Vehicular emission	• Nasal and eye irritation; respiratory tract irritation; and increased respiratory depth. • Add to the level of $PM_{2.5}$ [*conversion to $NH4^+$ aerosol) which has longer atmospheric residence times (days) than the gaseous (hours]* especially affecting human health
C6H6	• Gasoline, motor vehicle exhaust, cigarette smoke and wood smoke.	• Causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anaemia.
Benzo (a) Pyrene (BaP) Particulate phase only	• Combination of vehicular emissions and biomass/coal combustion.	• Causes skin, lung, and bladder cancer in humans and in animals
Metals	• Industrial process and vehicle exhaust	• Gastrointestinal and kidney dysfunction, nervous system disorders, skin lesions, vascular

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Pollutant	Sources	Effects
		damage, immune system dysfunction, birth defects, and cancer

Table 3.12 : Ambient Air Quality Monitoring Results (24-hour average)

Period: (1st Oct 2023 – 31 Dec 2023)

Location Code	Location	PM_{10} (µg/m³)				$PM_{2.5}$ (µg/m³)			
		Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
AAQ-1	Project Site (Meja TPP Main Entry Gate)	94	51	75	93	54	23	42	54
AAQ-2	Salaya Kala near Ash Pond	88	46	70	88	51	20	39	51
AAQ-3	Patai Dandi Village	82	44	67	81	50	18	37	49
AAQ-4	Rithaiya Village	84	42	69	83	49	17	36	48
AAQ-5	Sukath near meja tehsil	90	45	72	90	52	21	40	52
AAQ-6	Son Barsi	80	42	65	79	48	17	35	47
AAQ-7	Gadeva Village	81	44	67	81	47	18	35	47
AAQ-8	Piprau Village	83	42	65	81	50	17	36	49
AAQ-9	Korhar Village	85	46	70	84	51	20	38	50
AAQ-10	Bhendewara Village	82	43	67	81	44	18	34	44
NAAQ Standard		**100**				**60**			

Source: Primary Data Collection and analysis

Table 3.11 : continued……

Location Code	Location	SO_2 (µg/m³)				NOx (µg/m³)			
		Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
AAQ-1	Project Site (Meja TPP Main Entry Gate)	13.9	7.7	11	13.9	17.3	10.8	14.5	17.2
AAQ-2	Salaya Kala near Ash Pond	12.2	6.9	9.9	12.2	15.5	9.7	12.9	15.3
AAQ-3	Patai Dandi Village	9.6	6.0	8.2	9.4	13.2	9.2	11.1	13.2
AAQ-4	Rithaiya Village	10.3	6.4	8.6	9.9	12.8	9.0	10.9	12.8
AAQ-5	Sukath near meja tehsil	11.9	6.2	9.2	11.7	14.5	9.4	12.0	14.3
AAQ-6	Son Barsi	8.8	6.0	8.4	9.6	13.4	9.0	11.3	13.4
AAQ-7	Gadeva Village	9.6	5.8	8.2	9.4	13.2	9.3	11.1	13.2

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Location Code	Location	SO_2 (µg/m³)				NOx (µg/m³)			
		Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
AAQ-8	Piprau Village	9.3	5.4	7.9	9.1	12.8	9.1	10.8	12.8
AAQ-9	Korhar Village	10.5	6.0	8.8	10.1	13.5	9.8	11.6	13.5
AAQ-10	Bhendewara Village	9.9	5.9	8.2	9.5	12.7	9.9	11	12.7
NAAQ Standard		**80**				**80**			

Source: Primary Data Collection and analysis

Table 3.11 : continued .....

S.No.	Location	8 hrs.		24 hrs.	24 hrs.	24 hrs.
		Ozone (O_3) (µg/m³)	Carbon monoxide (CO) (mg/m³)	Ammonia (µg/m³)	Benzene (µg/m³)	Benzo(a) Pyrene (ng/m³)
1	Project Site (Meja TPP Main Entry Gate)	19.6	0.29	<20	ND (<1.0)	ND (< 1.0)
2	Salaya Kala near Ash Pond	17.6	0.22	<20	ND (<1.0)	ND (< 1.0)
3	Patai Dandi Village	15.2	0.16	<20	ND (<1.0)	ND (< 1.0)
4	Rithaiya Village	14.5	0.15	<20	ND (<1.0)	ND (< 1.0)
5	Sukath near meja tehsil	13.7	0.17	<20	ND (<1.0)	ND (< 1.0)
6	Son Barsi	11.2	0.12	<20	ND (<1.0)	ND (< 1.0)
7	Gadeva Village	12.6	0.15	<20	ND (<1.0)	ND (< 1.0)
8	Piprau Village	13.3	0.14	<20	ND (< 1.0)	ND (< 1.0)
9	Korhar Village	14.2	0.12	<20	ND (<1.0)	ND (< 1.0)
10	Bhendewara Village	13.2	0.14	<20	ND (< 1.0)	ND (< 1.0)
NAAQ Standard		**100**	**2**	**400**	**5**	**1**

Source: Primary Data Collection and analysis

Table 3.11 : continued……

S.No.	Location	24 hrs.			
		Lead (µg/m³)	Nickel (ng/m³)	Arsenic (ng/m³)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath near meja tehsil	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

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S.No.	Location	24 hrs.			
		Lead (µg/m³)	Nickel (ng/m³)	Arsenic (ng/m³)	Mercury (µg/m3)
7	Gadeva Village	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQ Standard		**1.0**	**20**	**6.0**	**-**

Source: Primary Data Collection and analysis

3.6.5. *Observations on Ambient Air Quality:*

Particulate Matter (PM_{10}): The maximum PM_{10} level were found at Project Site (Meja TPP Main Entry Gate) (94 µg/m³) and lowest PM_{10} level (42 µg/m³) were observed at Sonbarsi, Piprau and Rithaiya Village, while the mean conc. of all location ranges between 65-75 µg/m³. The PM_{10} level in all the monitoring locations is within the standard i.e. NAAQMS level 100 µg/m³.

Particulate Matter ($PM_{2.5}$): The maximum $PM_{2.5}$ level were found at Project Site (54 µg/m³) and lowest $PM_{2.5}$ level were observed at Sonbarsi, Piprau and Rithaiya Village (17 µg/m³) while the mean conc. of all location ranges between 34-42 µg/m³. The $PM_{2.5}$ level in all the monitoring locations is within the standard i.e. NAAQMS level 60 µg/m³.

Sulphur Dioxide (SO_2): The maximum SO_2 level were found at Project Site (13.9 µg/m³) and lowest SO_2 level were observed at Piprau Village, (5.4 µg/m³) while the mean conc. of all location ranges between 7.8 to 11.0 µg/m³. The SO_2 level in all the monitoring locations is found quite below the standard i.e. NAAQMS level 80 µg/m³.

Oxides of Nitrogen (NO_2): The maximum NO_2 level were found at Project Site (17.3 µg/m³) and lowest NO_2 level were observed Son Barsi and Rithaiya Village (9.0 µg/m³) while the mean conc. of all location ranges between 10.9 – 14.5 µg/m³. The NO_2 level in all monitoring location are quite below the standard i.e. NAAQMS level 80µg/m³.

Other Parameters: NH_3 were found <20 µg/m³ which is found far below the standard i.e. NAAQMS level 400µg/m³. CO conc. was found between 0.12 to 0.29 mg/m³ which is found within the standard i.e. NAAQMS level 2 mg/m³, Ozone conc. was found between 11.2 to 19.6 mg/m³ which is found within the standard i.e. NAAQMS level 100 mg/m³, Metals were also not detected from the study area.

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3.6.6. *Category of Air Quality Index*

An air quality index is defined as an overall scheme that transforms the weighed values of individual air pollution related parameters (for example, pollutant concentrations) into a single number or set of numbers (Ott, 1978). The objective of an AQI is to quickly disseminate air quality information (almost in real-time) that entails the system to account for pollutants which have short-term impacts. It is equally important that most of these pollutants are measured continuously through an online monitoring network. Since in present case air quality has been monitored manually on 24-hourly twice a week basis for one season, real- time air quality information is not possible. However, the data collected over a season can significantly describe the category of air quality in corresponding period. The AQI Category for each of monitoring station has been found to be satisfactory **(Table 3.13)**.

Table 3.13 : AQI Category for Monitoring Station

Monitoring Station	Post-monsoon (2023)	
	AQI	AQI Category
AAQ-1	75	Satisfactory
AAQ-2	70	Satisfactory
AAQ-3	67	Satisfactory
AAQ-4	69	Satisfactory
AAQ-5	72	Satisfactory
AAQ-6	65	Satisfactory
AAQ-7	67	Satisfactory
AAQ-8	65	Satisfactory
AAQ-9	70	Satisfactory
AAQ-10	67	Satisfactory

Table 3.14 : AQI Category Index, CPCB

Good (0–50)	Minimal Impact	**Poor (201–300)**	Breathing discomfort to people on prolonged exposure
Satisfactory (51–100)	Minor breathing discomfort to sensitive people	**Very Poor (301–400)**	Respiratory illness to the people on prolonged exposure
Moderate (101–200)	Breathing discomfort to the people with lung, heart disease, children, and older adults	**Severe (>401)**	Respiratory effects even on healthy people

(Source : app.cpcbccr.com › ccrdocs › AQI -Calculator)

3.7. Noise Environment

Ambient Noise Level monitoring is one of the essential components of EIA study. Such assessment helps in evaluating the existing noise levels and suggesting appropriate mitigation measures to minimize the potential impact from proposed development in the projects.

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3.7.1. *Attributing to Noise Pollution in and Around Project Area*

Noise after a certain level can have a very disturbing effect on the people and animals exposed to it. Hence, it is important to assess the present noise quality of the area to predict the potential impact of future noise levels due to the proposed project**.**

The existing causes of ambient noise in and around project area are majorly due to community sources and vehicular movement. Noise due to proposed project is envisaged during construction activities, heavy construction vehicles during construction phase and during operation phase it shall be due to operation of machineries like pumps, motors, DG set etc. and vehicular movement.

3.7.2. *Methodology:*

The noise monitoring shall be done following CPCB protocol of Noise Monitoring, July 2015, which inter alia include the following cardinal principles:

- The Noise measurements shall be made with a Type 1 integrating sound level meter. The station should be located at the ambient level i.e. away from the direct source, away from any vibration and any obstruction.
- Microphone must be placed 1.2 -1.5m above the ground level.
- The instrument should be isolated from strong vibration and shock.
- The monitoring should be carried out minimum 75% of the prescribed Day time (06.00 am to 22.00 pm) and Night time (22.00 pm to 06.00 am).
- During ambient noise monitoring sound comes from more than one direction, it is important to choose a microphone and mounting which gives the best possible omni directional characteristics.
- Noise measurements should not be made in fog and rain.
- A wind shield will be used at all times to prevent interference of reflecting noise.

3.7.3. *Selection criteria for noise Monitoring Location*

An assessment of baseline noise quality was undertaken

a) To establish the status of exposure of the major sensitive receptors, and
b) To identify the noise pollution levels in and around the site.

The baseline study for noise levels in the study area has been carried out by selecting a noise monitoring station based on the following criteria.

- Environmental setting of the area.
- Source of the noise.
- Proximity of the noise generating source to the human settlements.

Based on the above, noise monitoring was carried out at eight monitoring location. Details of the Monitoring location is as shown in **Table 3.15** and **Figure 3.28**

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3.7.4. *Monitoring Frequency*

24 hr Ambient noise monitoring was carried out once during winter season at ten locations using noise level meter.

Table 3.15 : Ambient Noise Quality Monitoring Locations

Location Code	Location	Direction w.r.t Plant site with approx. distance	Zone	Tentative Geo-coordinates
N-1	Project Site	Plant site	Industrial	25° 8'37.86"N 81°58'17.45"E
N-2	Salaya Kala near Ash pond	0.44 km SW	Industrial	25° 6'42.13"N 81°55'13.85"E
N-3	Patai Dandi village	1.5 km N	Residential	25° 9'43.77"N 81°57'34.34"E
N-4	NTPC Meja Road	Along eastern boundary of plant	Commercial	25° 8'26.59"N 81°58'36.82"E
N-5	Pura Salaiya	Along South boundary of plant	Industrial	25° 7'52.29"N 81°57'2.15"E
N-6	Son Barsi	2.7 km SE	Residential	25° 7'2.13"N 81°58'32.26"E
N-7	SH-135 C Kohdarghat Road	0.7 km, NE	Commercial	25° 8'46.12"N 81°58'42.34"E
N-8	Piprau village	1.8 km W	Residential	25° 8'31.66"N 81°54'2.86"E
N-9	Kohdar village	0.9 km East (nearest settlement)	Residential	25°8'29.61"N 81°59'13.47"E
N-10	Maikhurd Village	0.86 km NW (nearest settlement)	Residential	25° 9'20.57"N 81°55'40.29"E

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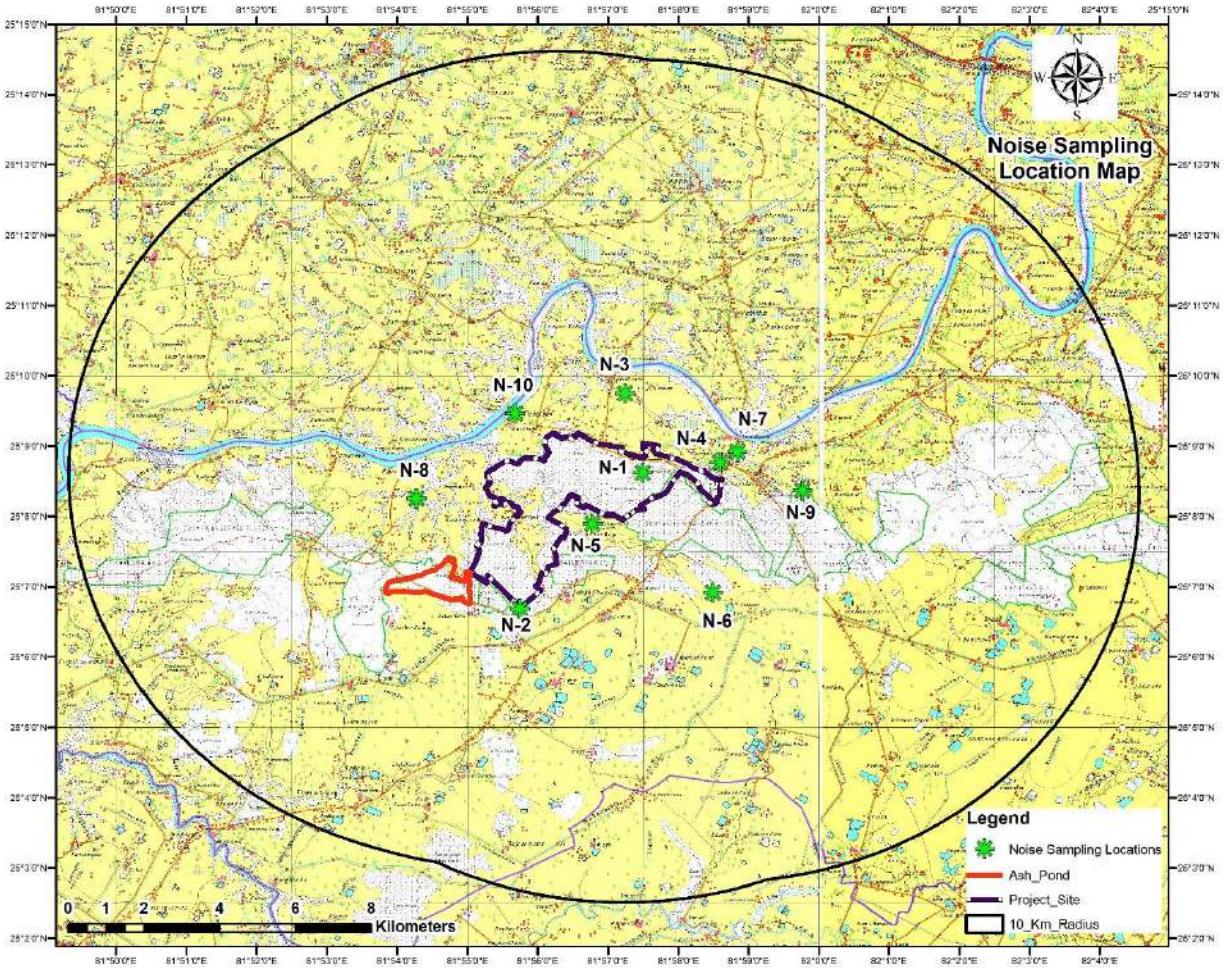


Figure 3.28 : Noise Location Map

Ministry of Environment, Forests & Climate Change (MoEFCC) has notified the noise standards vide gazette notification dated December 14, 2000 for different zones under the Environment Protection Act (1986). These standards are given in **Table 3.16**.

Table 3.16 : Ambient Noise Quality Standards

Area Code	Category of Area	Noise dB(A) Leq	
		Day time*	Night time*
A	Residential Zone	55	45
B	Silence Zone*	50	40
C	Industrial Zone	75	70
D	Commercial Zone	65	55

*Note:*Daytime is from 6.00am to 10.00 pm and Night time is from 10.00 pm to 6.00 am.*
**Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle hours, loudspeakers and bursting of crackers are banned in these zones.*

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3.7.5. *Result and Conclusion:*

Location wise result for daytime and night-time Leq is presented in **Table 3.17**.

Table 3.17 : Ambient Noise Quality in the Study Area

Location Code	Location Name	Category	Day time Leq dB(A)	Standard Day time Leq; dB(A)	Nighttime Leq; dB(A)	Standard Nighttime Leq; dB(A)
N-1	Project Site	Industrial	59.8	75	52.1	70
N-2	Salaya Kala near Ash pond	Industrial	54.5	75	43.8	70
N-3	Patai Dandi village	Residential	52.8	55	41.6	45
N-4	NTPC Meja Road	Commercial	58.3	65	50.4	55
N-5	Pura Salaiya	Residential	52.2	55	41.8	45
N-6	Son Barsi	Residential	50.2	55	40.3	45
N-7	SH-135 C Kohdarghat Road	Commercial	60.4	65	53.9	55
N-8	Piprau village	Residential	51.4	55	41.2	45
N-9	Kohdar village	Residential	52.0	55	41.7	45
N-10	Maikhurd Village	Residential	50.9	55	40.8	45

Source: Primary Data Collection

3.7.6. *Interpretation and inference*

The noise level is within the prescribed limit in all the monitoring stations. The noise monitoring shows that day and night-time noise levels are found well within the respective category standards. The noise level was found slightly higher compared to other location at identified commercial/mixed used area due to its proximity to road leading to vehicular traffic noise and commercial activities in the area. The major source of the noise in the study area is the community noise and vehicular movement.

3.7.7. *Additional Noise Monitoring at Sensitive Locations*

Addition noise monitoring was also conducted at sensitive locations like school, college and hospital present in the study area. Details of the monitoring results is presented in following table:

Table 3.18 Ambient Noise Quality in Sensitive locations

Location Code	Location Name	Category	Day time Leq dB(A)	Standard Day time Leq; dB(A)	Nighttime Leq; dB(A)	Standard Nighttime Leq; dB(A)

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N-1	ST. Joseph's School in NTPC colony	Sensitive	45.4	50	37.4	40
N-2	Vijay Degree Colloege Salaiya Khurd	Sensitive	43.2	50	38.9	40
N-3	Arogyam Hospital NTPC Colony	Sensitive	44.3	50	39.6	40

Source: Primary Data Collection

The noise level in the sensitive locations was found is within the prescribed limit in all the monitoring stations. The noise monitoring shows that day and night-time noise levels are found well within the sensitive category standards.

3.8. Water Quality

Selected water quality parameters for ground water and surface water in the study area have been sampled and monitored for assessing the water quality and evaluating the impact on quality by plant.

The purpose of evaluating the water quality are:

- Assessing the ground water and surface water quality characteristics of critical parameters
- Predict the impact on water quality by the project and its activities

3.8.1. *Ground Water Quality*

Twelve ground water samples were collected from different locations around the site during study period (October to December 2023). Sample were collected from different hotspots like nearby schools, village and near ash pond etc. The water samples were examined for physico-chemical parameters and bacteriological parameters. The samples were collected and analysed as per the procedures specified in Standard Methods. Samples for chemical analyses were collected in polyethylene carboys. Samples for bacteriological analyses were collected in sterilized bottles. Temperature, pH, conductivity were measured at site itself. Ground water sample were analyzed for various parameters and assessed using the IS 10500:2012.

The name of ground water sampling locations is presented in **Table 3.19 and Figure 3.29.** The analysis results of groundwater for October, November and December 2023 months are presented in **Table 3.20 to Table 3.22.**

Table 3.19 : Ground Water Sampling Locations

S. No	Location	Distance & Direction	Geographical Coordinates of	Source

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			Monitoring Location	
GW1	Project Site (Outside plant boundary)	Plant site	25° 8'17.30"N 81°56'27.29"E	Borewell
GW2	Salaya Kala near Ash pond	0.70 km SW	25° 6'42.13"N 81°55'13.85"E	Handpump
GW3	Patai Dandi village Near Primary school Sulamai	1.5 km NE	25°10'24.78"N 81°57'12.77"E	Borewell
GW4	Primary School Mai Khurd	0.5 km NW	25° 8'45.16"N 81°55'7.25"E	Handpump
GW5	Kohdar near st Joseph school	1.5 km East	25° 8'33.93"N 81°59'2.59"E	Handpump
GW6	Son Barsi	2.7 km SE	25° 7'2.13.00"N 81°58'32.26"E	Handpump
GW7	Piprau Village	1.9 km W	25° 8'39.17"N 81°54'8.62"E	Handpump
GW8	Piprau village elementary school	1.8 km W	25° 8'31.66"N 81°54'2.86"E	Borewell
GW9	Son Barsi village near school	1.9 km SE	25° 7'4.71"N 81°58'35.99"E	Handpump
GW10	Dasauti village near Primary School Panasi	2.0 km S	25° 5'56.88"N 81°55'49.23"E	Borewell
GW11	Rithaiya village	5.6 km NE	25°10'55.63"N 81°59'55.12"E	Borewell
GW12	Gadeva Village	3.5 km East	25° 8'48.47"N 82° 0'42.56"E	Borewell
Source: Monitoring Plan				

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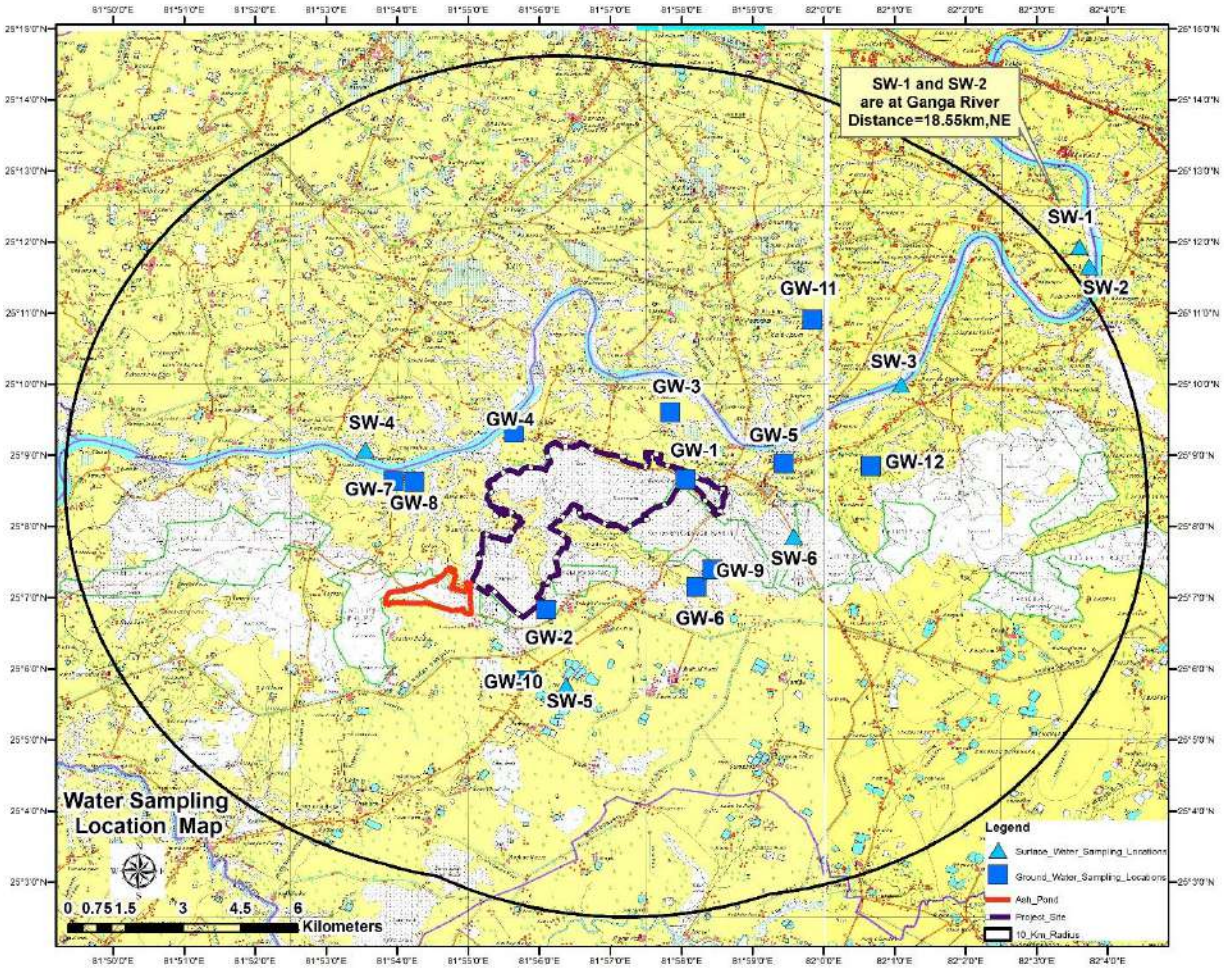


Figure 3.29 : Water Location Map

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Table 3.20 : Ground Water Quality in the Study Area (Oct 2023)

S.No	Parameter	Unit	Requirement IS: 10500		GW-1	GW-2	GW-3	GW-4	GW-5	GW-6
			Acceptable Limit	Permissible Limit						
1	pH value	-	6.5-8.5	-	6.89	7.43	7.52	7.26	7.58	7.76
2	Temperature	° C	-	-	25.2	24.8	24.6	24.1	23.8	26.2
3	Conductivity	µmhos/cm	-	-	483	388	1298	952	555	874
4	Total dissolve solid (TDS)	mg/l	500	2000	324	260	870	638	372	586
5	Total Suspended solids (TSS)	mg/l	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	192	152	540	416	170	275
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	138	252	225	245	254
8	Chloride (as Cl)	mg/l	250	1000	66	52	63	270	130	155
9	Calcium (as Ca)	mg/l	75	200	47	36	130	77	43	41
10	Magnesium (as Mg)	mg/l	30	100	19	15	52	31	17	16
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.61	0.68	0.66	0.51	0.48
12	Sulphate (as SO_4)	mg/l	200	400	21	18	44	38	34	36
13	Iron (as Fe)	mg/l	1	NR	0.15	0.13	0.1	0.14	0.48	0.12
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	38.1	25	50.1	26.6	50.2	150.2
21	Potassium (as K)	mg/l	-	-	3.2	11	0.38	3.1	1.68	0.62
22	Nitrate (as NO_3)	mg/l	45	NR	5.8	8.9	4.4	7.9	6.8	5.1
23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

//True Copy//

S.No	Parameter	Unit	Requirement IS: 10500		GW-1	GW-2	GW-3	GW-4	GW-5	GW-6
			Acceptable Limit	Permissible Limit						
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

NA: Not

Table 3.20 : continued……Ground Water Quality in the Study Area (Oct 2023)

S.No	Parameter	Unit	Requirement IS: 10500		GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
			Acceptable Limit	Permissible Limit						
1	pH value	-	6.5-8.5	-	7.13	7.38	6.91	7.48	7.29	7.11
2	Temperature	^{o} C	-	-	24.6	24.8	24.2	24.6	24.0	24.7
3	Conductivity	µmhos/cm	-	-	1056	385	477	564	803	501
4	Total dissolve solid (TDS)	mg/l	500	2000	708	258	320	378	538	336
5	Total Suspended solids (TSS)	mg/l	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	344	148	192	176	316	184
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	284	142	62	248	245	155
8	Chloride (as Cl)	mg/l	250	1000	309	40	68	132	170	72
9	Calcium (as Ca)	mg/l	75	200	50	35	46	43	75	44

//True Copy//

S.No	Parameter	Unit	Requirement IS: 10500		GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
			Acceptable Limit	Permissible Limit						
10	Magnesium (as Mg)	mg/l	30	100	20	14	19	16.8	30	18
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.32	0.56	0.51	0.61	0.56
12	Sulphate (as SO_4)	mg/l	200	400	46	15	20.5	36	35	28
13	Iron (as Fe)	mg/l	1	NR	0.12	0.12	0.15	0.49	0.14	0.14
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.1	20.1	37.5	52.1	138.1	34.2
21	Potassium (as K)	mg/l	-	-	0.57	9.52	3.1	1.58	1.12	2.8
22	Nitrate (as NO_3)	mg/l	45	NR	5.1	5.2	5.2	6.8	7.1	6.6
23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

//True Copy//

Table 3.21 : Ground Water Quality in the Study Area (Nov 2023)

S.No	Parameter	Unit	Requirement IS: 10500		GW-1	GW-2	GW-3	GW-4	GW-5	GW-6
			Acceptable Limit	Permissible Limit						
1	pH value	-	6.5-8.5	-	6.91	7.44	7.53	7.28	7.58	7.77
2	Temperature	^{o} C			22.5	21.8	22.5	22.4	23.5	22.4
3	Conductivity	µmhos/cm			486	391	1300	955	562	877
4	Total dissolve solid (TDS)	mg/l	500	2000	326	262	871	640	376	588
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	154	542	417	172	276
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	57	138	254	226	244	256
8	Chloride (as Cl)	mg/l	250	1000	66.5	52.5	64	272	132	156
9	Calcium (as Ca)	mg/l	75	200	47	36.5	13.5	77.1	43.8	42
10	Magnesium (as Mg)	mg/l	30	100	19.1	15.3	52.5	31.5	17.8	16.4
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.62	0.67	0.65	0.52	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.2	18.5	44.1	39.1	35.5	36.4
13	Iron (as Fe)	mg/l	1	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.1	26.1	50.8	27.1	51.5	151.2
21	Potassium (as K)	mg/l	-	-	3.5	11.2	0.38	3.4	1.69	0.64
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1
23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11

//True Copy//

S.No	Parameter	Unit	Requirement IS: 10500		GW-1	GW-2	GW-3	GW-4	GW-5	GW-6
			Acceptable Limit	Permissible Limit						
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

NR denotes no relaxations.

Table 3.21 : continued……Ground Water Quality in the Study Area (Novovember 2023)

S.No	Parameter	Unit	Requirement IS: 10500		GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
			Acceptable Limit	Permissible Limit						
1	pH value	-	6.5-8.5	-	7.14	7.39	6.92	7.49	7.3	7.12
2	Temperature	^{o} C			22.2	23.1	22.8	22.5	23.1	22.2
3	Conductivity	µmhos/cm			1062	388	481	565	809	503
4	Total dissolve solid (TDS)	mg/l	500	2000	712	260	322	379	540	337
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	346	149	193	177	317	185
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	285	143	62.5	245	246	156
8	Chloride (as Cl)	mg/l	250	1000	310	41	68.4	133	171	72.4
9	Calcium (as Ca)	mg/l	75	200	51	35.6	46.2	43.5	75.2	44.2
10	Magnesium (as Mg)	mg/l	30	100	20.5	14.2	19.2	16.8	30.5	18.4

//True Copy//

S.No	Parameter	Unit	Requirement IS: 10500		GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
			Acceptable Limit	Permissible Limit						
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.57	0.52	0.62	0.56
12	Sulphate (as SO_4)	mg/l	200	400	46.1	15.5	20.8	36.2	37.5	28.4
13	Iron (as Fe)	mg/l	1	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.9	20.8	37.9	52.8	138.4	34.8
21	Potassium (as K)	mg/l	-	-	0.58	9.53	3.4	1.61	1.13	2.8
22	Nitrate (as NO_3)	mg/l	45	NR	5.1	5.1	5.3	6.7	7.2	6.7
23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

NR denotes no relaxations

//True Copy//

Table 3.22 : Ground Water Quality in the Study Area (December 2023)

S.No	Parameter	Unit	Requirement IS: 10500		GW-1	GW-2	GW-3	GW-4	GW-5	GW-6
			Acceptable Limit	Permissible Limit						
1	pH value	-	6.5-8.5	-	6.92	7.43	7.54	7.29	7.57	7.78
2	Temperature	^{o} C			21.1	21.5	22.2	21.4	22.4	20.5
3	Conductivity	µmhos/cm			490	543	1305	958	564	881
4	Total dissolve solid (TDS)	mg/l	500	2000	328	364	874	642	378	590
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	156	544	418	173	277
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	137	255	228	245	257
8	Chloride (as Cl)	mg/l	250	1000	67	53	64	273	133	157
9	Calcium (as Ca)	mg/l	75	200	47.5	37	14	77.5	44	42.6
10	Magnesium (as Mg)	mg/l	30	100	19.1	16	53	32	18	16.8
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.64	0.67	0.65	0.53	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.5	18.9	45	40	35.6	36.4
13	Iron (as Fe)	mg/l	1	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.8	27.3	51.2	27.9	52.1	152.1
21	Potassium (as K)	mg/l	-	-	3.8	11.4	0.39	3.8	1.71	0.66
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1
23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11

//True Copy//

S.No	Parameter	Unit	Requirement IS: 10500		GW-1	GW-2	GW-3	GW-4	GW-5	GW-6
			Acceptable Limit	Permissible Limit						
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

NR denotes no relaxations.

Table 3.22 : continued……Ground Water Quality in the Study Area (December 2023)

S.No	Parameter	Unit	Requirement IS: 10500		GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
			Acceptable Limit	Permissible Limit						
1	pH value	-	6.5-8.5	-	7.15	7.38	6.95	7.5	7.31	7.13
2	Temperature	° C			22.1	22.4	21.4	21.6	22.5	21.8
3	Conductivity	µmhos/cm			1066	391	484	567	807	504
4	Total dissolve solid (TDS)	mg/l	500	2000	714	262	324	380	541	338
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	348	149	194	178	318	186
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	284	144	63	246	247	157
8	Chloride (as Cl)	mg/l	250	1000	311	42	69	133	172	73
9	Calcium (as Ca)	mg/l	75	200	51.2	36	46.8	43.8	75.6	44.6
10	Magnesium (as Mg)	mg/l	30	100	21	14.6	19.7	16.8	30.8	18.7

//True Copy//

S.No	Parameter	Unit	Requirement IS: 10500		GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
			Acceptable Limit	Permissible Limit						
11	Fluoride (as F)	mg/l	1.0	1.5	0.57	0.33	0.58	0.53	0.63	0.56
12	Sulphate (as SO_4)	mg/l	200	400	47	16	20.8	36.4	37.5	28.6
13	Iron (as Fe)	mg/l	1	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
18	Dissolve Oxygen	mg/l	-	-	6.5	6.7	6.4	6.6		
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	131.6	22.4	38.1	52.9	138.8	35.1
21	Potassium (as K)	mg/l	-	-	0.59	9.69	3.6	1.63	1.14	2.9
22	Nitrate (as NO_3)	mg/l	45	NR	5.1	5.1	5.4	6.7	7.2	6.8
23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

NR denotes no relaxations. *Source: Water Analysis during study period*

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3.2.1.1 *Observation on Ground Water Quality*

- The pH value of drinking water is an important index of acidity or alkalinity. pH value of the sample varies from 6.89 to 7.78 in all locations, which is well within the specified standard of 6.5 to 8.5.
- Electric Conductivity levels vary from 385 to 1305 µmhos/cm. Total dissolved solids range from 258 to 874 mg/l which is found within the permissible limit as per IS:10500.
- The total hardness is an important parameter of water quality. The hardness values in ground water of the study area ranges between 148 to 544 mg/l which is well within the permissible limit at all locations. The Calcium values in ground water of the study area are well within the specified permissible limit. Magnesium values in ground water of the study area are also well within the specified permissible limit of Indian drinking water standard.
- The Chloride values in ground water of the study area ranges between 40 to 311 mg/l which is also well within the permissible limit.
- No biological and metallic contamination has been found in any of the ground water sample of the study area.
- Overall, the parameters in ground water sample were well within the permissible limit of Indian Standard IS: 10500-2012 at all locations.

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3.8.2. *Surface Water Quality*

The Tons River flows approximately 1 km from the project site. Other surface water sources in the study area include a village pond and the NTPC water reservoir.

Surface water Sampling: Six surface water samples were collected from the study area. Sample were collected from Ganga River, Tons River and village ponds. The samples were collected and analysed as per the procedures specified in Standard Methods. Samples for chemical analyses were collected in polyethylene carboys. Samples for bacteriological analyses were collected in sterilized bottles. Temperature, pH, conductivity and dissolved oxygen were measured at site itself. Pond water sample were analyzed for various parameters and assessed using the CPCB's BDU Criteria. Surface water sampling location is presented in **Table 3.23 and Figure 3.29** and analysis results are presented in **Table 3.24 to 3.26**.

Table 3.23 : Surface Water Sampling Locations

Sample code	Location	Geographical Coordinates of Monitoring Location	Distance & Direction
SW-1	Ganga river near Intake Point (outside the study area)	25°16'19.11"N 82° 6'32.29"E	Out of study area (water source for the project)
SW-2	Ganga river d/s of Intake Point Bijora (outside the study area)	25°16'4.14"N 82° 5'36.20"E	Out of study area (water source for the project)
SW-3	Tons River d/s of site near Madaraha Village	25°10'1.00"N 82° 1'6.90"E	5.0 km NE
SW-4	Tons/ River u/s of site near Dhadhuva Village	25° 8'54.97"N 81°53'22.90"E	3.5 km West
SW-5	Pond Dasuati Village	25° 5'37.15"N 81°56'13.50"E	4.7 km S
SW-6	Pond near Khodar Pahari	25° 7'58.47"N 81°59'21.22"E	1.3 km SE

Source: Monitoring Plan

Table 3.24 : Surface Water Quality (October 2023)

Sl. No	Parameters	Unit	CPCB BDU Water Quality Criteria Class-C	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
1	pH	-	6.0 -9.0	7.89	7.80	7.58	7.3	7.5	7.4
2	Temperature	ºC	-	24.8	24.1	24.3	23.4	25.4	23.9

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Sl. No	Parameters	Unit	CPCB BDU Water Quality Criteria Class-C	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
3	Conductivity	µmhos/cm	-	380	388	323	388	540	225
4	Chloride(as Cl)	mg/l	-	18	19	58	62	78	22
5	Total Alkalinity (as $CaCO_3$)	mg/l	-	144	148	104	116	64	48
6	Total Hardness(as CaCO3)	mg/l	-	120	124	108	124	80	56
7	Calcium (as Ca)	mg/l	-	28.9	29.1	26	30	19	13.4
8	Magnesium (as Mg)	mg/l	-	11.6	12.4	10	12	7.8	5.4
9	COD (as O2)	mg/l	-	13	15	13	12	48	42
10	BOD (3 days at 27^0C)	mg/l	3.0	3.0	2.9	2.9	2.7	8.1	7.2
11	Dissolve Oxygen	mg/l	4.0/ or more	6.4	6.6	6.3	6.4	4.4	4.6
12	Total Dissolved Solid	mg/l	-	240	247	170	186	357	124
13	Total Suspended Solid	mg/l	-	4.5	4.6	4	6	11	8
14	Nitrite (as NO_2)	mg/l	-	3.1	3.3	2.8	2.9	2.4	2.1
15	Phosphate (as P)	mg/l	-	0.21	0.22	0.35	0.39	0.28	0.19
16	Fluoride (as F)	mg/l	-	0.38	0.36	0.66	0.68	0.51	0.41
17	Sulphate (SO4)	mg/l	-	16.2	17.3	28	34	29	18
18	Iron (as Fe)	mg/l	-	0.28	0.24	0.23	0.35	0.14	0.19
19	Nitrate (as NO_3)	mg/l	-	3.2	3.5	4.1	4.5	3.9	3.5
20	Total Chromium (as Cr)	mg/l	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Sodium (as Na)	mg/l	-	13,6	14.3	10	14	36	8
22	Potassium (as K)	mg/l	-	1.6	1.7	1.9	1.9	8	7.2
23	Arsenic (as As)	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Lead (as Pb)	mg/l	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Copper (as Cu)	mg/l	-	<0.05	<0.05	0.06	<0.05	<0.05	0.08
26	Zinc (as Zn)	mg/l	-	0.22	0.28	0.11	0.13	0.19	0.35
27	Total Coliform	MPN	<5000	4220	4170	1460	1540	3450	3780

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BDU: Designated Best Use

Table 3.25 : Surface Water Quality (Nov-2023)

S.No	Parameters	Unit	CPCB BDU Water Quality Criteria Class-C	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
1	pH	-	6.0 -9.0	7.70	7.74	7.59	7.32	7.54	7.42
2	Temperature	ºC	-	23.8	23.7	23.1	22.7	22.1	23.1
3	Conductivity	µmhos/cm	-	367	374	328	392	548	229
4	Chloride(as Cl)	mg/l	-	16	17	59.2	63.1	78.1	22.5
5	Total Alkalinity (as $CaCO_3$)	mg/l	-	138	142	105	117	64.8	49.2
6	Total Hardness(as CaCO3)	mg/l	-	119	117	108.5	125	80.4	57.1
7	Calcium (as Ca)	mg/l	-	27.4	26.8	26.4	31.1	19.4	14.1
8	Magnesium (as Mg)	mg/l	-	12.4	12.1	11.1	12.4	7.9	5.9
9	COD (as O2)	mg/l	-	12	14	12	11	46	44
10	BOD (3 days at 27^0C)	mg/l	3.0	2.7	3.0	2.8	2.6	8.0	7.6
11	Dissolve Oxygen	mg/l	4.0/ or more	6.2	6.4	6.2	6.1	4.5	4.5
12	Total Dissolved Solid	mg/l	-	240	247	174	189	360	129
13	Total Suspended Solid	mg/l	-	4.6	4.7	4	6	11	8
14	Nitrite (as NO_2)	mg/l	-	3.4	3.2	2.7	2.8	2.5	2.2
15	Phosphate (as P)	mg/l	-	0.24	0.20	0.36	0.4	0.29	0.2
16	Fluoride (as F)	mg/l	-	0.34	0.36	0.67	0.69	0.5	0.42
17	Sulphate (SO4)	mg/l	-	15.6	16.1	28.1	34.6	30.1	18.4
18	Iron (as Fe)	mg/l	-	0.26	0.27	0.23	0.35	0.14	0.19
19	Nitrate (as NO_3)	mg/l	-	3.0	3.2	4.3	4.9	3.4	3.7
20	Total Chromium (as Cr)	mg/l	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Sodium (as Na)	mg/l	-	13,7	13.8	10	14	36	8
22	Potassium (as K)	mg/l	-	1.4	1.5	1.9	1.9	8	7.2
23	Arsenic (as As)	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Lead (as Pb)	mg/l	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Copper (as Cu)	mg/l	-	<0.05	<0.05	0.06	<0.05	<0.05	0.08

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S.No	Parameters	Unit	CPCB BDU Water Quality Criteria Class-C	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
26	Zinc (as Zn)	mg/l	-	0.26	0.25	0.11	0.13	0.19	0.35
27	Total Coliform	MPN	<5000	4450	4320	1420	1480	3510	3660

BDU: Designated Best Use, NS denote no Standard

Table 3.26 Surface Water Quality (December 2023)

S.No	Parameters	Unit	CPCB BDU Water Quality Criteria Class-C	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
1	pH	-	6.0 -9.0	7.92	7.88	7.6	7.38	7.55	7.48
2	Temperature	ºC	-	23.0	22.9	21.7	22.2	21.1	21.2
3	Conductivity	µmhos/cm	-	384	385	330	396	552	231
4	Chloride(as Cl)	mg/l	-	19	20	60.2	64.2	79.1	23.5
5	Total Alkalinity (as $CaCO_3$)	mg/l	-	146	149	106	115	65.2	50.2
6	Total Hardness(as CaCO3)	mg/l	-	124	125	109	126	81	58.2
7	Calcium (as Ca)	mg/l	-	28.1	28.9	27.1	31.9	20.2	15.2
8	Magnesium (as Mg)	mg/l	-	13.0	12.8	11.5	12.6	7.9	5.9
9	COD (as O2)	mg/l	-	14	16	14	13	47	44
10	BOD (3 days at 27^0C)	mg/l	3.0	2.7	3.1	2.8	2.9	8.2	7.6
11	Dissolve Oxygen	mg/l	4.0/ or more	6.1	6.3	6.1	6.2	4.5	4.4
12	Total Dissolved Solid	mg/l	-	244	248	178	192	364	130
13	Total Suspended Solid	mg/l	-	4.2	4.4	4	6	11	8
14	Nitrite (as NO_2)	mg/l	-	3.3	3.2	2.9	2.8	2.8	2.5
15	Phosphate (as P)	mg/l	-	0.23	0.20	0.38	0.42	0.31	0.22

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16	Fluoride (as F)	mg/l	-	0.33	0.38	0.67	0.7	0.52	0.43
17	Sulphate (SO4)	mg/l	-	17.0	16.9	28.1	34.6	30.1	18.4
18	Iron (as Fe)	mg/l	-	0.25	0.26	0.23	0.35	0.14	0.19
19	Nitrate (as NO_3)	mg/l	-	3.3	3.1	4.4	4.8	3.6	3.9
20	Total Chromium (as Cr)	mg/l	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Sodium (as Na)	mg/l	-	13.4	14.1	10.6	14.9	37	8.8
22	Potassium (as K)	mg/l	-	1.7	1.8	1.9	1.9	8	7.3
23	Arsenic (as As)	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Lead (as Pb)	mg/l	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Copper (as Cu)	mg/l	-	<0.05	<0.05	0.06	<0.05	<0.05	0.08
26	Zinc (as Zn)	mg/l	-	0.24	0.26	0.11	0.13	0.19	0.35
27	Total Coliform	MPN	<5000	4380	4360	1380	1610	3510	3740

BDU: Designated Best Use, NS denote no Standard

Observation on Surface water Quality:

Bacterial contamination was observed in the surface water sample. However, the river water quality was found to meet the Best Designated Use – 'C' Criteria of CPCB (i.e., Drinking water source after conventional treatment and disinfection). The pond water quality is not meeting the BDU criteria class C.

3.8.3. *Ground Water Quality Index*

WQI is defined as a rating reflecting the composite influence of different water quality parameters. WQI is calculated from the point of view of the suitability of water for human consumption. A quality rating scale (qi) for each parameter is assigned by dividing its concentration in each water sample by its respective standard according to the guidelines laid down in the BIS and the result multiply by 100.

$$qi = (Ci/Si) \times 100$$

Where qi is the quality rating, Ci is the concentration of each chemical parameter in each water sample in mg/l, and Si is the Indian drinking water standard for each chemical parameter in mg/l according to the guidelines. For computing the WQI, the SI is first determined for each chemical parameter, which is then used to determine the WQI as per the following equation.

$$SIi = Wi \times qi$$

$$WQI = \sum SIi$$

SIi is the sub-index of the ith parameter; qi is the rating based on concentration of ith parameter and n is the number of parameters. The computed WQI values are classified in to five types, "excellent water" to "water not suitable for drinking".

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Table 3.27 : Water Quality Classification based on WQI Value

WQI value	Water quality
<50	Excellent
50-100	Good water
100-200	Poor water
200-300	Very Poor water
>300	Water not suitable for drinking

The Water Quality Index based on weighted average of 11 parameters (Total Hardness as $CaCO_3$, Calcium, Alkalinity, Chloride, Magnesium, TDS, Sulphate, Fluoride, pH, Iron, Nitrates) has been found to range between **Excellent to Good** as is evident from table 3.28 below:

Table 3.28 : Ground Water Quality Index

Season	Oct-2023	Classification	Nov-2023	Classification	Dec-2023	Classification
GW1	**43**	Excellent	44	Excellent	44	Excellent
GW2	**43**	Excellent	44	Excellent	46	Excellent
GW3	**81**	Good water	74	Good water	74	Good water
GW4	**73**	Good water	73	Good water	74	Good water
GW5	**64**	Good water	58	Good water	58	Good water
GW6	**59**	Good water	60	Good water	60	Good water
GW7	**70**	Good water	71	Good water	71	Good water
GW8	**38**	Excellent	39	Excellent	39	Excellent
GW9	**43**	Excellent	43	Excellent	44	Excellent
GW10	**64**	Good water	64	Good water	65	Good water
GW11	**66**	Good water	66	Good water	66	Good water
GW12	**47**	Excellent	48	Excellent	48	Excellent

3.2.1.2 *Surface Water Quality Index*

The Water Quality Index based on weighted average of 13 parameters (Total Hardness as $CaCO_3$, Calcium, Alkalinity, Chloride, Magnesium, TDS, DO, Sulphate, Fluoride, pH, BOD, Iron, Nitrates) has been found Good is evident from **Table 3.29.**

Table 3.29 : Surface Water Quality Index

Season	Oct-2023	Classification	Nov-2023	Classification	Dec-2023	Classification

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SW1	67.8	Good Water	68.3	Good Water	66.3	Good Water
SW2	68.1	Good Water	68.8	Good Water	67.1	Good Water
SW3	70.4	Good Water	69.9	Good Water	69.3	Good Water
SW4	73.6	Good Water	71.4	Good Water	71.1	Good Water
SW5	52.6	Good Water	53.0	Good Water	53.0	Good Water
SW6	55.5	Good Water	54.3	Good Water	54.3	Good Water

3.9. Soil Quality

3.9.1. *Soil*

Soils may be defined as a thin layer of earth's crust that serves as a natural medium for the growth of plants. It is the unconsolidated mineral matter that has been subjected to and influenced by genetic and environmental factors. Soils serve as a reservoir of nutrients for plants and crops and provide mechanical anchorage and favorable tilts. Soil is our most important natural resource, and a natural resource is anything that comes from the earth and is used by us. We depend on the soil for food, clothing, shelter, minerals, clay & water. Soil is the seat of many macro & micro flora like algae, fungi, earthworms, bacteria etc. These are greatly beneficial in promoting soil reactions and decomposing the organic matter by which essential nutrients for plants are liberated. Most of the soils are made-up of two main parts:

- Tiny bits of mineral particles which come from larger rocks, and humus, which is dark brown in color and consists of decaying remains of plants and animals.
- Soil also contains water, air and living organisms, such as fungi, bacteria, earthworms, roundworms, insects, etc. Actually, more living organisms live in the soil than above it.

For general characterization of soil a few random samples from the study area to the depth of about 15-cm may be sufficient. Deeper soil samples may be needed only for the study of soil profile.

3.9.2. *Methodology*

The soil samples were collected from 10 selected locations during the study period of post monsoon season**.** The samples collected from all the locations were homogeneous representatives of each location. At random five sub-locations were identified at each location and soil samples were collected from 5 to 15 cm below the surface. It was uniformly mixed before homogenizing the soil samples. The samples about 500gms were packed in polythene bags labelled in the field with location & number and sent to the laboratory for the analysis of physicochemical parameters. The samples were dried and passed through a 2.0 mm sieve to prepare them for testing.

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3.9.3. *Selection of Sampling Locations*

Ten Soil sampling locations were selected based on various land use conditions& agricultural practices.

3.9.4. *Soil Sampling Locations*

For studying soil quality in the study area, ten (10) sampling locations were selected to assess the existing soil conditions in and around the project site area representing various land use conditions. Soil sampling locations with their distance & directions w.r.t., the proposed project site is presented in **Table 3.30 and Figure 3.30.**

Table 3.30 : Soil Sampling Locations

Sampling Code	Sampling Locations	Geo-Coordinates	Source	Distance & Direction w.r.t. site
S-1	Project Site (Meja TPP Main Entry Gate)	25° 8'17.25"N 81°56'26.30"E	Open area/ site	Plant site
S-2	Salaya Kala near Ash Pond	25° 6'42.13"N 81°55'13.85"E	Agriculture field	0.52 km SW
S-3	Patai Dandi village	25° 9'43.77"N 81°57'34.34"E	Agriculture field	1.5 km NE
S-4	Rithaiya village	25°10'55.63"N 81°59'55.12"E	Agriculture field	5.6 km NE
S-5	Sukath near meja tehsil	25° 8'42.86"N 82° 4'9.52"E	Agriculture field	9.43 km East
S-6	Son Barsi	25° 7'2.13"N 81°58'32.26"E	Agriculture field	2.7 km SE
S-7	Gadeva Village	25° 8'48.47"N 82° 0'42.56"E	Agriculture field	3.5 km East
S-8	Piprau village	25° 8'31.66"N 81°54'2.86"E	Agriculture field	1.8 km NW
S-9	Kohdar village	25°8'29.61"N 81°59'13.47"E	Agriculture field	0.9 km East (nearest settlement)
S-10	Maikhurd Village	25° 9'20.57"N 81°55'40.29"E	Agriculture field	0.86 km NW (nearest settlement)

Source: Monitoring Plan

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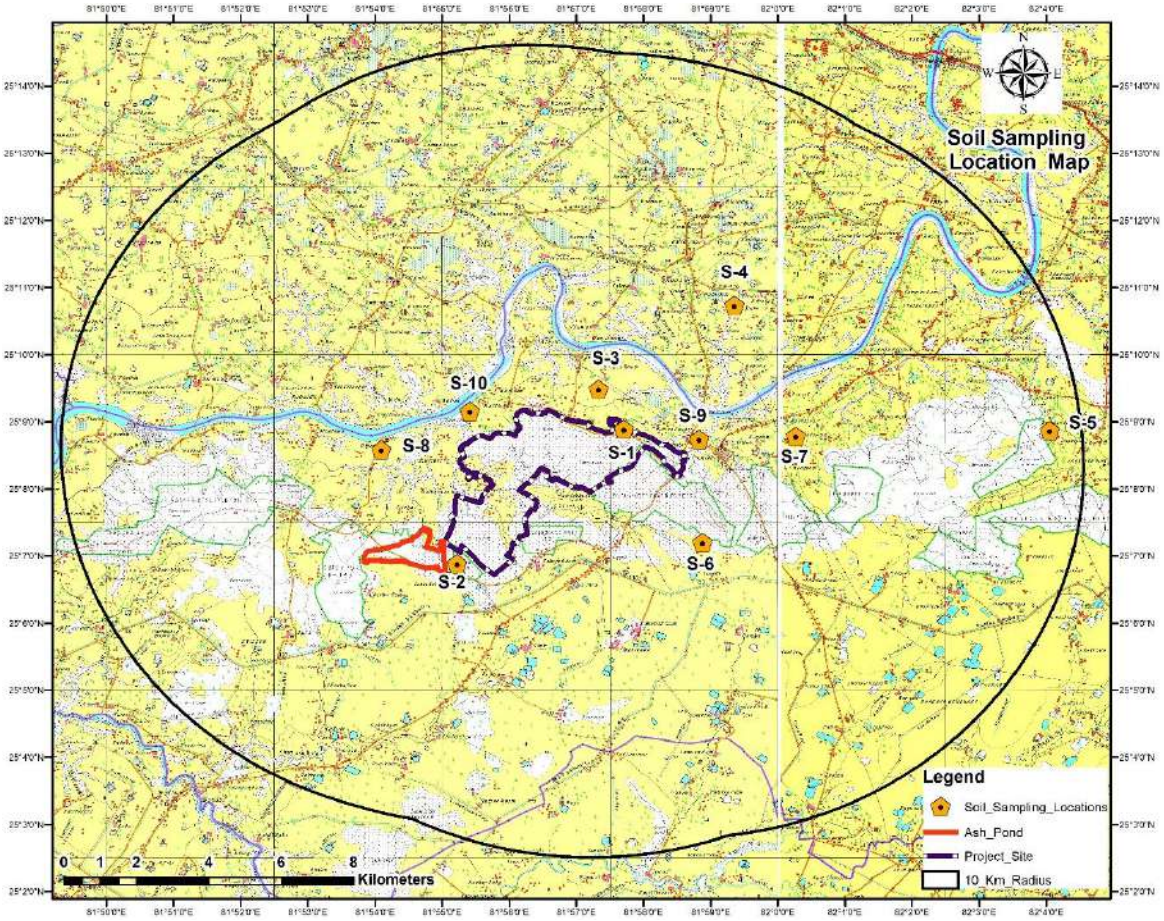


Figure 3.30 : Soil Location Map

3.9.5. *Analysis of Soil Samples*

The soil samples were examined for various physicochemical parameters, to determine the existing soil characteristics of the study area. Soil samples were collected from the vicinity of proposed project site. Physicochemical characteristics of soil are presented in **Table 3.31 to 3.32.**

Table 3.31 : Physiochemical Characteristics of Soil

S.No	Parameter	Unit	S-1	S-2	S-3	S-4	S-5
1	pH	-	7.59	7.87	7.78	7.61	7.64
2	Electrical Conductivity at 25^{o} C (1:5suspension.)	µmhos/cm	340	389	440	472	360
3	Sodium (as Na)	(mg/kg)	126	117	155	145	123
4	Water holding capacity	(%) by mass	29.8	27.9	30.2	28.28	29
5	Potassium (as K)	(kg/ha)	178	165	176	180	165

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S.No	Parameter		Unit	S-1	S-2	S-3	S-4	S-5
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	57.5	56.5	56.9	55.2	56.2
		Clay	(%) by mass)	27.1	28.1	28.5	27.1	29.8
		Silt	(%) by mass)	15.4	15.4	14.6	17.7	14
7	Calcium (as Ca)		(mg/kg)	1451	1477	1877	1426.9	1086
8	Magnesium (as Mg)		(mg/kg)	154.1	398	521	502.2	420.1
9	Sodium Absorption Ration (SAR)		-	0.59	0.49	0.58	0.59	0.57
10	Cation Exchange Capacity (CEC)		(meq/100gm)	9.5	11.6	14.9	12.4	9.9
11	Available Phosphorus (as P)		Kg/ha	19.2	14.0	14.7	18.2	20.8
12	Organic carbon		(%) by mass)	0.75	0.79	0.81	0.69	0.78
13	Porosity		(% by mass)	35.2	34.1	38.1	32.6	38.2
14	Bulk Density		(g/cm^3)	1.25	1.26	1.28	1.29	1.22
15	Nitrogen		Kg/ha	230	174	222	166	198
17	Zinc (as Zn)		mg/kg	8.1	7.2	9.87	8.42	8.8
18	Manganese (as Mn)		mg/kg	15	16.2	72.96	22.45	20.2
19	Chromium (Cr+6)		mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
20	Lead (as Pb)		mg/kg	3.2	1.47	1.28	1.26	1.27
21	Cadmium (as Cd)		mg/kg	<0.1	<0.05	<0.1	<0.1	<0.05
22	Cupper (as Cu)		mg/kg	30.2	18.2	18.23	33.82	23.8
23	Mercury (Hg)		mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Source: Lab Testing Report

Table 3.32 : Physiochemical Characteristics of Soil

S. No	Parameters	Unit	S-6	S-7	S-8	S-9	S-10
1	pH	-	7.74	7.89	7.56	7.38	7.85
2	Electrical Conductivity at 25° C (1:5suspension.)	µmhos/cm	480	355	380	390	412
3	Sodium (as Na)	(mg/kg)	119	124	129	131	139
4	Water holding capacity	(%) by mass	30.8	32.8	28.9	30.2	31.5
5	Potassium (as K)	(kg/ha)	132	190	170	185	165

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S. No	Parameters		Unit	S-6	S-7	S-8	S-9	S-10
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	55.4	56.5	55.2	54.1	54.5
		Clay	(%) by mass)	27.8	27.9	29.5	28.1	29.4
		Silt	(%) by mass)	16.8	15.6	15.3	17.8	16.1
7	Calcium (as Ca)		(mg/kg)	1023	2085	2155	2085	2045
8	Magnesium (as Mg)		(mg/kg)	502	554.6	580	514	531
9	Sodium Absorption Ration (SAR)		-	0.54	0.44	0.45	0.47	0.50
10	Cation Exchange Capacity (CEC)		(meq/100gm)	10.2	16.1	17.1	14.2	15.2
11	Available Phosphorus (as P)		Kg/ha	18.8	20.1	18.6	19.5	17.8
12	Organic carbon		(%) by mass)	0.82	0.79	0.81	0.72	0.75
13	Porosity		(% by mass)	34.6	36	38	31.2	34.5
14	Bulk Density		(g/cm^3)	1.2	1.19	1.18	1.21	1.22
15	Nitrogen		Kg/ha	155	205	185	220	190
17	Zinc (as Zn)		mg/kg	8.5	3.5	8.6	7.9	8.4
18	Manganese (as Mn)		mg/kg	23.15	18.5	21	20.3	22.3
19	Chromium (Cr+6)		mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
20	Lead (as Pb)		mg/kg	1.28	1.11	2.1	2.2	2.5
21	Cadmium (as Cd)		mg/kg	<0.1	<0.05	<0.05	<0.05	<0.05
22	Cupper (as Cu)		mg/kg	36.08	21.4	14.8	16.5	17.2
23	Mercury (Hg)		mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Source: Lab Testing Report

3.9.6. *Interpretation of Soil Characteristics*

Interpretation of Soil Characteristic has been dwelled in following Sub-sections.

Physical Characteristics: The physical characteristics examined includes colour, texture, porosity, bulk density, and water holding capacity. Colour of soil was observed generally as brown and yellowish brown. As the Texture as per 'USDA' Triangular Classification System, soils of all sampled soil can be described as sandy clay loam.

Soils having larger particles usually have higher bulk density than those of smaller particles. Bulk density of sampled soil in the study area during the sampling period varied between 1.18 to 1.29

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gm/cm^3. Water holding capacity of the sampled soil from the study area during the sampling period was observed between 27.9 & 32.8%.

Chemical Characteristics: The soils were generally observed as alkaline to slightly alkaline with pH range from 7.38 to 7.89 during the sampling period. Soil pH is an important soil property, which affects the availability of several plant nutrients. The measure of soil acidity and alkalinity reflects the status of base saturation. Electrical conductivity (EC) was found varying between 340 to 480 µmhos/cm during the sampling period.

Nitrogen is an integral component of many compounds including chlorophyll and enzyme essential for plant growth. Available nitrogen content in the surface soils ranges between 155 to 230 kg/ha during the study season which indicates that the major characteristics of soil found in the low fertility range of available nitrogen.

Phosphorus is an important component of adenosine di-phosphate (ADP) and adenosine tri-phosphate (ATP), which involves in energy transformation in plant. It is essential component of deoxyribonucleic acid (DNA), the seat of genetic inheritance in plant and animal. Phosphorous take part in important functions like photosynthesis, nitrogen fixation, crop maturation, root development, strengthening straw in cereal crops etc. The availability of phosphorous is restricted under acidic and alkaline soil reaction mainly due to Phosphorus fixation. In acidic condition it gets fixed with aluminium and iron and in alkaline condition with calcium. Available phosphorus content ranges between 14.0 to 20.8 kg/ha, thereby indicating that soils are moderate in available phosphorus content.

Potassium is an activator of various enzymes responsible for plant processes like energy metabolism, starch synthesis, nitrate reduction and sugar degradation. It is also important in grain formation and tuber development and encourages crop resistance for certain fungal and bacterial diseases. Available potassium content in these soils ranges between 132 to 190 kg/ha thereby is indicating that the soils are with medium level of available potassium content.

The status of all these soil test parameters reflect that the soil of the study area is observed as **low to high fertile** with normal ranges of rating values for soil.

Table 3.33 : Soil Class Interpretation

Parameter	Interpretation			
	Core Zone		Buffer Zone	
	Value	Category	Value	Category
Soil Reaction Classes (pH)	7.59	Slightly Alkaline	7.38-7.89	Alkaline to Slightly Alkaline
Organic Carbon (OC), %	0.75	Medium	0.69-0.82	Medium to High
Available Primary Nutrients (Fertility Status)				
Available Nitrogen as N (kg/ha)	230	Low	155-230	Low

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Available Phosphorous as P (kg/ha)	19.2	Medium	14.0-20.8	Medium
Available Potassium as K, (kg/ha)	178	Medium	132-190	Medium
Micronutrients	**Nature and Category**			
Manganese as Mn	15	Adequate	15-72.96	Adequate
Zinc as Zn	8.1	Adequate	3.5-9.87	Adequate
Copper as Cu	30.2	Adequate	14.8-36.08	Adequate
Soil Survey Manual (IARI, 1970): Singh et. al. 2004, Mehta et. al.1988, Follet & Lindsay 1970 and Berger & Truog, 1940				

3.9.7. *Soil Nutrient Index*

Soil nutrient status for N, P & K is better explained by working out Nutrient Index Value for each. Parker had classified the 'Nutrient Index' values less than 1.5 as the indicative of low nutrient status and between 1.5 to 2.5 as medium while higher than 2.5 as high nutrient status.

The following equation is used to calculate Nutrient Index Value

Nutrient Index = {(Nlx 1) + (Nm x 2) + (Nh x 3)} / Nt

Nt = Total number of samples analyzed for a nutrient in any given area.
Nl = Number of samples falling in low category of nutrient status.
Nm = Number of samples falling in medium category of nutrient status.
Nh = Number of samples falling in high category of nutrient status

Nutrient Index Value for, N = {(10 x 1) + (0 x 2) + (0 x 3)}/10 =1.0 (Low)
Nutrient Index Value for, P = {(0 x 1) + (10 x 2) + (0 x 3)}/10 = 2.0 (Medium)
Nutrient Index Value for, K = {(0 x 1) + (10 x 2) + (0 x 3)}/10 = 2.0 (Medium)

Thus, based on Nutrient Index Value for N, P & K, the soils of study area fall into low (for nitrogen) and medium (for phosphorous & potassium) fertility status. Soils have medium to high organic carbon and are capable of moderately supporting for agriculture. The soils of study area are alkaline to slightly alkaline in nature as pH value of sampled soils observed less than 8.5 and simultaneously the value of EC is less than 1 dS/m (1000 µmhos/cm) and Exchangeable Sodium Percentage (ESP) values are observed less than 15% in all ten sampled soil during the study season. Based on above interpretation of study area, soil analysis report reveals that the soils are "**Low to Moderately Fertile"** in the study area.

3.10. Comparative Baseline Study

Baseline data for Stage I was collected from April 2008 to July 2008, while baseline data for the proposed expansion was gathered from October 2023 to December 2023.

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3.10.1. *Comparison of Ambient Air Quality*

For the comparative analysis of ambient air quality, 10 locations were considered in the year 2023-24, while only 4 locations were assessed by the consultant in 2008. Out of these, 2 locations (Kohdar Village, Sonbarsi village) are matching with the earlier study. Hence comparative analysis of both the season were done for these two locations only. Ozone and mercury were not detected during the study period. Only PM_{10}, SO_2, and NOx were generated during 2008 hence only these three parameters were considered for the comparison. Data from both years, and the results for these locations are provided in **Table 3.34**

Table 3.34 : Comparative Ambient Air Quality Analysis

Location	PM_{10} (µg/m³) Period:2023 EIA Study				PM_{10} (µg/m³) : Period: 2008 EIA study			
	Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
Son Barsi	80	42	65	79	51	11	23.6	-
Kohdar Village	85	46	70	84	90	14	27.8	-

Table 3.34 : continued….

Location	SO2 (µg/m³) Period: 2023 EIA Study				SO2 (µg/m³) Period: 2008 EIA study			
	Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
Son Barsi	8.8	6.0	8.4	9.6	19	BDL	7.4	-
Kohdar Village	10.5	6.0	8.8	10.1	22	BDL	8.2	-

Table 3.34 : continued….

Location	NOx (µg/m³) Period: 2023 EIA Study				NOx (µg/m³) Period: 2008 EIA study			
	Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
Son Barsi	8.8	6.0	8.4	9.6	27	5.0	11.7	-
Kohdar Village	13.5	9.8	11.6	13.5	32	6	14.5	-

Interpretation –

The concentration of PM10 in the air has slightly increase in current study that might be due to increase in traffic and operation of the plant. The mean NOX and SOx level is meeting the current ambient air quality while the maximum values were found slightly higher during the earlier study

3.10.2. *Comparison of Ambient Noise Quality*

For the comparative analysis of ambient noise quality, 10 locations were considered in the year 2023-24, while 10 locations were assessed by the consultant in 2008. Out of these only 2 locations

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(Project Site, Kohdar village) are matching hence the comparative noise analysis were done for these two locations only. Comparative analysis is presented in **Table 3.35** below:

Table 3.35 : Comparative Ambient Noise Quality Analysis

Location	Category	Day (dB(A) Leq)		Night (dB(A) Leq)	
		Result EIA Study 2023-24	Result EIA Study 2008	Result EIA Study 2023-24	Result EIA Study 2008
Project Site	Industrial	59.8	45.4	52.1	35.1
Kohdar village	Residential	52.0	51.1	41.7	42.5

Interpretation:
Compared to the data collected in 2008, the values for both day and nighttime are slightly high in 2023-24 due to plant operation. Overall, the noise monitoring shows that day and night-time noise levels are found well within the respective category standards.

3.10.3. ***Comparative Water Quality***

To evaluate the water quality in the study area, six surface water samples and twelve groundwater samples were collected during 2023-24. In contrast, the 2008 EIA study by the consultant monitored only three surface water locations and three groundwater locations. Of the surface water sites, three locations align with those in the current study, while only one groundwater location matches. The results for both surface and groundwater are presented in Table3.30 and Table 3.36, respectively.

Table 3.36 : Surface Water Quality

S.No	Parameters	Unit	Tons U/s		Tons D/s		Ganga River	
			Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24
1	pH	-	7.5	7.58	7.7	7.3	7.7	7.89
2	Temperature	ºC	26.2	24.3	26.3	23.4	26.2	24.8
3	Conductivity	µmhos/cm	234	323	276	388	276	380
4	Chloride(as Cl)	mg/l	8	58	18	62	26	18
5	Total Alkalinity (as $CaCO_3$)	mg/l	89	104	62	116	119	144
6	Total Hardness(as CaCO3)	mg/l	96	108	101	124	151	120

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S.No	Parameters	Unit	Tons U/s		Tons D/s		Ganga River	
			Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24
7	Calcium (as Ca)	mg/l	25	26	29	30	39	28.9
8	Magnesium (as Mg)	mg/l	8	10	9	12	13	11.6
9	COD (as O2)	mg/l	13	13	14	12	6	13
10	BOD (3 days at 27^0C)	mg/l	4	2.9	5	2.7	2	3.0
11	Dissolve Oxygen	mg/l	7.2	6.3	8.6	6.4	8.8	6.4
12	Total Dissolved Solid	mg/l	137	170	163	186	171	240
13	Nitrite (as NO_2)	mg/l	0.8	2.8	1.1	2.9	1.1	3.1
14	Sulphate (SO4)	mg/l	12	28	14	34	12	16.2
15	Iron (as Fe)	mg/l	0.21	0.23	0.23	0.35	0.21	0.28
16	Nitrate (as NO_3)	mg/l	0.8	4.1	1.1	4.5	1.1	3.2
17	Total Chromium (as Cr)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Sodium (as Na)	mg/l	7.8	10	8.8	14	9.2	13,6
19	Potassium (as K)	mg/l	0.8	1.9	1.5	1.9	0.9	1.6
20	Arsenic (as As)	mg/l	<0.002	<0.01	<0.002	<0.01	<0.002	<0.01
21	Lead (as Pb)	mg/l	<0.05	<0.1	<0.05	<0.1	<0.05	<0.1
22	Copper (as Cu)	mg/l	<0.05	0.06	<0.05	<0.05	<0.05	<0.05
23	Zinc (as Zn)	mg/l	0.13	0.11	0.14	0.13	0.13	0.22

Interpretation – The comparative analysis results shows that there is marginal changes observed in the surface water with respect to previous results. No metallic contamination was observed in the surface water samples.

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Table 3.37 : Ground Water Quality

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Result EIA Study 2008	Result EIA Study 2023-24
1	pH value	-	6.5-8.5	-	7.3	6.91
2	Temperature	^{o} C	-		26.6	24.2
3	Conductivity	µmhos/cm	-		387	477
4	Total dissolve solid (TDS)	mg/l	500	2000	223	320
5	Total Suspended solids (TSS)	mg/l	-		7	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	151	192
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	160	62
8	Chloride (as Cl)	mg/l	250	1000	32	68
9	Calcium (as Ca)	mg/l	75	200	43	46
10	Magnesium (as Mg)	mg/l	30	100	13	19
11	Fluoride (as F)	mg/l	1	1.5		0.56
12	Sulphate (as SO_4)	mg/l	200	400	13	20.5
13	Iron (as Fe)	mg/l	1	NR	0.24	0.15
14	Phosphate (as PO_4)	mg/l	0.03	0.2		<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.05	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	<4	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	<1	NA
18	Dissolve Oxygen	mg/l	-	-	7.0	NA
19	Oil & Grease	mg/l	-	-	<0.01	<0.5
20	Sodium (as Na)	mg/l	-	-	12.0	37.5
21	Potassium (as K)	mg/l	-	-	2.0	3.1
22	Nitrate (as NO_3)	mg/l	45	NR	1.6	5.2
23	Selenium (as Se)	mg/l	0.01	NR	<0.05	<0.01
24	Copper (as Cu)		-		<0.05	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.13	0.09
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent

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S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Result EIA Study 2008	Result EIA Study 2023-24
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent

Interpretation–The pH of the drinking water is meeting the acceptable range. No major variation in electrical conductivity is observed. No biological and metallic contamination has been found in any of the ground water sample of the study area. Overall, the parameters in ground water sample were well within the permissible limit of Indian Standard IS: 10500-2012 at all locations.

3.11. Biological Environment

3.11.1. *Introduction*

A phased and consultative approach was followed to carry out baseline ecological assessment. Successive phases of the assessment include (i) Reconnaissance survey (ii)Secondary data collection through desktop review of available literature and (iii) Onsite data collection for determining vegetation and wildlife in the study area Methodology

The baseline study for existing ecological environment was carried out during study period. Field sampling efforts covered the proposed project site and its area of influence. Field surveys were conducted for vegetation, and wildlife. In addition, public consultations were also done in the communities around the site. A phased and consultative approach was followed to carry out ecological assessment. Successive phases of the assessment include (i) Secondary data collection through desktop review of available literature and (ii) Onsite data collection for determining vegetation and wildlife in the study area & Reconnaissance survey (iii) Public consultation.

Primary Data Collection & Reconnaissance survey: There are few patches of forest are present within the study area (10 km area around project site) hence, phytosocial study was conducted for tree, shrub and herb vegetation present in nearby forest areas. To know the vegetation pattern in study area primary survey was conducted to calculate the density, frequency and IVI of the vegetation. Sampling points were randomly selected at 10 different locations in the study area. Samples of plants that could not be identified in the field were collected, pressed and carried to the herbarium for further identification. The health status of the vegetation was visually determined. Wildlife observations were conducted during the day and at night to cover for diurnal and nocturnal animals. Binoculars were used to enable the study of birds and other far distant animals.

Secondary Data Collection: An extensive desktop review of available published literature (books, websites, scientific papers, articles etc.) was conducted. The Forest Working Plans of Forest Divisions was also referred for secondary information. Additional information was sourced from the project proponent, Divisional Forest Office, Forest range office, governmental institutions and local residents of the survey-area. Literature was sourced from the govt. sources like Forest

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department, MoEF&CC, IUCN and other related departments. Additional data sources include published articles in journals, gazettes, and technical reports, maps, internet, amongst others. The secondary data was appropriately supplemented by a field survey for primary data collection.

Public consultation: Beside above local people were also consulted during the site survey. Literature review and gathering publicly available data: The literature review encompassed background information on the Flora and fauna of the area including recent environmental studies.

3.11.2. *Forest Cover Type and Biodiversity in Uttar Pradesh*

Recorded Forest Area (RFA) in the State is 16,582 Sq.Km of which 12,070 Sq.Km is Reserved Forest, 1,157 Sq.Km is Protected Forest and 3,355 Sq.Km is Unclassed Forests. Uttar Pradesh, during the period 1st January 2015 to 5th February 2019, a total of 163.76 Hectares of forest land was diverted for non-forestry purposes under the Forest Conservation Act, 1980 (MoEF&CC, 2019).

Based on the interpretation of IRS Resource Sat-2 LISS III satellite data of the period Oct 2017 to Jan 2018, the Forest Cover in the State is 14,805.65 Sq.Km which is 6.15 % of the State's geographical area. In terms of forest canopy density classes, the State has 2,616.43 Sq.Km under Very Dense Forest (VDF), 4,080.04 Sq.Km under Moderately Dense Forest (MDF) and 8,109.18 Sq.Km under Open Forest (OF). Forest Cover in the State has increased by 126.65 Sq.Km as compared to the previous assessment reported in ISFR 2017.

Forest Type Maps of 2011 have been refined in the recently completed exercise by FSI. Percentage area under different forest types of Uttar Pradesh as per the Champion & Seth classification (1968), according to the latest exercise are presented in the **Table 3.38**. Forest cover Map and Forest Type Map of Uttar Pradesh is presented in **Figure 3.31**.

Table 3.38 : Percentage Wise Distribution of Forest Cover in Uttar Pradesh

S. No	Forest Type	Forest Cover (%)
1	2/E1 (Cane Brakes)	0.14
2	3C/1S1 Low Alluvial Savannah Woodland (Salmalia Albizzia)	0.03
3	3C/C2d (i) Western Light Alluvium Plains Sal	10.06
4	3C/C2d (iii) Eastern Heavy Alluvium Plains Sal	4.11
5	3C/C3a West Gangatic Moist Mixed Deciduous Forest	2.56
6	3C/2S1 Northern Secondary Moist Mixed Deciduous Forest	2.25
7	4D/SS2 Barringtonia Swamp Forest	0.01
8	4D/2S2 Eastern Wet Alluvial Grassland	0.63
9	4D/SS3 Syzygium cumini Swamp Low Forest	1.33
10	5B/C2 Northern Dry Mixed Deciduous Forest	34.90
11	5/E1 Anogeissus Pendula Forest	2.81
12	5B/DS1 Dry Deciduous Scrub	2.75

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S. No	Forest Type	Forest Cover (%)
13	5B/C1c Dry Peninsular Sal Forest	2.39
14	5E1/DS1 Anogeissus Pendula Scrub	1.08
15	5/1S2 Khair-Sissu Forest	1.08
16	5A/C1b Dry Teak Forest	0.91
17	5/E2 Boswellia Forest	0.80
18	5B/C1a Dry Siwalik Sal Forest	0.71
19	5/E9 Dry Bamboo Brake	0.52
20	5B/C1b Dry Plains Sal Forest	0.52
21	5/E3 Babul Forest	0.25
22	5/E8b Babul Savannah Forest	0.10
23	5/E5 Butea Forest	0.05
24	5/E8a Phoenix Savannah Forest	0.02
25	5/DS2 Dry Savannah Forest	0.01
26	5/DS3 (Euphorbia Scrub)	0.01
27	5/1S1 Dry Tropical Riverain Forest	0.00
28	6B/C2 Ravine Thorn Forest	5.11
29	Plantation/ TOF	24.97
Total		**100.00**

Source: India State of Forest Report, Uttar Pradesh, 2019

3.11.3. *Forests in Prayagraj District*

Proposed project site site is located in Tahsil Meja and falls in Prayagraj Forest Division, Uttar Pradesh. There is very less i.e. 6.0 Sq. Km. dense forest present in Prayagraj district. About 26 sq. km area is under moderately dense forest and about 97.21 sq. km area is open forest. The analysis of forest cover in Prayagraj district and UP state is presented in **Table 3.39.** Forest Cover Map of Uttar Pradesh is presented in **Figure 3.31.**

Table 3.39 : Type of Forest present in Prayagraj District

District/State	Total Geographical area (Sq.km)	Very Dense Forests Area (Sq.km)	Moderately dense Forests (Sq.km)	Open Forests (Sq.km)	Total Forest Area (Sq.km)
Prayagraj Forest Division	5,482	6.00	26.00	97.21	129.21
Uttar Pradesh	2,40,928	2,616.43	4,080.04	8,109.18	14,805.65

Source: India State of Forest Report, Uttar Pradesh 2019

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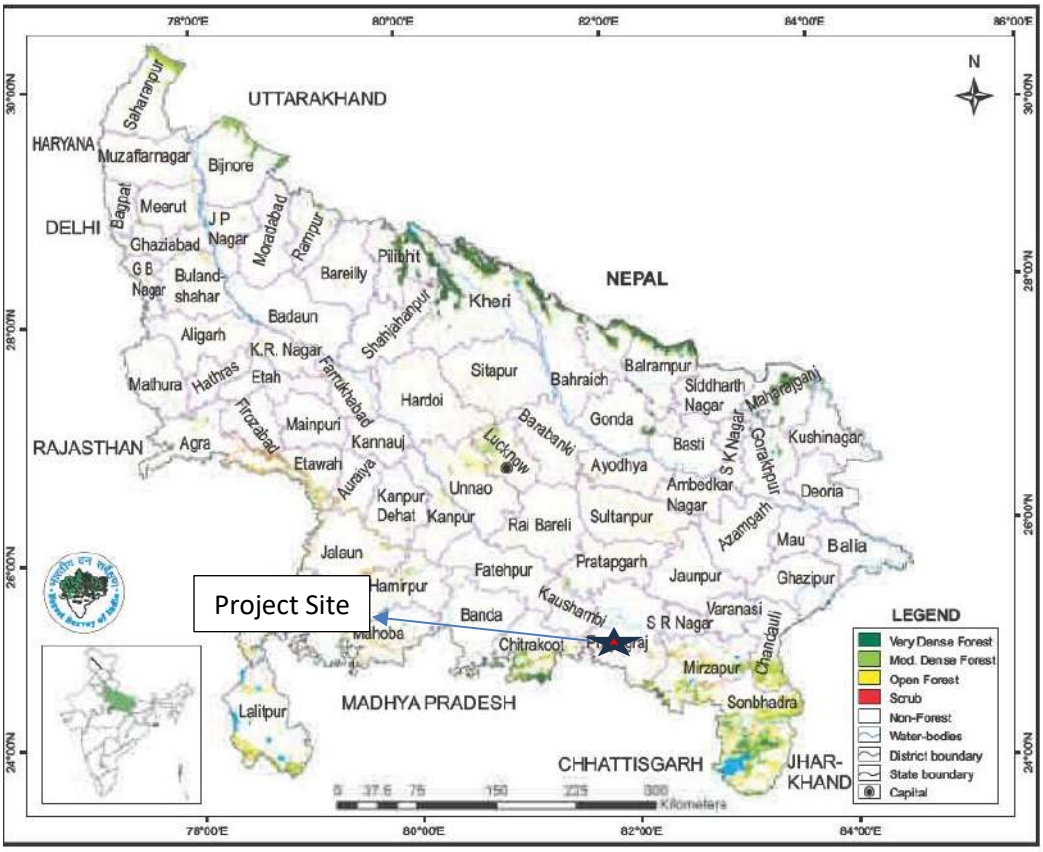


Figure 3.31 : Forest Cover Map of Uttar Pradesh

3.11.4. *Composition of Crops in Forest of the Study area*

The Ganga-Jamuna Doab, of which Prayagraj is a part, is on the western Indus-Gangetic Plain region and most of the land is under cultivation. There is very less forest left in the district. Mostly the forest of the district is open forest. There are few forest patches present in the study area (10 km radius) but due to presence of hard rock the forest patches present in the study area are scattered and crooked growth of the vegetation has been observed. The forest present in the study is deciduous forest. The plains of the Ganga, Yamuna, Tons and their tributaries are the primary habitats of these forest. Most of these trees are deciduous. These forest vast areas have been destroyed to make way for agriculture. The forests in these areas contain valuable trees including Sal, Palash, Amaltas, Bel, and Anjeer. Neem, Peepal, Sheesham, Mango and Jam.

3.11.5. *Forest Type in Study Area*

The study area falls in Meja Tehsil of Prayagraj Forest division. There is no very dense, moderately dense forest present in the study area. There are few reserved and protected forest present in the study area. The forest present in the study area is open and degraded forest. The list of the forest present present in 10 km radius of the project site is presented below:

- Badiha Reserved Forest (7.00 Km, SW)

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- Gadaria Reserved Forest (5.00 Km, SW)
- Singhpur Khurd Reserved forest (0.90 Km, SW)
- Salaiya Kalan Reserved forest (Along Southern Boundary)
- Salaiya Khurd Reserved forest (Along Southern Boundary)
- Kohdar Reserved forest (Along Eastern Boundary)
- Murpela Reserved forest (2.70 Km, E)
- East Chandhs Reserved Forest (8.00 Km, E)
- Sukh Protected Forest (8.50 Km, E)

3.11.6. *Floristic Studies*

The main objectives of the floristic studies are as follows:

- To prepare inventory of plants belonging to different groups occurring in the study area;
- To assess the vegetation community structure in the study area;
- To identify the dominant plant species occurring in the study area by calculating Importance Value Index;
- To assess the diversity of different tree, shrubs and herbaceous species by calculating the Shannon Wiener Diversity.

In order to understand the composition of the vegetation, most of the plant species could be identified in the field itself whereas in case of the species that could not be identified an herbarium specimen of some flowers were collected without uprooting the plant itself and in addition their photographs were also taken for identification, later with the help of available published literature and floras of the region.

3.11.7. *Floristic Composition*

During primary and secondary study carried out under present project, 53 tree species, 26 shrub species, 21 herbs and 26 grasses, climber and weeds were recorded from the study area. The comprehensive list of the plant species for 10 km study area (tree, shrubs, herbs, climbers and grasses) observed in the study area is given **Table 3.40.**

Table 3.40 : Plant Species Recorded in Study Area

S.No	Botanical Name	Local Name	Family	IUCN Status
Trees				
1	*Acacia auriculiformis*	Australian babul	Mimosaceae	LC
2	*Acacia catechu*	Khair	Mimosaceae	LC
3	*Acacia leucopholea*	Guhira	Mimosaceae	NL
4	*Alangium salviifolium*	Akol	Alangiaceae	LC
5	*Aegle marmelos*	Bael	Rutaceae	NT
6	*Ailanthus excelsa*	Mahanimba	Simaroubaceae	DD

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7	*Anthocephalus kadamba*	kadamb	Rubiaceae	NL
8	*Albizia lebbeck*	Shirish	Mimosaceae	LC
9	*Albizia procera*	Dhala sirish	Mimosaceae	LC
10	*Artocarpus heterophyllus*	Kathal	Moraceae	NL
11	*Azadiracta indica*	Neem	Meliaceae	NL
12	*Annona squamosa*	Sharifa	Annonaceae	LC
13	*Alstonia scholaris*	Devil tree	Apocynaceae	LC
14	*Bauhinia racemosa*	Mehuli	Caesalpiniaceae	LC
15	*Bauhinia variegate*	Kachnar	Caesalpiniaceae	NL
16	*Bombax cebia*	Semel	Bombacaceae	NL
17	*Butea Monosperma*	Palash	Fabaceae	LC
18	*Cassia siamea*	Minjri	Caesalpiniaceae	LC
19	*Citrus aurantifolia*	Limbu	Rutaceae	NL
20	*Casearia tomentosa*	Chilla	Flacourtiaceae	LC
21	*Cassia fistula*	Sunari	Caesalpiniaceae	LC
22	*Delonix regia*	Gulmohar	Fabeceae	LC
23	*Dalbergia sissoo*	Sishoo	Fabaceae	LC
24	*Diospyros melanoxylon*	Kendu	Ebenaeceae	NL
25	*Emblica officinalis*	Aamla	Euphorbiaceae	LC
26	*Elaeodendron glacum*	Mamri	Celastraceae	NL
27	*Ficus benghalensis*	Bar	Moraceae	LC
28	*Ficus carica*	Anjir	Moraceae	NL
29	*Ficus religiosa*	Pipal	Moraceae	LC
30	*Feronia limonia*	Kaintha	Rutaceae	NL
31	*Gmelina arborea*	Gumhar	Verbenaceae	LC
32	*Grewia tiliaefolia*	Dhamina	Tiliaceae	NL
33	*Grewia elastica*	Dhamna	Tiliaceae	NL
34	*Lagerstoremia parviflora*	Senha	Luthraceae	NL
35	*Morinda tinctoria*	Aal	Rubiaceae	LC
36	*Moringa oleifera*	Sahjan	Moringaceae	NL
37	*Mangifera indica*	Aamba	Anacardiaceae	DD
38	*Mitragyna parviflora*.	Kei kadamba	Rubiaceae	NL
39	*Madhuca indica*	Mahua	Sapotaceae	NL
40	*Pongamia pennata*	Karanj	Fabaceae	NL
41	*Prosopis julifera*	Bilieti Babul	Fabaceae	NL
42	*Pithecollobium dulce*	Jungle jalebi	Fabaceae	NL
43	*Polyalthia longofolia*	Ashok	Annonaceae	LC
44	*Syzygium ciimini*	Jamun	Myrtaceae	NL

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45	*Sapindus emarginatus*	Reetha	Sapindeae	NL
46	*Shorea robusta*	Rengal	Dipterocarpaceae	LC
47	*Tamarandus indica*	Imli	Caesalpiniaceae	NL
48	Terminalia arjuna	Kaha	Combretaceae	NL
49	*Terminalia beliirica*	Bahada	Combretaceae	NL
50	*Terminalia chebula*	Harida	Combretaceae	LC
51	*Terminalia tomentosa*	Sahaj	Combretaceae	NL
52	*Tamarix aphylla*	Farash	Caricaceae	LC
53	*Ziziphus jujube* Lam.	Ber	Rhamnaceae	NL
		Shrubs		
1	*Arbus precatatorius*	-	Acanthaceae	NL
2	*Barleria cuspidata*	Satabari	Liliaceae	NL
3	*Adhaloda vasica*	Arusa	Acanthaceae	NL
4	*Bahuinia vahlii*	-	Caesalpiniaceae	NL
5	*Calotropis procera*	Madar	Asclepiadaceae	LC
6	*Combretum decandrum*	Aatundi	Combretaceae	NL
7	*Cryptolepis buchanani*	Gopkanhu	Asclepiadaceae	NL
8	*Ipomea cornea*	Besaram	Convolvulaceae	LC
9	*Narium indicum*	Kaner	Apocynaceae	NL
10	*Hemidesmus indicus*	Annantamula	Asclepiadaceae	NL
11	*Holarrhena antidysentirca*	Kure	Apocynaceae	NL
12	*Ichnocarpus frutescens*	Thapa	Lamiaceae	NL
13	*Ixora arborea*	Tel keruan	Rubiaceae	NL
14	*Phoenix acaulis*	Khajur	Palmae	NL
15	Ricinus communis	Arandi	Euphorbiaceae	NL
16	*Smilex zeylanica*	Mucher	Liliaceae	NL
17	*Sida cardifolia,*	Satyanashi	Papaveraceae	NL
18	*Tinospora cordifolia*	Kharshna	Papaveraceae	NL
19	*Lantana camara*	Lantana	Verbenaceae	NL
20	*Cassia occidentalis*	Chakunda	Fabaceae	LC
21	*Cassia tora*	-	Fabaceae	NL
22	*Desmodium gangeticum*	-	Fabaceae	NL
23	*Desmodium pulchellum*	-	Fabaceae	LC
24	*Solanum nigram*	-	Solanaceae	NL
25	*Vitex negundo*	Manju	Verbenaceae	LC
26	*Zizyphus nummularia*	Jhad ber	Rhamnaceae.	NL
		Herbs		
1	*Gisekia pharnaceoides.*	Baloo-ka-Saag.	Aizoaceae	NL
2	*Aerva lanata*	--	Amaranthaceae	NL

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3	*Cannabis sativa*	Bhaang.	Cannabaceae	NL
4	*Cleome gynandra*	Bagroo.	"	NL
5	*Chenopodium album*	Bathua.	Chenopodiaceae	NL
6	*Beta vulgaris*	Palak	"	LC
7	*Brassica nigra*	--	Cruciferae	LC
8	*Raphanus sativus*	---	Cruciferae	LC
9	*Diescorea bulbifera*	Ratalu	Discoreaceae	NL
10	*Euphorbia hirta*	--	Euphorbiaceae	NL
11	*Phyllanthus asperulatus.*	Bhui/ anwala	"	NL
12	*Leucas cephalotes*	Gooma	Lamiaceae	NL
13	*Leucas aspera*	Ban Tulsi	"	NL
14	*Ocimum Sanctum.*	Tulsi	"	NL
15	*Aloo barbadensis*	Gw-arpatha	Liliaceae	NL
16	*Boerhavia diffusa.*	Sathan	Nyctaginaceae	NL
17	*Argemone mexicana*	Satyanashi	Papaveraceae	NL
18	*Tinospora cordifolia*	Nim-Ciloy	"	NL
19	*Phaseolus trilobus*	Mungvana	"	NL
20	*Parthenium hysterophorus*	Congres grass	Asteraceae	NL
21	*Solanum surattense*	Sans	Solanaceae	NL
Climbers, weeds & Grasses				
1	*Bauhinia vahlii*	-	Fabaceae	NL
2	*Butea superba*	-	Fabaceae	NL
3	*Butea parviflora*	-	Fabaceae	LC
4	*Combretum decandrum*	-	Combretaceae	LC
5	*Acacia pinnata*	-	Fabaceae	NL
6	*Diascorea bulbifera*	-	Dioscoreaceae	NL
7	*Apluda mutica.*	-	Poaceae	NL
8	*Aristida funiculata*	-	"	NL
9	*Brachiaria reptans,*	Dhaman	"	LC
10	*Brachiaria ramosa*	--	"	LC
11	*Cenchrus ciliaris*	-	"	LC
12	*Cenchrus setigerus*	Motiagrass	"	NL
13	*Cynodon dactylon*	Dub	"	NL
14	*Cymbopogon martinii*	-	"	NL
15	*Dactyloctemium aebgyptium*	Daabh	"	NL
16	*Dactyloctemium aristatium*	-	"	NL
17	*Desmostachya bipinnata*	-	"	LC
18	*Dichanthium annulatum*	-	"	NL
19	*Eragrostiella bifaria*	-	"	NL
20	*Eragrostis ciliaris*	Buharu	"	NL

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21	*Eragrostis gangetica*	Sonwala	"	NL
22	*Heteropogon contortus*	Narkat	"	NL
23	*Panicum maximum*	-	"	NL
24	*Phragmites Karka*	Moonj	"	LC
25	*Polypogon monspeiiensis*	Kaans	"	NL
26	*Saccharum spontaneum*	-	"	LC

LC: Least Concern, NL: Not listed, NT: Near Threatened
Source: Primary and secondary Data Analysis.

3.11.8. *Rare Threatened and Endangered Species of Study Area*

Recorded floral species from the study area were assessed for their conservation status by cross-checking with red data book of Indian plants (Nayar& Sastri, 1987-90). There is only one "Near Threatened" species i.e. *Aegle marmelos* (*Common name: Bael*) present in the study area.

3.11.9. *Phyto-sociological (PS) characters of plant species*

The study area is characterized by Active Flood Plains, Older Alluvial Plain and Rocky Surface (Denudational hills). There are few forest patches present in the study area (10 km radius) but due to presence of hard rock the forest patches present in the study area are scattered and crooked growth of the vegetation has been observed. The forest present in the study is deciduous forest. The plains of the Ganga, Yamuna, Tons and their tributaries are the primary habitats of these forest. Most of these trees are deciduous. These forest vast areas have been destroyed to make way for agriculture. The forests in these areas contain valuable trees including Karanj, sagon, Pakad, Imli, khair, tendu, Mahua, Palash, Amaltas, Bel, and Anjeer. Neem, Peepal, Sheesham and Jam.

To understand the vegetation composition and ecological importance of vegetation of the study area quadrat sampling was done in forest area for tree, shrubs and herb vegetation in the study area. The vegetation sampling was carried out at three different sampling locations covering the study area. Details of the sampling locations are present in **Table 3.41.**

Table 3.41 Sampling Locations for Floristic Survey

Site	Sampling Location
PS-1	Singhpur Khurd Reserved forest (0.90 Km, SW)
PS-2	Murpela Reserved forest (2.70 Km, E)
PS-3	Salaiya Kalan Reserved Forest along the south boundary of the MUNPL

Phyto-sociological characters of plant species

Sampling Site PS-1 (Singhpur Khurd Reserved forest): The vegetation present at Singhpur Khurd Reserved forest is mainly degraded mixed forest. The tree species present at this site are

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Butea monosperma, Madhuca longifolia, Terminalia tomentosa etc. Among shrubs *Lantana camara* is the dominant species while *Cynodon dactylon* is the dominant species among herbs. The frequency, density, and Importance Value Index of tree species is presented in **Table 3.42** and for shrubs and herbs species frequency, density, and abundance is presented in **Table 3.43**.

Table 3.42 : Phyto-sociological (PS) Indices of Tree Species at Singhpur Khurd Reserved forest (PS-1)

Scientific Name	Density /ha	Relative Density %	Frequency %	Relative Frequency %	Dominance	Relative Dominance %	IVI
Tamarindus indica	70	14.58	60.00	16.67	0.41	40.99	72.24
Azadirachta indica	110	22.92	70.00	19.44	0.42	42.41	84.77
Acacia nilotica	100	20.83	60.00	16.67	0.17	16.60	54.10
Acacia catechu	60	12.50	40.00	11.11	0.14	14.15	37.76
Madhuca longifolia	50	10.42	40.00	11.11	0.07	7.48	29.01
Albizia procera	20	4.17	20.00	5.56	0.08	7.91	17.63
Butea monosperma	30	6.25	30.00	8.33	0.20	20.37	34.95
SDI	**0.86**						

Source: Primary Survey

Table 3.43 : Phyto-sociological Indices of Shrubs & Herbs Species Near (PS-1)

S.N.	Species Name	Frequency (%)	Density/sq.m.	Dominance	SDI
Shrub Species					
1	*Calotropis procera*	60	0.8	1.33	0.73
2	*Ipomea Cornea*	70	1.2	1.71	
3	*Acacia nilotica*	30	0.5	1.67	
4	*Vitex negundo*	90	1.6	1.78	
5	*Lantana camara*	100	4.2	4.20	
6	*Zizyphus mauritiana*	40	0.4	1.00	
7	*Prosopis juliflora*	30	0.3	1.00	
Herb Species					
1	*Parthenium hysterophorus*	60	0.8	1.33	0.78
2	*Solanum surattense*	40	0.4	1.00	
3	*Sida cordifolia*	100	2	2.00	
4	*Canabis Sativa*	70	1.1	1.57	
5	*Chenopodium Album*	50	0.9	1.80	
6	*Euphorbia hirta*	50	0.7	1.40	
7	*Argemone maxicana*	70	1.1	1.57	
8	*Cynodon dactylon*	100	4.5	5.50	

Source: Primary Survey

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Sampling Site PS-2 (Murpela Reserved forest): The vegetation present at Kumeria Protected Forest near command area is also dominated with teak having maximum density and IVI. The other associated tree species present at this site are *Tectona grandis, Butea monosperma, Madhuca longifolia, Terminalia tomentosa etc.* Among shrubs *Lantana camara* followed by *Vitex negundo* are the dominant species. Among the shrub species *Cynodon dactylon* followed by *Casia tora* are the dominant species among herbs. The frequency, density, and Importance Value Index of tree species is presented in **Table 3.44** and for shrubs and herbs species frequency, density, and abundance is presented in **Table 3.45**.

Table 3.44 : Phyto-sociological Indices of Tree Species at Murpela Reserved forest (PS-2)

Scientific Name	Density /ha	Relative Density %	Frequency %	Relative Frequency %	Dominance	Relative Dominance %	IVI
Beautia monosperma	80	21.62	50.00	19.23	0.12	12.02	52.87
Tectona grandis	40	10.81	40.00	15.38	0.61	60.55	86.75
Madhuca longifolia	40	10.81	30.00	11.54	0.11	11.50	33.85
Terminalia tomentosa	20	5.41	20.00	7.69	0.03	2.50	15.60
Albizia procera	40	10.81	30.00	11.54	0.01	1.06	23.41
Azdiracta indica	50	13.51	30.00	11.54	0.06	6.10	31.15
Acacia nilotica	100	27.03	60.00	23.08	0.06	6.26	56.36
Total	370	100.00	260.00	100.00	1.00	99.99	299.99
SDI	**0.84**						

Source: Primary Survey

Table 3.45 : Phyto-sociological Indices of Shrubs & Herbs Species at Murpela Reserved forest (PS-2)

S.N.	Species Name	Frequency (%)	Density/sq.m.	Dominance	SDI
Shrub Species					
1	*Calotropis procera*	70	1.00	1.43	0.76
2	*Ipomea Cornea*	60	1.20	2.00	
3	*vitex negundo*	90	2.10	2.33	
4	*Lantana camara*	100	3.50	3.50	
5	*Carissa carandas*	30	0.30	1.00	
6	*zizyphus mauritiana*	40	0.40	1.00	
7	*Prosopis juliflora*	50	0.50	1.00	
Herb Species					
1	*Casia tora*	90	1.8	2.00	0.84
2	*Parthenium hysterophorus*	80	1.4	1.75	
3	*Solanum surattense*	20	0.4	2.00	

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4	*Boerhavia diffusa*	30	0.4	1.33	
5	*Sida cordifolia*	100	2.1	2.10	
6	*Canabis Sativa*	40	0.8	2.00	
7	*Chenopodium Album*	50	0.7	1.40	
8	*Euphorbia hirta*	80	1.4	1.75	
9	*Argemone maxicana*	40	0.7	1.75	
10	*Cynodon dactylon*	100	4.1	4.88	

Source: Primary Survey

Sampling Site PS-3 (at Salaiya Kalan Reserved Forest): The vegetation present at proposed this site is very scattered and mixed type of vegetation. *Butea monosperma and Tectona grandis are the main species frequently* observed *in most of the quadrats followed by Acacia catechu, Diospyros melonoxylon, Madhuca longifolia etc.*

Among shrubs *Lantana camara* followed by *Vitex negundo* are the dominant species. Among the shrub species *Cassia tora* is the dominant species among herbs. The frequency, density, and Importance Value Index of tree species is presented in **Table 3.46** and for shrubs and herbs species frequency, density, and abundance is presented in **Table 3.47**.

Table 3.46 : Phyto-sociological Indices of Tree Species at Salaiya Kalan Reserved Forest (PS-3)

Scientific Name	Density /ha	Relative Density, %	Frequency %	Relative Frequency %	Dominance	Relative Dominance %	IVI
Butea monosperma	60.00	15.38	60.00	20.69	0.73	72.90	108.98
Tectona grandis	80.00	20.51	60.00	20.69	0.08	8.24	49.44
Madhuca longifolia	40.00	10.26	40.00	13.79	0.07	7.21	31.26
Terminalia tomentosa	40.00	10.26	40.00	13.79	0.05	4.70	28.75
Pongamia pinnata	60.00	15.38	40.00	13.79	0.05	4.58	33.76
Acacia catechu	110.00	28.21	50.00	17.24	0.02	2.35	47.79
Total	**-**	**100.00**	**-**	**100.00**	**-**	**100.00**	**300**
SDI	**0.82**						

Source: Primary Survey

Table 3.47 : Phyto-sociological Indices of Shrubs & Herbs Species at Salaiya Kalan Reserved Forest (PS-3)

S.N.	Species Name	Frequency (%)	Density/sq.m.	Dominance	SDI
Shrub Species					
1	*Calotropis procera*	70	1.00	1.43	0.70
2	*Ipomea Cornea*	60	1.00	1.67	
3	*Vitex negundo*	90	2.10	2.33	

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4	*Carissa carandas*	30	0.30	1.00	
5	*Xanthium indicum*	30	0.40	1.33	
6	*Lantana camara*	100	4.10	4.10	
Herb Species					
1	*Casia tora*	100	2.8	2.80	0.85
2	*Parthenium hysterophorus*	60	0.9	1.50	
3	*Solanum surattense*	60	1	1.67	
4	*Sida cordifolia*	60	0.9	1.50	
5	*Canabis Sativa*	70	1.2	1.71	
6	*Cynodon dactylon*	90	1.4	1.56	
7	*Euphorbia hirta*	80	1.4	1.75	
8	*Argemone maxicana*	50	0.9	1.80	

Source: Primary Survey

Observation on tree vegetation: A total of 10 tree species has been recorded in all quadrates sampled in above three locations. At PS-1 *Azadiracta indica* has maximum IVI, at PS-2 Tectona grandis has maximum IVI and PS-3 *Beautea monosperma* has maximum IVI. *Beautea monosperma*, Tectona grandis and *Madhuca longifolia* is frequent in all quadrates.

Simpson diversity index- The Simpson diversity index in the above sites selected for the study ranges from 0.82 to 0.82 in the study area. The number of species per sample is a measure of richness. The more species present in a sample, the 'richer' the sample. It indicates that the area is less rich in terms of tree vegetation diversity. The diversity index of the proposed sampled area is moderate.

Observations on Shrub and herb vegetation: Among the shrubs the *Lantana camara followed by Vitex Negundo* are the most frequent and dominant species having maximum density and abundance. The vegetation in all the location is almost heterogeneous. The diversity index of the shrub species ranges between 0.70 to 0.76. Among the herbs species *Casia tora*, *Sida cordifolia are most frequent and dominant species.* The vegetation in all the location is almost heterogeneous. The diversity index of the herb species ranges between 0.78 to 0.85. It indicates that diversity is moderate in sampled area.

3.11.10. *Plant of Ehno-botanical/medicinal Importance in Study Area*

Nature has nourished life since its existence and from the very beginning, life sustained itself on the available resources. However, human beings have always utilized major part of these natural resources than any other organism on this planet. Ethnobotany includes all sorts of relationships between people and plants. The definition of ethnobotany can be summed up in four words i.e. People, Plants, Interactions and Uses. Plants provide us readymade food, medicines for ailment, fodder and forage for our domestic animals, fuel wood for burning, flowers for aesthetics and celebration, raw materials for many industries, timber for construction and many more useful items. During the survey, ethno-botanical information on 20 plant species was documented (**Table**

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3.46). It was found that these plant species are used for medicinal, timber, fuel wood, fodder, ornamental, agricultural tools, thatching, fencing, etc.

Table 3.48 : List of ethno-botanically important plant species in Study Area

S.No	Name	Family	Medicinal Use
Trees			
1	*Aegle marmelos*	Rutaceae	Antidiuratic, antithetmintic, antipyretic, carminative tonic Fruit used in chronic diarrhoea & dysentery
2	*Anona squamosa*	Anonaceae	Fruit as appetizer Seed oil used to kill lice
3	*Artocarpus heterophyllus*	Moracceae	Latex as bacteriolytic Leaf as estrogenic
4	*Azadirachta indica*	Meliaceae	Oil extracted from seed as local stimulant, insecticide and antiseptic
5	*Bombax ceiba*	Bombacaceae	Hot aquous extract of seed as moderate oxytoic
6	*Emblica offcinalis*	Euphorbiaceae	Fruit powder coolent and laxative Rich source of vitamin C
7	*Ficus religiosa*	Moraceae	Quenches thirst
8	*Ficus benghalensis*	Moraceae	Medicine for diabetes
9	*Mangifera indica*	Anacardiaceae	Controls stomach pain, diarrhoea, urine sugar
10	*Pongamia pinnata*	Fabaceae	Seeds are externally used for skin diseases, leucoderma, rheumatism Powdered seeds are expectorant in bronchitis and whooping cough
11	*Syzygium cumini*	Mystaceae	Stem bark is used to treat sore throat, bronchitis, ulcer, dysentery Seed powder for diabetes
12	*Tamarindus indica*	Caesalpiniaceae	Leaves are used to reduce inflammatory swellings & ringworm Fruit is tonic to heart and antithelmintic
13	*Terminalia bellerica*	Combretaceae	Fruit powder is used as tonic and laxative
14	*Acacia nilotica*	Mimosaceae	In pharmacy, used in preparing emulsions, tablets, pills etc.
15	*Tectona grandis*	Oil, flower, bark.	Oil obtained from the distillation of wood chips is applied to eczema. Kernel oil used in scabies and to promote growth of hair. Flowers used in biliousness, bronchitis and

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S.No	Name	Family	Medicinal Use
			urinary discharges. Flowers and seeds diuretic. Bark astringent and is used in the treatment of bronchitis.
Shrubs			
15	*Calatropis procera*	Asclepiadaceae	Root bark used for leprosy
16	*Lantana camara*	Verbenaceae	Useful as an antiseptic for wounds
17	*Vitex negundo*	Verbenaceae	Leaves are used in rheumatism Dried leaves smoked for relief from headache
18	*Ricinus communis*	Euphorbiaceae	Castor oil used in skin diseases, inflammation of intestine and dysentery and as tonic Root and leaf oil used as ailment
Herbs			
19	*Argemone Mexicana*	Papaveraceae	Latex is laxative and used in cataract Seed oil used in asthma
21	*Cynodon dactylon*	Poaceae	plant used as antifungal, diuretic, hypoglycemic. Rhizome is useful in gastro urinary disorders Pollen extract is beneficial in asthma
22	*Euphorbia hirta*	Euphorbiaceae	Plant used to treat dysentery, cough, asthma, vomiting
23	*Ocimum sanctum*	Lamiaceae	Leaf juice used in curing cold, bronchitis Flower decoction in dyspepsia

Source: Primary Survey EQMS India

3.11.11. *Agriculture Crops:*

Main agricultural crop grown in study area is wheat. Other crops grown in the area are maize, Jowar, bajara, Paddy, pulses and different types of vegetables and fruits. Different type of crops grown in the study area is provided in **Table 3.49.**

Table 3.49 : List of Cultivated Plant

S.No	Local Name	English Name	Botanical Name
Cereals			
1.	Jowar	Sorghum	*Sorghum vulgare*
2.	Makka	Maize	*Zea mays*
3.	Gehu	Wheat	*Triticum sp.*
4.	Bajara	Millet	*Panicum miliaceum*
5	Paddy	Paddy	*Oryza sativa*
Pulses and Oil			
1.	Til	Sesamum	*Sesamum inicum*

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S.No	Local Name	English Name	Botanical Name
2.	Urd	Black gram	*Phaeolus mungo*
3.	Surajmukhi	Sunflower	*Helianthus annus*
4.	Sarson	Mustard	*Brassica campestris*
5.	Matar	Pea	*Pisum sativum*
6.	Mungphali	Ground Nut	*Arachis hypogeal*
Fruit crops			
1.	Kela	Banana	*Musa Paradisiaca*
2.	Aam	Mango	*Mangifera indica*
3.	Nibbu	Lime	*Citrus aurantifolia*
4.	Amrud	Guava	*Psidium guajava*
5.	Papita	Papaya	*Carica papaya*
6.	Kathal	Jack-fruit	*Artocarpus heterophyllus*
7.	Seetalphal	Custered-apple	*Annona squamosa*
8.	Ber	Jujube	*Ziziphus mauritiana*
Vegetables			
1.	Tamatar	Tomato	*Lycopersicum esculantum*
2.	Baigan	Brinjal	*Solanum melongena*
3.	Pattagovi	Cabbage	*Brassica oleracea*
4.	Phulgovi	Cauliflower	*Brassica oleracea*
5.	Bhindi	Lady’s Finger	*Abelmoschus esculentus*
6.	Aloo	Potato	*Solanum tuberosum*
7.	Muli	Radish	*Raphanus sativas*
8.	Karela	Bitter gourd	*Momordica charantia*
9.	Torai	Ridge gourd	*Luffa acutangula*
10.	Kaddu	Pumpkin	*Cucurbita moschata*
11.	Palak	Beet	*Beta vulgaris*
12.	Lalbhaji	Amaranth	*Amaranthus spp.*
13.	Khira	Cucumber	*Cucumis sativus*
14.	Lauki	Bottle gourd	*Lagenaria siceraria*
15.	Chichinda	Snake gourd	*Trichosanthes anguina*
16.	Lahsun	Garlic	*Allium sativum*
17.	Dhaniya	Coriander	*Coriander sativum*
18.	Mircha	Chilli	*Capcicum anum*

Source: Primary & secondary Data Analysis

3.11.12. *Eco-sensitive Area in Study Area*

There is no national park, biosphere reserve, wildlife sanctuary, Important bird area, wetland is present in the study area.

//True Copy//

3.11.13. *Faunal Diversity*

Faunal survey was carried out for the species of Mammals, Birds and Herpetofauna. The study of mammals and birds were conducted by placing systematic transects at different sampling locations. The study area lies in Meja tehsil of Prayagraj Forest division. The forests, water bodies, agriculture fields, orchrds present in the study area having different habitats for different kind of wild fauna. Based on vegetation and topography, the study area was divided into various transects and sampling for the wild fauna or their habitats has been carried out in different strata of transect. Most of transects were surveyed systematically and primary survey for mammals and birds include direct and indirect sightings of animals in trails and path they were using. The presence of wildlife was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the study area. In addition to these, secondary sources were also referred for preparing checklist of animals and wildlife in the study area. Under this survey, direct sighting includes calls, signs and trophies of mammals (Prater, 1980). Forest Working Plan of Prayagraj Forest Division, reports of state biodiversity board were followed and interviews conducted in the study area for the presence and abundance of animals.

3.11.13.1 *Mammals*

To study the probable occurrence of mammals in the area, 2 -3 km long transects and trails were walked at each sampling site for any sighting and also by collecting indirect evidence gathered by talking to locals during interaction with local people. Forest Working Plans was also concerned for getting the reliable information. Blackbuck was reported in Chandkhamharia located about 5 km from the proposed site. This place (Chandkhamharia) is a conservation reserve for the Blackbuck. It is maintained by the village panchayat and forest department. Fourteen species of mammals were found/reported from secondary sources as well as from the primary survey and consultations. Species recorded /reported are presented in **Table 3.50**.

Table 3.50 : Mammalian Species Recorded/Reported from Study Area

S. No	Common Name	Scientific Name	Family	WPA	CS (IUCN)
1	Common House rat	*Rattus rattus*	Muridaea	V	LC
2	Indian Fox	*Vulpes bengalensis (India)*	Canidae	IV	LC
3	Jungle cat	*Felis chaus*	Felidae	I	NL
4	Mongoose	*Herpestes edwardsi*	Herpestidae	IV	LC
5	Common Langur	*Semnopithecus entellus*	Cercopithecidae	II	LC
6	Wild Boar	*Sus scrofa*	Suidae	II	LC
7	Indian Hare	*Lepus nigricollis*	Leporidae	II	LC
8	Spotted deer	*Axix axis*	Cervidae	II	LC
9	Fruit bat	*Cynopterus sphinx*	Pteropodida	IV	LC
10	Porcupine	*Hystrix indica*	Hystricidae	I	LC
11	Blackbuck	*Antilope cervicapra*	Bovidae	I	LC
12	Monkey	*Macaca mulatta*	Cercopithecidae	IV	LC

//True Copy//

13	Hyena	*Hyena hyena*	Hyaenidae	I	NT
14	Blue Bull	*Boselaphus tragocamelus*	Bovidae	II	LC

Primary & Secondary data analysis

CS (IUCN)-Conservation Status (IUCN), LC-Least Concerned, LR-Low Risk, NL-Not Listed, VU-Vulnerable, NT-Near Threatened, WPA (S)-Schedule as per WPA, 1972

3.11.13.2 *RET Mammals*

The listed animals were also cross checked with WPA/IUCN red data book and found that out of the reported species, Hyena, Jangle cat, Porcupine and Blackbuck are Schedule-I species. As per IUCN criteria (2010), the study area harbors one “Near Threatened” species (Hyena).

3.11.13.3 *Barriers and Corridors*

These do not exist around the project area and study area villages.

3.11.13.4 *Amphibians and Reptiles*

The amphibian and reptiles were sampled with the same transect marked for mammals/birds. The sampling was also carried out in Forest areas, near water bodies, and other probable habitats. There were 2 species of amphibians, 4 species of snakes and 4 species of lizards recorded/confirmed in the study area of which Russell’s Viper and Rat snake belong to Schedule-I of WPA,1972 **(Table 3.51).**

Table 3.51 : Herpetofauna Recorded /Reported from Study Area

S. No	Common Name	Scientific Name	Vernacular Name	Family	Feeding Status	WPA Schedule
Amphibians						
1	Frog	*Rana tigrina*	-	-	C	IV
2	Indian bull frog	*Hoplobatrachus tigerinus*	-	-	C	II
Reptiles						
3	Binocellate cobra	*Naja naja*	Nag	Elapidae	C	II
4	Bandet Krait	*Bungarus fasciatus*	-	Elapidae	C	II
5	Russell’s Viper	*Vipera russellis*	-	Crotalidae	C	I
6	Rat snake	*Ptyas mucosus*	Dhaman	Colubridae	C	I
7	Forest Lizard	*Calotes versicolor*	-	Agamidae	C	II
8	House geeko	*Hemidactylis brukaii*	-	Gekkonidae	C	II

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9	Monitor lizard	*Varanus bengalensis*	Ghorpad	Varanidae	C	III
10	Chamaeleon	*Chaemeleon vulgatis*	-	Chamaeleonidae	C	II

Source: Primary Survey and secondary data

3.11.13.5 *Avifauna*

An on-spot identification of birds has been carried out with the help of pictorial guides/literature published by Grimmett et al. (2011). There are many avifaunal habitats like pond, river, agriculture fields where avifaunal survey was conducted during the field visits. A total of 48 avifaunal species were recorded during this survey (**Table 3.52**). Among birds three species viz., Common peafowl, belong to Schedule-1 as amended December 2022, while rest of the species belong to other Schedules.

Table 3.52 : Avifauna Recorded /Reported from Study Area

S. No	Name	Scientific Name	IUCN 3.1	WPA Status
1	Black drongo	*Dicrurus adsimilis*	LC	II
2	Black winged kite	*Elanus caerulus*	LC	II
3	Blossom headed parakeet	*Psittacula cyanocephala*	LC	II
4	Blue pigeon	*Columba livia*	LC	IV
5	Blue jay	*Coracias benghalensis*	LC	II
6	Black headed oriole	*Oriolus xanthornus*	LC	IV
7	Common weaver bird	Crow pheasant	LC	V
8	Chestnut bellied nut-hatch	*Sitta castanea*	LC	II
9	Common myna	*Acridotheres tristis*	LC	II
10	Common hawk	*Cuculus varins*	LC	IV
11	Cattle egret	*Babulus ibis*	LC	II
12	Common peafowl	*Pavo cristatus*	LC	I
13	Common kingfisher	*Alcedo atthis*	LC	II
14	Grey babbler	*Turdoides malcolmi*	LC	IV
15	Grey wagtail	*Motacilla capsica*	LC	II
16	Swallow	*Hirundo rustica*	LC	II
17	Great horned owl	*Bubo bubo*	LC	IV
18	Grey partridge	*Francolinus pondicerianus*	LC	IV
19	Golden backed woodpecker	*Francolinus pondicerianus*	CR	IV
20	House sparrow	*Passer domesticus*	LC	II
21	Indian robin	*Saxicoloides fulicata*	LC	II
22	Jungle myna	*Acridotheres fusens*	LC	II
23	Jungle crow	*Corvus macroshynchos*	LC	IV

//True Copy//

S. No	Name	Scientific Name	IUCN 3.1	WPA Status
24	Koel	*Eudynamys scolopacea*	LC	II
25	House Crow	*Corvus splendens*	LC	II
26	Rufous Woodpecker	*Celeus brachyurus*	LC	II
27	Munia	*Lonchura Spp.*	LC	II
28	Pied wagtail	*Motacilla maderaspatensis*	LC	IV
29	Pariah kite	*Milnus migrans*	LC	IV
30	Red vented bulbul	*Pycnonotus eafer*	LC	II
31	Red turtle dove	*Streptopelia Spp.*	LC	IV
32	Rose ringed parakeet	*Psittaculla krameri*	LC	II
33	Whistling thrush	*Myiophoneus horsfieldii*	LC	II
34	Pied Kingfisher	*Ceryle rudis*	LC	II
35	Lesser Whistling-duck	*Dendrocygna javanica*	LC	II
36	Mallard	*Anas platyrhynchos*	LC	II
37	Northern Pintail	*Anas acuta*	LC	II
38	Black-crowned Heron	*Nycticorax nycticorax*	LC	II
39	Great Egret	*Ardea alba*	LC	II
40	Indian Ring Dove	*Streptopelia decaocto*	LC	II
41	Little Brown Dove	*Streptopelia senegalensis*	LC	II
42	Spotted dove	*Streptopelia chinensis*	LC	II
43	Bank myna	*Acridotheres glnginianus*	LC	II
44	*Weaver bird*	*Plceaus philippinus*	LC	II
45	*Bulbul*	*Pycnonotus jocosus*	LC	II
46	Hoopae	*Upupa epops*	LC	II
47	*Jungle babler*	*Turdoides caudatus*	LC	II

Primary & Secondary data analysis

3.11.13.6 *RET Faunal Species*

The listed animals were also cross checked with WPA/IUCN red data book and found that out of the reported species, Hyena, Jangle cat, Porcupine and Blackbuck are Schedule-I species. As per IUCN criteria (2010), the study area harbors one “Near Threatened” species (Hyena). Among the reptiles Russell’s Viper and Rat snake belong to Schedule-I of WPA,1972. While among the aviafauna the Common peafowl, belong to Schedule-I. List of the Schedule I species reported from the study area is given in **Table 3.53**

Table 3.53 : Schedule-I fauna Reported from Study Area

S. No	Common Name	Scientific Name	Family	WPA	CS (IUCN)
1	Jungle cat	*Felis chaus*	Felidae	I	NL

//True Copy//

2	Porcupine	*Hystrix indica*	Hystricidae	I	LC
3	Black Buck	*Antilope cervicapra*	Bovidae	I	LC
4	Hyena	*Hyaena hyaena*	Hyaenidae	I	NT
5	Russell's Viper	*Vipera russellis*	Crotalidae	I	LC
6	Rat snake	*Ptyas mucosus*	Colubridae	I	LC
7	Common peafowl	*Pavo cristatus*	Phasianidae	I	LC

Primary & Secondary data analysis

3.11.14. *Aquatic Ecology*

Tons river is the only source of surface water within the study area. Water for the project is proposed to be sourced from Ganga River through intake well. Hence the aquatic sampling were taken from upstream and downstream near the intake point on Ganga River and upstream and downstream of Tons River near Project site.

3.11.14.1 *Methodology of Aquatic Study*

Collection and preservation of Phytoplankton sample: The plankton samples were collected from sub surface water. In the case of phytoplankton, 500 ml sample water was collected in polyethylene bottles and 1ml of Lugol's solution was added for fixation and preservation. The samples were centrifuged and decanted. A volume of 10 ml was collected in double stoppered polyethylene bottles for further qualitative analysis of phytoplankton. Identification of phytoplankton was done with the help of standard books and monographs (Turner, 1892; smith, 1924, Ward and Whipple 1959).

Collection and preservation of Zooplankton sample: The zooplankton samples were collected by filtering 100 liters of sub-surface water through plankton net made up of bolting silk cloth no 20. A sub sample of 30 ml was collected again, in polyethylene double stoppered bottles and 4-5 drops of formalin and glycerin were added. The samples were stored for further qualitative and quantitative study of zooplanktonic organism. The identification of zooplankton was done up to species in most cases, according to the reference books including that of Ward and Wipples (1959), Koste (1978), Battish (1992) and Dhanapathi (2000).

3.11.14.2 *Sampling Locations*

Surface water samples for conducting aquatic study were collected from Ganga River and Tons River (**Table 3.54**).

Table 3.54 : Locations of Aquatic Studies

S.No	Location	Location	Description of Water body
1	AS -1	Ganga river near water Intake Point (outside the study area)	River
2	AS -2	Ganga river d/s of water Intake Point Bijora (outside the study area)	River

//True Copy//

S.No	Location	Location	Description of Water body
3	AS-3	Tons/Tamas River u/s of site near Madaraha Village	River
4	AS -4	Tons/Tamas River d/s of site near Dhadhuva Village	River

Source: Monitoring plan

3.11.14.3 *Phytoplankton*

The phytoplanktonic community in the study area comprised of five classes namely Bacillariophyceae, Chlorophyceae, Zygnematophyceae, Dinophyceae and Cyanophyceae. Total 18 species were recorded at different sites during primary study. Out of 18 species recorded 5 species of Bacillariophyceae, 7 species of Chlorophyceae, 4 species of Cyanophyceae and 1 species each of Zygnematophyceae and Dinophyceae were recorded. (**Table 3.55**).

Table 3.55 : Phytoplankton Recorded in Study Area at Different Locations

S. No	Class	Species	Location Code			
			AS-1	AS-2	AS3	AS-4
1	*Cyanophyceae*	*Anabena sp.*	+	+	-	+
		Nostoc sp.	+	+	+	-
		Oscillatoria sp.	+	+	-	+
		Lemma sps.	-	+	-	-
2	Chlorophyceae	*Chlorella sp.*	-	+	+	-
		Volvox sp.	+	+	+	+
		Chlamydomonas sps.	+	+	+	-
		Gnittela sp.	-	+	-	-
		Oedogonium sp.	+	-	-	+
		Ceratium sp.	+	-	-	-
		Tetraedoron sp.	+	+	-	+
3	Bacillariophyceae	*Cymbella sp.*	+	-	+	-
		Flagillaria sp.	-	+	-	+
		Nitzschia sp.	+	-	-	+
		Diatoms sp.	+	+	+	-
		Cyclotella sp.	-	+	+	+
4	Zygnematophyceae	*Spirogyra sp.*	-	+	-	+
5	Dinophyceae	*Ceratium sp.*	+	-	+	-

Source: Primary data

Note: + denotes present and - denotes absent

3.11.14.4 *Zooplankton*

//True Copy//

Sixteen species of Zooplankton were recorded from the study area of which 6 species belonged to Rotifera, 4 species belonged to Protozoa, 4 species to Cladocera and 2 species of Copepoda of zooplankton group. A zooplanktons distribution of all the four groups showed that Rotifera species highest in number and in percentage while copepoda is the smallest amongst the zooplanktons. Details of the species is presented in **Table 3.56**.

Table 3.56 : Zooplanktons Recorded in Study Area at Different Locations

S. No	Zooplankton Group	Taxa	Location Code			
			AS-1	AS-2	AS-3	AS-4
1	*Rotifera*	*Brachionus spp*	+	-	+	+
		Cephlodella spp	-	+	+	+
		Keratella spp.	+	+	+	+
		Cathypna spp.	-	-	-	+
		Dinobryon spp	+	-	-	-
		Lecane spp.	-	+	-	-
2	*Protozoa*	*Paramecium spp.*	+	+	+	+
		Vorticella spp	-	+	+	+
		Arcella spp	-	-	+	-
		Amoeba spp.	+	+	+	+
3	*Cladocera*	*Bosmina spp.*	-	+	-	-
		Diaptomus spp.	+	+	+	-
		Daphnia spp.	+	-	-	+
		Monia spp.	+	+	+	-
4	*Copepoda*	*Heliodiaptomous spp.*	-	+	-	-
		Nauplius spp.	+	-	-	-

Source: Primary data

Note: + denotes present and - denotes absent

3.11.14.5 *Fish Fauna*

Tons River is the only surface water bodies in the study area. Tons River harbor diverse aquatic flora and fauna. There are varieties of phyto-plankton and zoo- plankton. The variety of fish present in Tons River is presented in **Table 3.57**. Among fish population Cyprinidae is the dominant family comprises of 8 species.

Table 3.57 : Fishes of Study Area

S.No	Order	Family	Common Name	Scientific Name
1	Synbranchiformes	Amphipnoidae	Kuchia	*Amphipnous cuchia*
2	Siluriformes	Bagridae	Tangra	*Mystus singhala*
3		clarideae	Magur	*Clarius batrachus*

//True Copy//

S.No	Order	Family	Common Name	Scientific Name
4		Heteropneustidae	Singhi	*Heteropneustes fossilis*
5	Cypriniformes	Cyprinidae	Kalbasu	*Labeo calbasu*
6			Katla	*Catla catla*
7			Chilwa	*Barilius modestus*
8			Mirgal	*Cirrhinus mrigala*
9			Silver carp	*Hypopthalmicthys molitrix*
10			Common carp	*Cyprinus carpio*
11			Grass carp	*Ctenopharyngodon idella*
12			Rohu	*Labeo rohita*

Source: Secondary data

3.11.1. *Conservation efforts made by MUNPL*

Chandkhamharia located about 5 Km from the proposed site and this site is developed as a conservation reserve for Blackbuck by Forest Department, local village panchayat and Meja Urja. This place (Chandkhamharia) is a conservation reserve for the Blackbuck. It is maintained by the village panchayat and Forest Department. For conservation of the Blackbuck, MUNPL has given a fund of Rs. 1.75 Cr to Forest Department. This amount was given for 2010 to 2015 period. In this period under the conservation of species pond construction along with pump house, plantation in the area, water tower, beautification of area, construction of lavatory etc. work has been done. Due to the conservation efforts the Blackbuck population has increased from 250 in 2009 to 508 in 2022.

//True Copy//

कार्यालय प्रभागीय निदेशक सामाजिक वानिकी प्रभाग, इलाहाबाद
पत्रांक 1763/ S-8 दिनांक, इलाहाबाद, अक्टूबर, 13 2009।
सेवा में,
उप महा प्रबन्धक
इनविरानमेंटल इंजिनियरिंग
एन0टी0पी0सी0 लिमिटेड

विषय:— मेजा थरमल पावर प्रोजेक्ट के लिए इनविरानमेंटल क्लीयरेन्स।
सन्दर्भ:— आपका पत्रांक सी0सी0: ई0एस0ई0 9567: 2009 जी0ई0एन0: 11 ए दिनांक 02.06.2009।

संदर्भित पत्र के क्रम में जॉचोपरान्त मौके की स्थिति निम्न प्रकार पायी गयी है।

(1) कोहड़ार में मेजा थरमल पावर प्रोजेक्ट के लिए प्रस्तावित स्थल सं0 10 किमी0 की परिधि में कोई राष्ट्रीय पार्क, वन्य जीव विहार या हाथी /टाइगर रिजर्व नहीं है।

(2) प्रस्तावित स्थल की 10 किमी0 की परिधि चॉदपुर खम्हरिया, महुली, मोजरा, पुराकटरा, बछरइचा, इटवां कला तथा लपरी नदी के आस पास लगभग 250 काले हिरनों का झुंड निवास कर रहा है। काला हिरन अनूसूची–I का दुर्लभ प्रजाति का वन्य जीव है। प्रोजेक्ट स्थल से वास क्षेत्र की दूरी कम होने के कारण काले हिरनों के संरक्षण की विशेष आवश्यकता होगी।

(एस0एन0 मिश्रा)
प्रभागीय निदेशक
सामाजिक वानिकी प्रभाग
इलाहाबाद।

Forest Dept Letter - 2009

चॉद खम्हरिया कृष्ण मृग संरक्षण आरक्षित क्षेत्र का परिचय

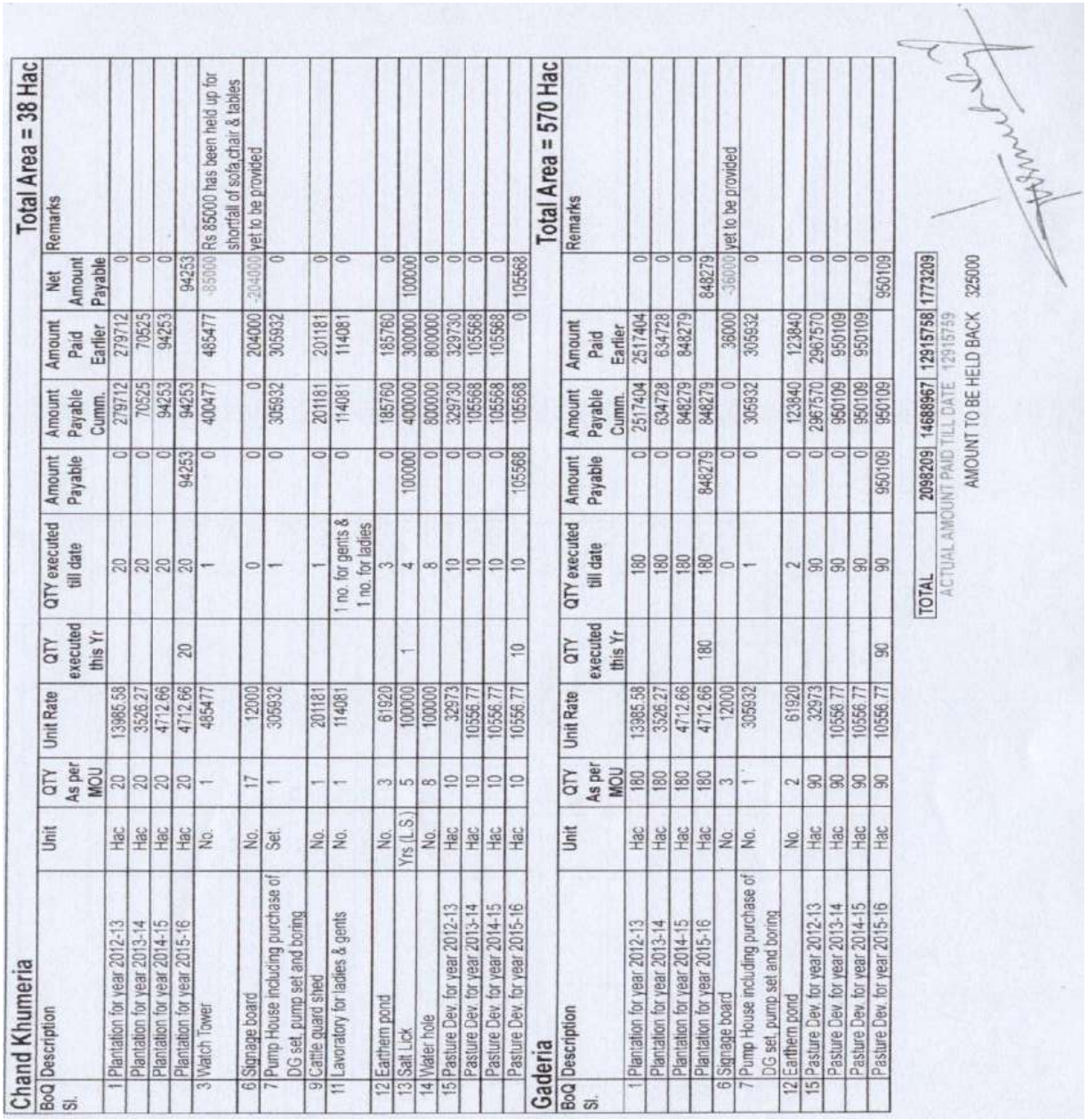
चॉद खम्हरिया कृष्ण मृग आरक्षित संरक्षण क्षेत्र की स्थापना उ0प्र0 उ0प्र0 शासन की विज्ञप्ति संख्या 3050/14–4–2017–821/2013 दिनांक 14.11.2017 के द्वारा की गयी थी। इसमें मेजा तहसील के चॉद खम्हरिया एवं महुली कला ग्राम की भूमि सम्मिलित है जिसका कुल क्षेत्रफल 126.1230 हेक्टेयर है।

❖ प्रयागराज जिले की मेजा तहसील के दक्षिण में चॉद खम्हरिया, महुली कला, गड़ेरिया, ककराही, किहुनी ग्राम पंचायतों की पठारी भूमि जो मुख्य रूप से ग्राम समाज व वन विभाग के नियन्त्रण में है, में कृष्ण मृग पाया जाता है। उक्त क्षेत्र में वर्ष 2011 की गणना के अनुसार 404, वर्ष 2013 की गणना के अनुसार 413 एवं वर्ष 2016 की गणना के अनुसार 465, वर्ष 2019 की गणना के अनुसार 506, वर्ष 2022 की गणना के अनुसार 508 कृष्ण मृग पाये गये।

❖ कृष्ण मृगों के अतिरिक्त यह क्षेत्र में वन रोज, सियार, लोमड़ी, लकड़बग्घा, खरगोश, भेड़िया, नेवला, सेही, जंगली बिल्ली एवं विभिन्न प्रकार की चिड़ियों आदि का भी प्राकृतिक वास स्थल है। इस क्षेत्र में मुख्यतः पलास, दुद्धी कठबेर, घोटहर, सिद्ध आदि प्रजातियों के झाड़ी नुमा पौधे प्राकृतिक रूप से पाये जाते हैं। उक्त क्षेत्र में खाली जगहों में नीम, जंगल जलेबी, बाँस, खैर, अरू, इमली, बेल, कठसागौन, सागौन, आंवला, अकेशिया अरिकुलीफार्मिस आदि प्रजातियों का रोपण व बीज बुआई द्वारा वृक्षारोपण भी किया गया है। क्षेत्र पथरीला होनें के कारण भूमि कृषि हेतु उपयुक्त नहीं है। ग्राम समाज भूमि में वृक्षादन कम है। यहॉ प्राकृतिक व भौगोलिक स्थिति कृष्ण मृगों के लिए उपयुक्त है। इनकी जनसंख्या में उल्लेखनीय वृद्धि के ऑकड़े इसकी पुष्टि करते है।

Forest Dept communication - 2022

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Chand Khumeria — Total Area = 38 Hac

BoQ Sl.	Description	Unit	QTY As per MOU	Unit Rate	QTY executed this Yr	QTY executed till date	Amount Payable	Amount Payable Cumm.	Amount Paid Earlier	Net Amount Payable	Remarks
1	Plantation for year 2012-13	Hac	20	13985.58		20	0	279712	279712	0	
	Plantation for year 2013-14	Hac	20	3526.27		20	0	70525	70525	0	
	Plantation for year 2014-15	Hac	20	4712.66		20	0	94253	94253	0	
	Plantation for year 2015-16	Hac	20	4712.66	20	20	94253	94253		94253	
3	Watch Tower	No.	1	485477		1	0	400477	485477	-85000	Rs 85000 has been held up for shortfall of sofa,chair & tables
6	Signage board	No.	17	12000		0	0	0	204000	-204000	yet to be provided
7	Pump House including purchase of DG set, pump set and boring	Set.	1	305932		1	0	305932	305932	0	
9	Cattle guard shed	No.	1	201181		1	0	201181	201181	0	
11	Lavatory for ladies & gents	No.	1	114081		1 no. for gents & 1 no. for ladies	0	114081	114081	0	
12	Earthern pond	No.	3	61920		3	0	185760	185760	0	
13	Salt Lick	Yrs (L.S.)	5	100000	1	4	100000	400000	300000	100000	
14	Water hole	No.	8	100000		8	0	800000	800000	0	
15	Pasture Dev. for year 2012-13	Hac	10	32973		10	0	329730	329730	0	
	Pasture Dev. for year 2013-14	Hac	10	10556.77		10	0	105568	105568	0	
	Pasture Dev. for year 2014-15	Hac	10	10556.77		10	0	105568	105568	0	
	Pasture Dev. for year 2015-16	Hac	10	10556.77	10	10	105568	105568	105568	0	

Gaderia — Total Area = 570 Hac

BoQ Sl.	Description	Unit	QTY As per MOU	Unit Rate	QTY executed this Yr	QTY executed till date	Amount Payable	Amount Payable Cumm.	Amount Paid Earlier	Net Amount Payable	Remarks
1	Plantation for year 2012-13	Hac	180	13985.58		180	0	2517404	2517404	0	
	Plantation for year 2013-14	Hac	180	3526.27		180	0	634728	634728	0	
	Plantation for year 2014-15	Hac	180	4712.66		180	0	848279	848279	0	
	Plantation for year 2015-16	Hac	180	4712.66	180	180	848279	848279		848279	
6	Signage board	No.	3	12000		0	0	0	36000	-36000	yet to be provided
7	Pump House including purchase of DG set, pump set and boring	No.	1	305932		1	0	305932	305932	0	
12	Earthern pond	No.	2	61920		2	0	123840	123840	0	
15	Pasture Dev. for year 2012-13	Hac	90	32973		90	0	2967570	2967570	0	
	Pasture Dev. for year 2013-14	Hac	90	10556.77		90	0	950109	950109	0	
	Pasture Dev. for year 2014-15	Hac	90	10556.77		90	0	950109	950109	0	
	Pasture Dev. for year 2015-16	Hac	90	10556.77	90	90	950109	950109		950109	

TOTAL	2098209	14688967	12915758	1773209

ACTUAL AMOUNT PAID TILL DATE 12915759

AMOUNT TO BE HELD BACK 325000

Conservation of Blackbuck - Budget utilization

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Blackbuck at Chandkhamharia conservation site

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3.12. Description of Socio-economic

3.12.1. *Methodology*

The methodology adopted for the social study mainly includes review of published secondary data (District Census Statistical Handbooks- 2011 and Primary Census Abstract of Census-2001 and 2011) with respect to population, density, household size, sex ratio, social stratification, literacy rate, occupational structure and other basic amenities in the 10 km radius of study area. Beside that primary data has also been collected for the study area by conducting field survey and public consultation.

3.12.2. *Population Distribution within 2.0-km radial Zone of the Study Area*

There are 11 villages which fall in core zone. Details of Demography and Amenities are given below. Male-female wise population breakup of the entire study area is shown in **Table 3.58** and literacy, work population is provided in **Table 3.59 and 3.60** as follows;

Table 3.58 : Caste-wise Population Distribution of 2-km radial Study Area

Name of Village/Town	No of Households	Total Population			Sex Ratio	Scheduled Castes		Scheduled Tribes	
		Persons	Male	Female		Male	Female	Male	Female
Kolhuwa	82	671	356	315	884	81	64	0	0
Kohdar	956	5904	3101	2803	903	426	388	0	0
Mai Kala	157	862	438	424	968	54	57	0	0
Patai Dandi	182	1423	731	692	946	155	128	0	0
Piparau	314	1935	1066	869	815	376	311	0	0
Jhadiyahi	315	2063	1085	978	901	13	15	0	0
Salaiya Kala	257	1677	877	800	912	30	33	0	0
Mai Khurd	86	491	249	242	971	4	1	0	0
Salaiya Khurd	459	2511	1285	1226	954	548	514	66	64
Dasauti	189	1154	628	526	837	186	172	0	0
Marar	26	132	72	60	833	46	42	0	0
Total	**3023**	**18823**	**9888**	**8935**	**903**	**1919**	**1725**	**66**	**64**

Source: Secondary data Census 2011

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Table 3.59 : Literacy Distribution of 2-km radial Study Area

Name of Village/Town	Total Literate Population	Total Male Literate Population	Total Female Literate Population	Total Illiterate Population	Total Illiterate Male Population	Total Illiterate Female Population
Kolhuwa	436	261	175	235	95	140
Kohdar	3330	2005	1325	2574	1096	1478
Mai Kala	512	289	223	350	149	201
Patai Dandi	898	533	365	525	198	327
Piparau	915	599	316	1020	467	553
Jhadiyahi	996	635	361	1067	450	617
Salaiya Kala	802	524	278	875	353	522
Mai Khurd	307	172	135	184	77	107
Salaiya Khurd	1312	794	518	1199	491	708
Dasauti	614	381	233	540	247	293
Marar	65	46	19	67	26	41
Total	**10187**	**6239**	**3948**	**8636**	**3649**	**4987**

Source: Secondary data Census 2011

Table 3.60 Workers Participation

Name of Village/Town	Total Main workers	Total Male Main workers	Total Female Main workers	Total Marginal workers	Total Male Marginal workers	Total Female Marginal workers	Total Non workers	Total Male Non workers	Total Female Non workers
Kolhuwa	90	85	5	93	93	0	488	178	310
Kohdar	1800	1085	715	567	324	243	3537	1692	1845
Mai Kala	60	58	2	120	103	17	682	277	405
Patai Dandi	89	65	24	494	241	253	840	425	415
Piparau	377	294	83	324	150	174	1234	622	612
Jhadiyahi	93	78	15	384	340	44	1586	667	919
Salaiya Kala	155	111	44	342	262	80	1180	504	676

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Name of Village/Town	Total Main workers	Total Male Main workers	Total Female Main workers	Total Marginal workers	Total Male Marginal workers	Total Female Marginal workers	Total Non workers	Total Male Non workers	Total Female Non workers
Mai Khurd	43	26	17	176	85	91	272	138	134
Salaiya Khurd	444	290	154	306	190	116	1761	805	956
Dasauti	291	191	100	199	94	105	664	343	321
Marar	58	36	22	5	3	2	69	33	36
Total	**3500**	**2319**	**1181**	**3010**	**1885**	**1125**	**12313**	**5684**	**6629**

Source: Secondary data Census 2011

3.12.3. *Basic Amenities Details in core zone/ project influence area*

As per public consultation and analysis of census data below mentioned gaps were identified in core zone/project influence areas/ villages. Basic aminities available in 2 km area is presented in **Table 3.61.**

Table 3.61 : Basic Amenities Availability

Village Name	Status	Remarks
Education		
Primary school	✓	There are 5 govt primary school in the core zone villages there are 3 middle, 2 secondary and 1 higher secondary school available in the study area. Beside that there are following private school present in the core zone (2 km area) 1. Composite school Kolhua 2. Prathmik vidalaya Beri 3. Isawata primary school 4. Vijay Degree College, Salaiya 5. St.Joseph School – MUNPL-MEJA
Middle School	✓	
Secondary school	✓	
Sen. Secondary school	✓	
College	✓	
Health Facilities		
Hospital	✓	In the Core zone there are 3 hospitals. Ma Isaraja Devi Charitable Hospital, Sirihir, Meja, Prayagraj (3.05 Km, SSW), Yashlok Hospital (0.5 Km ENE) and Aarogyam Hospital – MUNPL-MEJA. Beside that there are many private and Govt hospitals like Tej Bahadur Saru Hospital, Motilal Nehru Divisional Hospital, Swarup
Dispensary	✓	
Primary health centre	✓	
Primary health sub centre	✓	

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Village Name	Status	Remarks
Family welfare centre	✓	Rani Hospital etc. in the Prayagraja and Meja tehsil to catter basic medical requirement of the population in the study area.
MCWC-Maternity and Child Welfare Centre	✓	
Drinking water facilities		
Hand pump	✓	Hand pump are the main source of water for drinking and other domestic use. There are no well facilities available in core zone villages. MUNPL under CSR/CD has carried the following • Installation of 18 Solar Powered mini water schemes in the affected villages. • Construction of 04 Check dams in Esauta, Patai Dandi, Jhariyahi and Kohdar. • Rejuvenation of ponds in village-Salaiya Kala and Mai Khurd • Installation of 130 Handpumps in the neighbouring villages. • Construction of 02 Overhead Tanks in Resettlement Colonies. • Construction of 01 Blast Well in Village-Salaiya Kala. • Construction of 09 Mini Water RO Scheme in Govt. Schools. • Distribution of water filters to villagers incl. Home Stead Oustees. • Installation of 02 Water Coolers with RO in Atal Awasiye Vidyalaya. • Installation of 23 Water Coolers with RO in the neighboring villages. • Installation of 01 Water Cooler with RO in Govt. Polytechnic, Meja.
Tube well	✓	
Well	✗	
Tank	✓	
Pond	✓	
River	✓	
Approach to Village		
Kuchha road	✓	Majority of the villages have pucca road access except Marar and Patai danda villages where there is no proper road access.
Pucca Road	✓	

Source: Primary data obtained during survey

3.12.4. *Need Based Assessment*

A need-based assessment in a Social Impact Assessment (SIA) report identifies the needs and concerns of affected communities and stakeholders. It involves:

- Identifying affected populations and their demographics.
- Assessing their social, economic, and cultural context.

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- Determining potential impacts on their livelihoods, health, and well-being.
- Analyzing their needs and concerns, including their perceptions and expectations.
- Developing strategies to address these needs and concerns.

A need-based assessment helps to:

- Understand the social and economic vulnerabilities of affected communities.
- Design targeted mitigation measures and community development programs.
- Ensure that the needs and concerns of affected communities are addressed.
- Enhance the overall effectiveness and sustainability of projects or programs.

The assessment is conducted through participatory methods, involving stakeholders and affected communities, to ensure that their needs and concerns are accurately captured and addressed.

3.12.4.1 *Outcome of the need-based assessment*

There are no Govt. hospital services in the core zone villages. Nearby hospitals or medical facilities are around 10 km away from these villages. Beside there is only one private hospital called Yashlok hospital and Aarogyam Hospital of Meja Urja Nigam Pvt. Ltd available in core zone villages to take care of medical concerns of their employee as well as surrounding villages. For an emergency situation ambulance service could be provided by MUNPL to the local people. The other medical facilities present in the surrounding area is given in **Table 3.62** below.

Table 3.62 : Medical Facilities available

S.No	Medical Facility Name	Latitude	Longitude	Distance & Direction
1	Yashlok hospital	25° 8'39.04"N	81°58'55.04"E	0.55 Km, ENE
2	R. B. Hospital	25° 3'19.79"N	81°50'57.17"E	10 Km, SW
3	Raj Clinic	25°15'6.79"N	81°57'16.86"E	11.45 Km, N
4	Center Of Medical and Health Awareness	25° 8'28.13"N	82° 6'15.07"E	12.85 Km, E
5	Prakash Hospital	25°16'9.66"N	81°56'17.20"E	12.89 Km, N
6	Ashok Medical Hall	25° 8'32.12"N	82° 6'18.88"E	12.92 Km, E
7	Dr. Ashfak Clinic	25° 8'27.20"N	82° 6'18.24"E	12.93 Km, E
8	R.N Medicare Centre Meja Public School Ke Samane Mirzapur Road Lakhan Pur Mejaroad Prayagraj	25°12'9.31"N	82° 5'16.94"E	13.09 Km, ENE
9	Community Health Centre MEJA	25° 8'27.66"N	82° 6'38.72"E	13.52 Km, E
10	Jivan Rakksha Hospital	25°12'52.34"N	82° 5'5.23"E	13.50 Km, ENE
11	Satya Hospital	25°12'59.49"N	82° 5'6.37"E	13.65 Km, NE
12	SK Memorial Hospital	25°13'13.04"N	82° 5'3.77"E	13.86 Km, NE
13	Jyoti Hospital Meja Road	25°13'29.21"N	82° 5'4.27"E	14.20 Km, NE
14	Lakxmi Hospital	25°11'31.73"N	82° 8'16.96"E	17.14 Km, ENE

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S.No	Medical Facility Name	Latitude	Longitude	Distance & Direction
15	Jeevan Raksha hospital	25° 0'15.10"N	82° 4'11.74"E	17.50 Km, SSE
16	Raj hospital	25°14'55.42"N	82° 6'52.34"E	18.22 Km, NE
17	Janhit Hospital	25°19'4.15"N	81°55'8.11"E	18.35 Km, NNW
18	Prayag Hospital	25°13'46.63"N	82° 9'1.14"E	19.98 Km, ENE
19	Suraj Hospital	25°10'59.25"N	82° 9'49.09"E	19.37 Km, ENE
20	Dr Devraj Singh Hospital	25°21'46.44"N	82°11'25.41"E	32.56 Km, NNE
21	Vidyawati Hospital	25°31'26.66"N	81°51'49.00"E	42.50 Km, NNW

Source: Proimary & Secondary data analysis

- Literacy level is quantifiable indicator to assess the development status of an area or region. Total literate's population was recorded as 10187 persons (54.11%) in the study area. Male-Female wise literates are observed as 6239 & 3948 persons respectively, implies that the 'Literacy Rate' is recorded as (54.11%) with male-female wise percentages being 33.14% & 20.97% respectively with creating a gender gap of 12.17 %. There is a requirement of providing more awareness in the core project region. Education awareness programs could be provided in core zone villages
- Hand pump are the main source of water for drinking and other domestic use. There are no well facilities available in all the villages. Drinking Water supply units/ Repairement / Maintenance / Cleaning of Wells / handpums /Ponds and water tank services could be provided to local people.
- Marar and Patai danda villages where there is no proper road access. Puuca road services could be provided for these villages.
- Livelihood of most of the people of the study area depends on employment in the agriculture activities, labour, private jobs, and business. As there are many people dependent on casual jobs and agricultural activities for their livelihood. Jobs should be provided to local people according to their skills and help in agricultural growth through Training programs on Best and Modern Agriculture Practices could be provided to local people.
- The composition of Schedule Caste (SC) in total population is 19.35% and Schedule Tribe (ST) is 0.69%. However, there is no direct impact on the SC & ST population. Further, the project will also provide more benefit and employment opportunities to the people belongs to SC & ST community majorly in study area of the project.
- Work Participation Rate of the study area is 34.58% in which males are 22.33% and females are 12.24%, creating a gender gap of 10.09%. Among the total workers 18.59% are main workers and rest 15.99% are marginal worker. Considering the project activities it will generate employment during the construction/operation phase in the study area.

3.12.5. *Population Distribution within 10.0-km radial Zone of the Study Area*

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As per the census records 2011, the total population of 10-km radius study area was recorded as 176658 persons of 122 revenue villages of Pryagraj District in Uttar Pardesh state. All the villages falls under Tehsil Karchhana (59) & Meja(63) of Pryagraj District in Uttar Pardesh. Total number of 'Households' was observed as 27055 in the study area. Male-female wise total population was recorded as 92717 males and 83941 females respectively.

There are no towns in the study area. As per the census record 2011 there is only 0.24% tribal population present in the study area. Settlement Map of the study area is presented in **Figure 3.32**. Caste-wise and male-female population breakup of the entire study area villages falling in districts is shown in **Table 3.63** as follows;

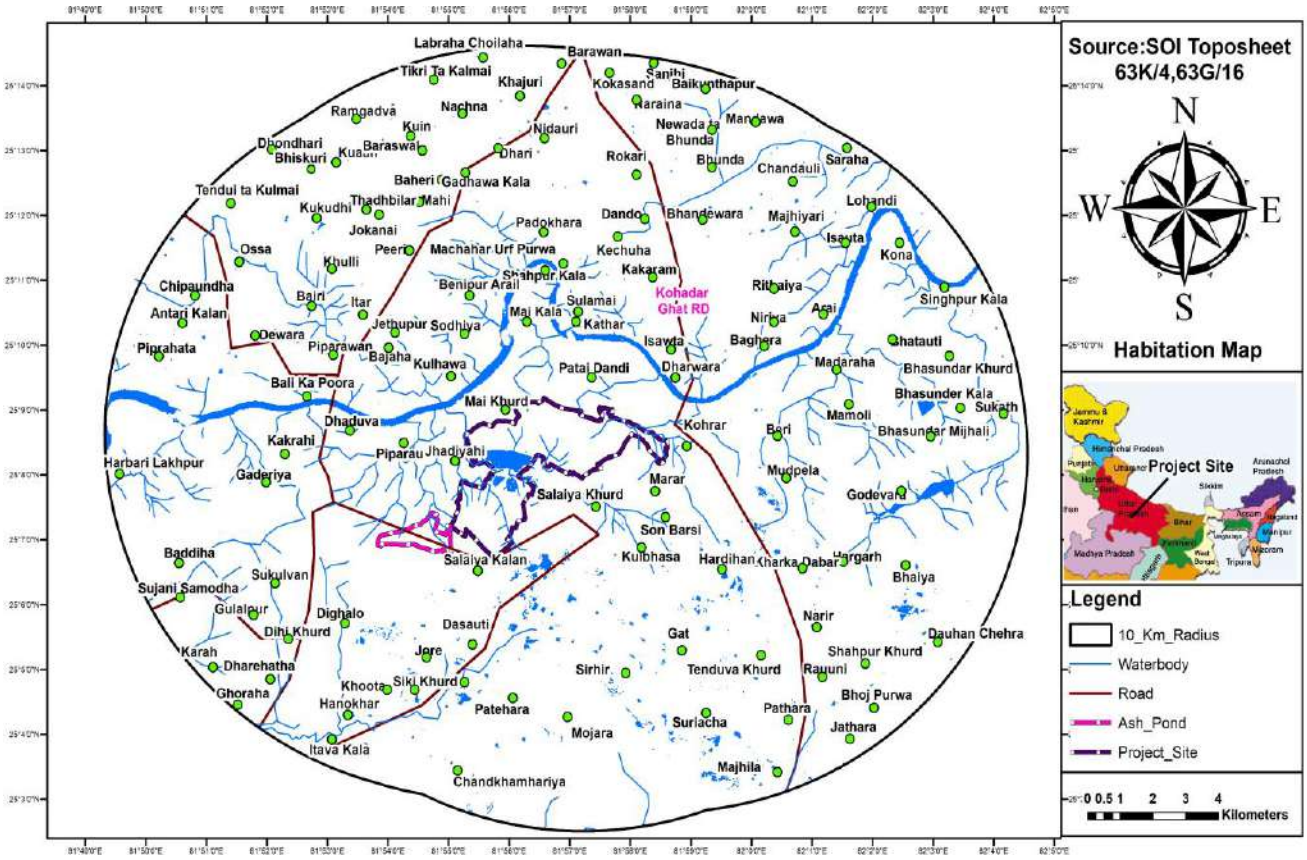


Figure 3.32 : Habitation Map of Study Area

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Table 3.63 : Caste-wise Population Distribution of 10-km radial Study Area

Name of the Village/Town	No of Households	Total Population	Male	Female	SC Male	SC Female	ST Male	ST Female
Rithaiya	151	1218	627	591	0	0	0	0
Niriya	298	2075	1108	967	263	232	0	0
Isauta	180	1202	631	571	318	279	0	0
Arai	581	4648	2363	2285	199	195	0	0
Kokasand	110	773	409	364	91	88	0	0
Baghera	309	2102	1055	1047	87	74	0	0
Sanjhi	171	907	466	441	54	49	0	0
Baikunthpur	17	212	106	106	0	0	0	0
Mandawa	284	1917	1009	908	272	245	0	0
Naraina	193	1654	883	771	249	217	2	2
Newada Ta. Bhunda	93	748	401	347	0	0	0	0
Saraha	104	541	281	260	10	11	0	0
Chandauli	323	2143	1128	1015	244	235	8	7
Majhiyari	96	799	437	362	84	52	0	0
Lohandi	360	2622	1389	1233	66	51	0	0
Rokari	307	1946	1048	898	0	0	0	0
Bhandewara	269	1844	969	875	105	118	0	0
Bhatauli	115	785	405	380	85	95	0	0
Sodhiya	525	3586	1887	1699	506	433	0	0
Jethupur	188	1199	617	582	15	12	0	0
Kolhuwa	82	671	356	315	81	64	0	0
Piparawan Urf Kathauli	260	1762	970	792	319	259	0	0
Itar	64	462	241	221	43	47	0	0
Jokanai	409	2822	1484	1338	216	207	0	0

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Name of the Village/Town	No of Households	Total Population	Male	Female	SC Male	SC Female	ST Male	ST Female
Peeri	369	2457	1270	1187	411	346	0	0
Kukudhi	507	3260	1722	1538	700	662	0	0
Khulli	80	515	265	250	103	93	0	0
Chipaundha	85	639	339	300	279	243	0	0
Ossa	170	1160	632	528	157	123	0	0
Antari Kalan	28	206	107	99	15	11	0	0
Dewara	733	4836	2528	2308	768	711	0	0
Piparhatta	313	2172	1104	1068	302	276	1	1
Dhondhari	291	1671	892	779	120	87	0	0
Tendui Ta. Kulmai	190	1166	643	523	243	183	0	0
Bairi	84	530	305	225	102	71	0	0
Bhiskuri	69	432	229	203	81	73	0	0
Thadhbilar	61	402	227	175	2	0	0	0
Kuaan	216	1393	748	645	140	125	0	0
Mahi	395	2019	1028	991	486	486	0	0
Baraswal	222	1263	690	573	124	106	0	0
Kuin	115	781	416	365	133	112	0	0
Tikri Ta.Kalmai	394	2545	1336	1209	487	437	0	0
Nachna	202	1222	652	570	294	252	0	0
Khajuri	390	2472	1310	1162	414	384	0	0
Barawan	725	5162	2726	2436	562	509	5	1
Dhari	302	1889	1019	870	538	461	0	0
Nidauri	138	1085	570	515	37	25	0	0
Kechuha	224	1872	1001	871	45	35	12	9
Dando	340	2368	1234	1134	193	176	0	0
Kakaram	410	2711	1464	1247	604	505	0	0

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Name of the Village/Town	No of Households	Total Population	Male	Female	SC Male	SC Female	ST Male	ST Female
Baheri	98	605	315	290	150	149	0	0
Gadhawa Kala	168	1229	664	565	122	94	0	0
Labraha Choilaha	462	2564	1330	1234	498	462	0	0
Machahar Urf Purwa	355	2312	1245	1067	619	526	0	0
Sulamai	435	2733	1478	1255	109	89	0	0
Ramgadva	52	323	184	139	42	26	0	0
Padhokhara	212	1464	752	712	114	119	0	0
Benipur Arail	358	2542	1354	1188	370	327	0	0
Bajaha	161	1081	593	488	307	238	0	0
Kona	279	1980	1056	924	272	229	0	0
Singhpur Kala	230	1495	667	828	53	60	0	0
Bhasunder Kala	122	780	390	390	3	2	0	0
Bhasunder Mijhali	100	586	312	274	62	57	0	0
Sukath	146	957	503	454	43	43	0	0
Beri	125	719	398	321	139	106	57	54
Mamoli	287	2027	1028	999	134	134	15	11
Mudpela	202	1254	615	639	112	92	0	0
Madaraha	327	1674	885	789	188	176	0	0
Gadevara	199	1303	655	648	285	273	0	0
Kohdar	956	5904	3101	2803	426	388	0	0
Bhasundar Khurd	200	1253	642	611	123	128	51	42
Bhaiya	232	1551	796	755	285	259	0	0
Hargarh	254	1760	944	816	367	301	0	0
Kharka Dabar	73	484	251	233	23	22	0	0
Rauuni	57	367	175	192	70	74	0	0
Shahpur Khurd	90	633	342	291	214	184	0	0

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Name of the Village/Town	No of Households	Total Population	Male	Female	SC Male	SC Female	ST Male	ST Female
Narir	79	636	327	309	110	106	0	0
Dhauhan Chehra	18	108	55	53	0	0	0	0
Bhoj Purva	238	1636	843	793	274	245	0	0
Pathara	227	1493	757	736	362	341	3	3
Majhila	34	174	92	82	0	0	0	0
Jathara	75	448	233	215	97	81	0	0
Gulalpur	43	196	102	94	0	0	0	0
Kakrahi	118	840	478	362	0	0	0	0
Ghoraha	72	400	220	180	112	77	0	0
Karah	54	322	165	157	107	102	0	0
Sukulvan	1	1	1	0	0	0	0	0
Dihi Khurd	104	565	287	278	15	11	0	0
Sujani Samodha	377	2381	1288	1093	352	284	0	0
Dharehatha	111	732	364	368	52	68	0	0
Baddiha	283	1582	852	730	206	177	0	0
Gaderiya	97	559	288	271	70	63	0	0
Shahpur Kala	404	2374	1218	1156	7	12	0	0
Mai Kala	157	862	438	424	54	57	0	0
Patai Dandi	182	1423	731	692	155	128	0	0
Isawta	383	2303	1191	1112	11	11	0	0
Dhadhuva	228	1592	851	741	235	219	6	3
Piparau	314	1935	1066	869	376	311	0	0
Jhadiyahi	315	2063	1085	978	13	15	0	0
Salaiya Kala	257	1677	877	800	30	33	0	0
Mai Khurd	86	491	249	242	4	1	0	0
Salaiya Khurd	459	2511	1285	1226	548	514	66	64

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Name of the Village/Town	No of Households	Total Population	Male	Female	SC Male	SC Female	ST Male	ST Female
Dasauti	189	1154	628	526	186	172	0	0
Siki Khurd	77	233	120	113	20	21	0	0
Khoota	228	1402	701	701	244	232	0	0
Son Barsi	70	365	202	163	110	83	0	0
Marar	26	132	72	60	46	42	0	0
Dighalo	198	1306	670	636	177	187	0	0
Hanokhar	37	243	134	109	0	0	0	0
Itava Kala	443	2981	1600	1381	364	335	0	0
Jore	64	248	120	128	30	36	0	0
Chandkhamarihia	544	3781	1963	1818	558	509	0	0
Patehara	233	1315	635	680	382	404	0	0
Kulbhasa	181	1373	728	645	257	206	0	0
Sirhir	404	2316	1153	1163	317	327	0	0
Gat	38	266	143	123	91	80	0	0
Tenduva Khurd	144	978	497	481	151	151	0	0
Hardihan	414	2516	1415	1101	606	399	0	0
Suraicha	69	567	291	276	99	89	0	0
Mojara	131	891	468	423	0	0	0	0
Harbari Lakhapur	115	779	400	379	46	54	1	0
Kathar	12	62	32	30	0	0	0	0
Total	**27055**	**176658**	**92717**	**83941**	**22651**	**20196**	**227**	**197**

Source: Secondary data Census 2011

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3.12.6. *Sex Ratio*

The 'Sex Ratio' is a numeric relationship between females and males of an area and bears paramount importance in the present-day scenario where the un-ethnic pre-determination of sex and killing of female foetus during pregnancy is practiced by unscrupulous medical practitioners against the rule of the law of the country. It is evident that by contrast the practice of female foeticide is not prevalent in the study area.

As per the census records 2011, the data reveals the sex ratio as 905 females for every 1000 males in the study area. The male-female wise population distribution of the study area is shown by graphical representation in **Figure 3.33.** as follows;

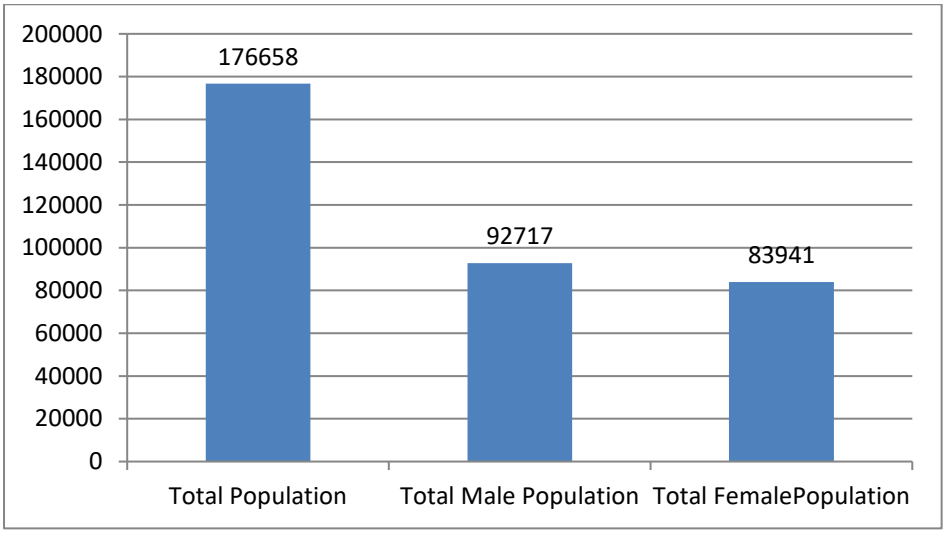


Figure 3.33 : Male-Female wise Population Distribution in the Study Area

3.12.7. *Scheduled Caste & Scheduled Tribe Population*

On the basis of the village/town wise SC & ST population distribution for the study area during 2011, the 'Scheduled Castes' population was observed as 42847 consisting of 22651 males and 20196 females respectively which accounts as 24.25% to the total population in the study area. 'Scheduled Tribes' population was observed as 424 accounting as 0.24 % to the total population of the study area consisting of 227 males and 197 females. It implies that the rest of the total population belongs to the General category. Male-female wise SC & ST population distribution of the study area is graphically shown in **Figure 3.34 & 3.35** as follows.

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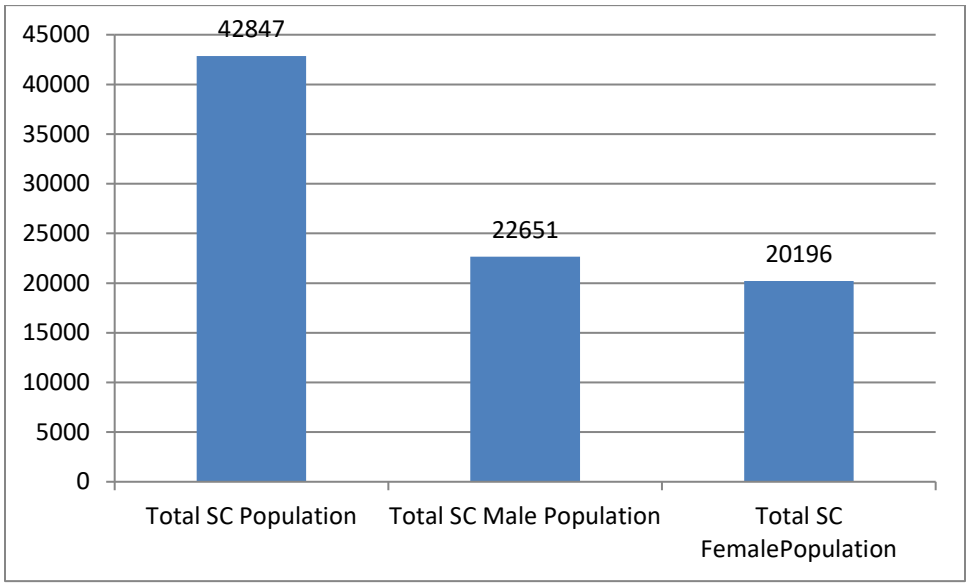


Figure 3.34 : Scheduled Caste Population in the Study Area

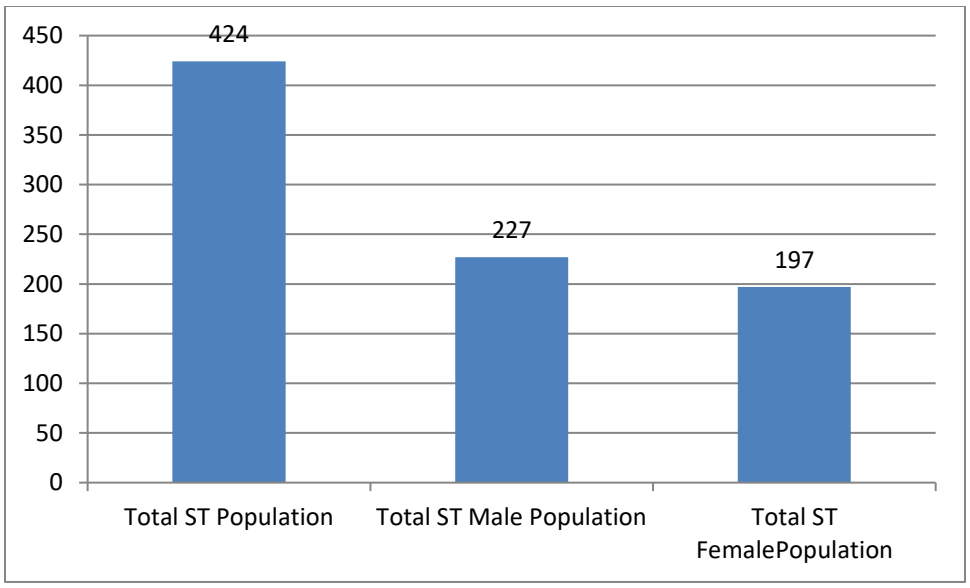


Figure 3.35 : Scheduled Tribes Population in the Study Area

3.12.8. *Literacy Rate*

Literacy level is quantifiable indicator to assess the development status of an area or region. Total literate's population was recorded as 98997 (56.03%) in the study area. It reveals that Male-Female wise literates are observed as 61342 & 37655 respectively, implies that the 'Literacy Rate' is recorded with male-female wise percentages being 34.72% & 21.30% respectively. The total illiterate's population was recorded as 77661 (43.96%) in the study area. Male-Female wise illiterates were observed as 31375 (17.76%) and 46286 (26.19%) respectively. The Male-Female

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wise graphical representation of literates & illiterates population in study area villages/town is shown in **Figure 3.36.**

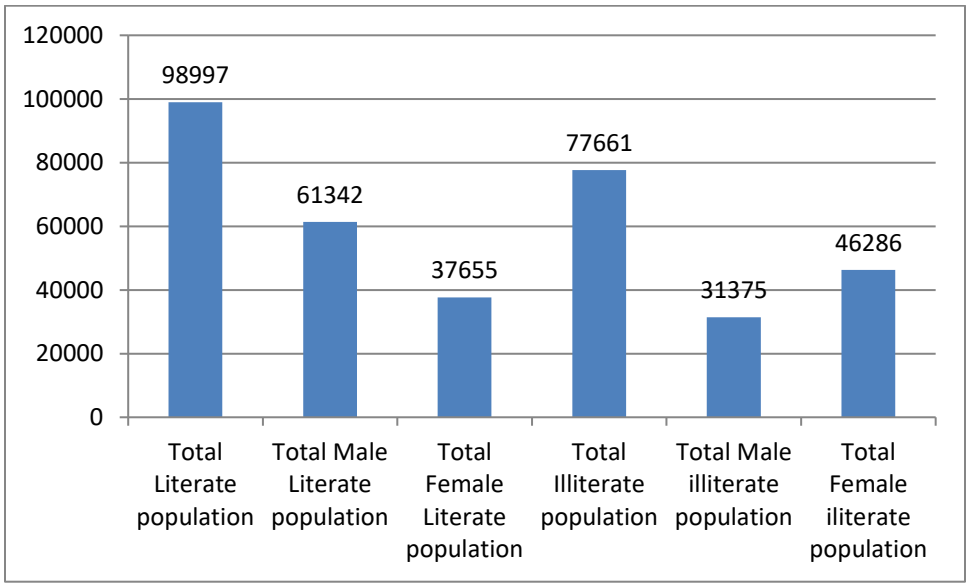


Figure 3.36 : Male-Female wise Distribution of Literates & Illiterates

3.12.9. *Workers Scenario (Occupation Pattern)*

Occupational pattern was studied to assess the skills of people in the study area. Occupational pattern helps in identifying major economic activities of the area. The main and marginal workers population with further classification as casual, agricultural, households and other workers is shown in **Table 3.62.**

Occupation Pattern wise distribution of Population and Graphical representation of 'Workers Scenario' of the study area are shown as **Table 3.64 & Figure 3.37** respectively as follows;

Table 3.64 : Distribution of Work Participation Rate

Occupation Class	As per Census 2011
Main Workers	**37798 (21.39%)**
Male	28268(74.78 %)
Female	9530(25.21 %)
Marginal Workers	**22570 (12.77 %)**
Male	12509(55.42%)
Female	10061(44.57 %)
Non-Workers	**116290(65.82%)**
Male	51940(44.66 %)
Female	64350(55.33 %)
Total Population	**176658**
Source: Census of India Records, 2011	

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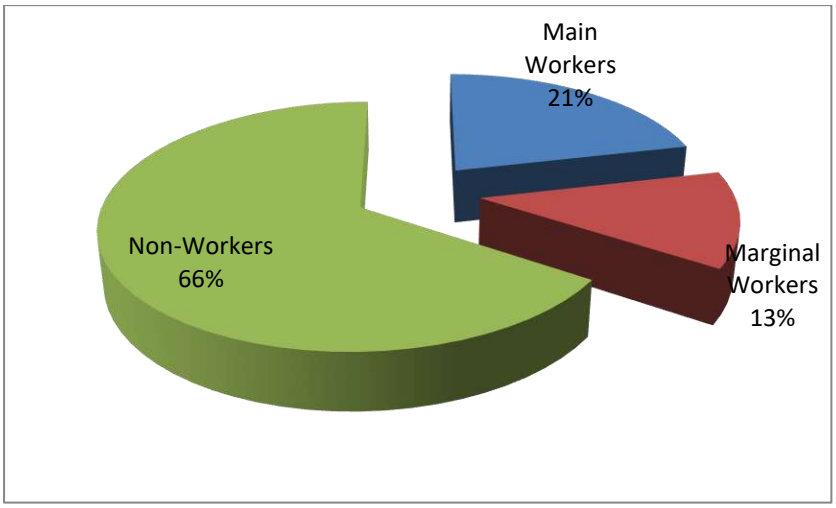


Figure 3.37 : Workers Scenario of the Study Area

Composition of Main Workers: The 'Main Workers' were observed as **37798 (21.39%)** persons to the total population of the study area and its composition is made-up of Casual laborers as 14696 (39%), Agricultural laborers as 12621 (33%), Household workers 2343(6%) and other workers as 8138 (22%) respectively. Composition of Main workers is shown below as **Figure 3.38.**

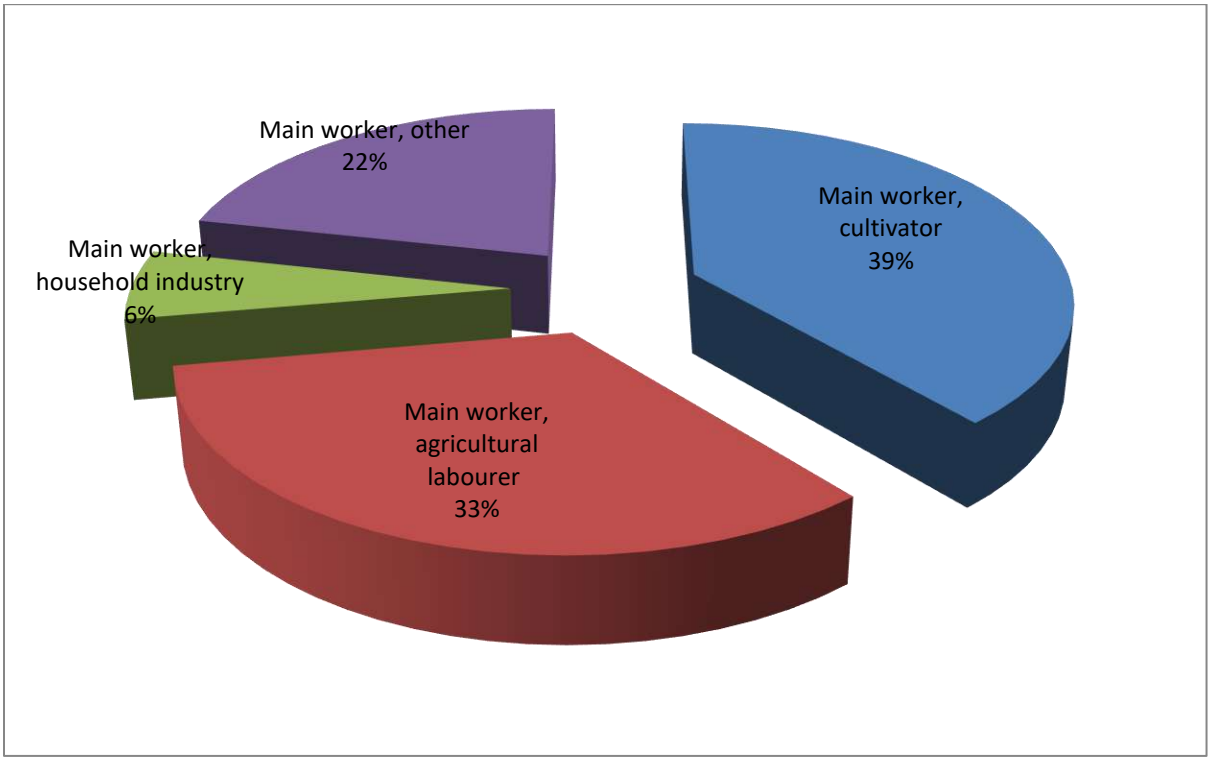


Figure 3.38 : Composition of Main Workers Population

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Composition of Marginal Workers

The total marginal workers are observed as **22570 (12.77 %)**of the total population comprise of Marginal Casual Laborers as 5044 (22%), Marginal Agricultural Laborers as 11254 (50%), Marginal Household laborers as 1706 (8%) and marginal other workers were also observed as 4566 (20%) of the total marginal workers respectively. Details about marginal workers in the study area are tabulated in **Table 3.64.** Composition of Marginal workers is shown in **Figure 3.39** as follows;

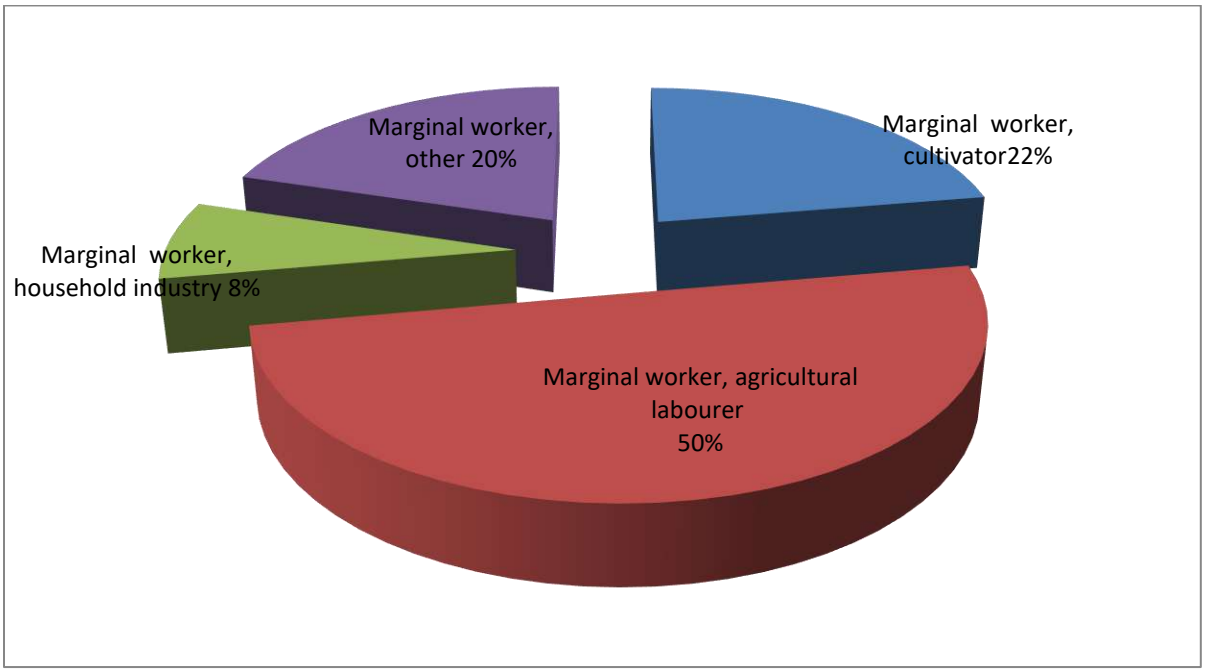


Figure 3.39 : Composition of Marginal Workers

Composition of Non-workers: Details about total Non-workers population of the study area with Graphical representation are compiled in **Table 3.65** and shown by **Figure 3.40** as follows;

Table 3.65 : Composition of non-Workers

Non-Workers Population		
Persons	**Males**	**Females**
116290	51940	64350

Source: Secondary data Census 2011

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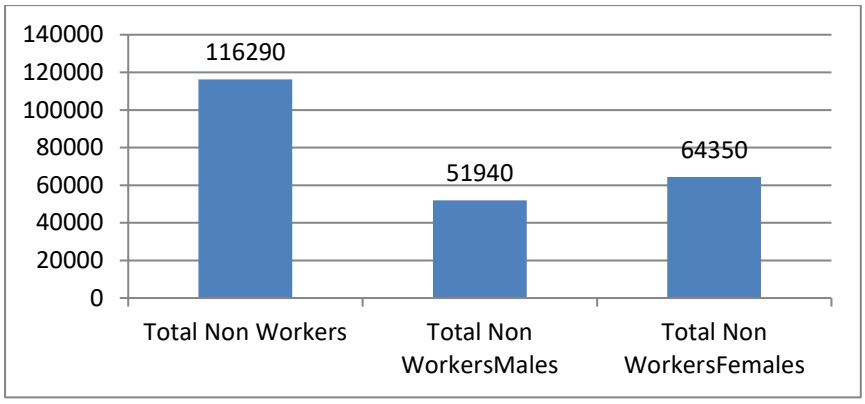


Figure 3.40 : Composition of Non-Workers

3.12.10. *Availability of Basic Infrastructure Facilities & Amenities in the Study Area*

A review of basic infrastructure facility and amenities available in the study area villages has been done on the basis of the field survey and Census Records 2011. The study area has average level of basic infrastructure facilities/amenities like educational, medical, potable water, power supply and transport & communication network etc;

Education Facilities: There are about 78 Primary Schools existing in the rural part of the study area. 38 Middle schools are found in the rural part of the study area. Only 8 Higher Secondary Schools (SS) were observed available in the rural part of the study area. 11 Senior Secondary School facilities were observed in the rural part of study area. The educational facilities have been further strengthening now and a number of private public schools and colleges are also functioning in the surroundings of the study area. Besides, there are Engineering and Medical colleges available in Towns and District headquarters only. Higher education facilities are available in Towns of the area.

Medical Facilities: Medical facility is one of the most important facilities for people. The medical facilities are provided by different agencies like Govt. & Private individuals and voluntary organizations in the study area. As per the census records 2011,only 3 primary health centre (PHC) exists in rural part of the study area 1 primary health sub-center were observed and no community health center(CHC) exists in the rural study area; most of the study area villages depend upon the towns / district HQ of the study area having such facility. 2 Mother &child welfare center, 1 Family welfare center, no Hospital and medical Dispensary facilities were observed in the rural part of the study area; most of the villages are depending upon towns and district HQ having such type of medical facility. Overall rural part of the study area is served by poor medical facilities. Specialized medical facilities are available in towns and District Headquarter (HQ) only.

Potable Water Facilities: Potable water facility is available in most of the villages/towns of the study area. Tube well water facility were observed in the villages of study area. Hand pump facility for drinking water was commonly observed in majority villages of the study area. Out of total 122 revenue villages/towns, 29 villages were served with River/Canal water for drinking purpose in the study area. As per the census records of 2011, 41 of the villages were observed with

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Tank/Pond/Lake water facility in the rural part of the study area. Adequate potable water facilities are available in the study area.

Communication, Road, Transport and Banking Facilities: As per the census records 2011, 3 villages has Post Office facility in the rural part of the study area. Almost all the villages are depending upon towns and those villages being served with such facility. As per the compiled information on basic infrastructure facility, around 10 of villages have Public Bus services. It is observed from the district census handbook information of 2011 there are only 3 villages who has ATM, 13 Commercial and 3 co-operative banks facilities available in the study area

Power Supply: It is revealed from the compiled information on amenities availability as per the census record of 2011; 41 villages are electrified for all purpose in the study area. Village/town wise 'Basic Infrastructure and Amenities' availability data for the entire study area is represented in **Table 3.66** as follows

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Table 3.66 : Basic Amenities Available in the study area

Village Name	Educational				Medical							Drinking Water						Communication & Transport					Approach to Village				Power Supply			
	P	M	SS	SSS	CHC	PHC	PHSC	MCWC	H	D	FWC	T	W	HP	TW	R	Tk	CT	PO	Telephone	BS	RS	PR	KR	NW	FP	ED	EAg.	EC	EA
Dhondhari	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Tendui Ta. Kulmai	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Piparhatta	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	1	2	1	1	1	1	1	1	1	1
Chipaundha	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Antari Kalan	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	1	2	1	2	2	2
Ossa	6	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	1	2	1	2	2	2
Kukudhi	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Khulli	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Dewara	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2
Piparawan Urf Kathauli	2	1	0	0	0	0	0	0	0	0	0	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	2
Itar	1	0	0	0	0	0	0	0	0	0	0	1		1	1		1	2	2	2	2	2	1	1	1	1	1	2	2	2
Jethupur	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Kolhuwa	2	1	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	2	2
Jokanai	1	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	2	2	2	2	2	1	1	1	1	1	2	2	2
Peeri	1	1	1	1	0	0	0	0	0	0	1	1	2	1	2	2	1	2	2	2	1	2	1	1	2	1	1	1	2	2
Sodhiya	2	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Sanjhi	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	1	2	2	1	1	2	2	1	1	1	1
Baikunthpur	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1
Mandawa	1	0	0	0	0	1	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	2	2	2	1	1	2	2
Saraha	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	2	2	2	1	1	2	2	2
Chandauli	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2
Majhiyari	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	2	2	2	1	1	2	2
Lohandi	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2		2	2	2	2	1	2	2	2	1	1	2	2

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Village Name	Educational				Medical							Drinking Water						Communication & Transport					Approach to Village				Power Supply			
	P	M	SS	SSS	CHC	PHC	PHSC	MCWC	H	D	FWC	T	W	HP	TW	R	Tk	CT	PO	Telephone	BS	RS	PR	KR	NW	FP	ED	EAg.	EC	EA
Kokasand	1	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	2	2	2	1	2	2	1	2	2	1	1	2	2	2
Naraina	1	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	2	2	1	2	2	2	1	2	2	1	1	1	1
Rokari	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	1	1	2	1	1	1	2	2
Newada Ta. Bhunda	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1		2	2	2	2	2	2	2	1	1	1	1	1
Bhandewara	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1
Rithaiya	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Niriya	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	2	2	2	1	1	2	2
Isauta	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	2	2	2	1	1	2	2
Arai	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1
Baghera	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Bhatauli	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1
Ramgadva	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1
Tikri Ta.Kalmai	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Labraha Choilaha	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Nachna	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	1	1	2	1	1	1	1	1
Dhari	1	1	1	1	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	1	2	1	1	1	1	1
Baraswal	1	1	1	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Kuin	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Baheri	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Gadhawa Kala	1	1	1	1	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	1	1	2	1	1	1	1	1
Bairi	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	1	1	2	1	2	2	2
Bhiskuri	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Kuaan	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	2	2	2	2	2	1	1	2	1	1	1	1	1
Thadhbilar	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1

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Village Name	Educational				Medical							Drinking Water						Communication & Transport					Approach to Village				Power Supply			
	P	M	SS	SSS	CHC	PHC	PHSC	MCWC	H	D	FWC	T	W	HP	TW	R	Tk	CT	PO	Telephone	BS	RS	PR	KR	NW	FP	ED	EAg.	EC	EA
Mahi	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1
Padhokhara	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1
Benipur Arail	1	2	2	2	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2
Bajaha	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	1	2	2	1	1	2	1	1	2	2	2
Khajuri	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	1	1	2	1	1	1	2	2
Barawan	1	1	1	1	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	1	1	2	1	1	1	1	1
Nidauri	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	1	2	2	1	1	2	1	1	2	2	2
Machahar Urf Purwa	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	1	2	1	1	2	2	2
Dando	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	2	2	2	2	2	1	1	2	1	1	1	1	2
Kechuha	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	2	1	2	2	2	2	2	1	1	2	1	1	1	2	2
Kakaram	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	2
Sulamai	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2
Kohdar	1	1	1	1	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2
Beri	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Mudpela	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
Mamoli	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1
Madaraha	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Gadevara	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Hargarh	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	1	2	2	2	2	2	1	1	2	1	1	2	2	2
Kona	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	1	2	2	2	2	2	1	1	2	1	1	1	2	2
Singhpur Kala	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	1	2	2	2	2	2	2	1	2	1	1	2	2	2
Bhasundar Khurd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2
Bhasunder Kala	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2
Bhasunder Mijhali	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2

//True Copy//

Village Name	Educational				Medical							Drinking Water						Communication & Transport					Approach to Village				Power Supply			
	P	M	SS	SSS	CHC	PHC	PHSC	MCWC	H	D	FWC	T	W	HP	TW	R	Tk	CT	PO	Telephone	BS	RS	PR	KR	NW	FP	ED	EAg.	EC	EA
Sukath	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1
Bhaiya	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1
Baddiha	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2
Sujani Samodha	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	2	2	2	1	1	2	2	2
Sukulvan	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2
Gulalpur	1	1	1	1	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	2	1	2	2	1	2	2	2	2
Dihi Khurd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2
Gaderiya	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2
Kakrahi	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2
Dhadhuva	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	1	2	1	1	1	1	1	2	2	2
Piparau	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	1	2	1	1	1	1	1	2	2	2
Jhadiyahi	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1
Salaiya Kala	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2
Mai Khurd	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Mai Kala	1	1	1	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2
Shahpur Kala	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	1	2	2	2	2	2	2	2	2	1	1	1	2	2
Salaiya Khurd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2
Dighalo	1	0	1	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2
Dasauti	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	1	1	2	1	1	1	1	1	2	2	2
Jore	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	2	1	1	2	1	1	2	2	2
Siki Khurd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1
Khoota	0	0	0	0	0	0	0	1	0	0	0	2	2	1	2	2	2	2	1	1	1	2	1	1	1	1	2	2	2	2
Hanokhar	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2
Dharehatha	0	0	0	0	0	1	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	1	1	1	2	2	2
Ghoraha	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	1	1	2	1	2	2	2	2

//True Copy//

Village Name	Educational				Medical							Drinking Water						Communication & Transport					Approach to Village				Power Supply			
	P	M	SS	SSS	CHC	PHC	PHSC	MCWC	H	D	FWC	T	W	HP	TW	R	Tk	CT	PO	Telephone	BS	RS	PR	KR	NW	FP	ED	EAg.	EC	EA
Karah	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	2	1	1	2	1	2	2	2	2
Chandkhamarihia	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	2	2	2	1	1	2	2	2
Marar	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	2	2	2
Son Barsi	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2
Itava Kala	1	1	0	0	0	1	0	0	0	0	0	2	2	1	2	2	2	2	2	1	1	2	1	1	1	1	2	2	2	2
Patai Dandi	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1
Isawta	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1
Kharka Dabar	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Narir	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Rauuni	0	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2
Shahpur Khurd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	2	2	2	1	1	1	1	1
Dhauhan Chehra	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1	2	2	2
Bhoj Purva	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1
Pathara	1	1	0	0	0	0	0	0	0	0	0	2	2	2	1	2	2	2	2	2	1	2	1	1	1	1	1	2	2	2
Majhila	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2
Jathara	1	0	0	0	1	0	1	1	0	0	0	2	2	1	1	2	2	1	2	2	2	2	2	1	1	2	1	1	2	2
Patehara	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
Sirhir	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	2	2	2	2	1	1	2	2	2
Kulbhasa	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	2	2	2	1	1	2	2	2
Hardihan	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1
Gat	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2
Suraicha	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	2	1	1	2	1	1	2	2	2
Tenduva Khurd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2
Harbari Lakhapur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	2	2
Mojara	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	1	1	1	1	1	2	2	2	2

//True Copy//

Village Name	Educational				Medical							Drinking Water						Communication & Transport					Approach to Village				Power Supply			
	P	M	SS	SSS	CHC	PHC	PHSC	MCWC	H	D	FWC	T	W	HP	TW	R	Tk	CT	PO	Telephone	BS	RS	PR	KR	NW	FP	ED	EAg.	EC	EA
Kathar	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2	2
Total	78	38	11	8	1	3	1	2	0	0	1	From Column of Drinking water facilities to column of Power supply the 1 no. denote the facility is available and 2 no. denotes that the facility is not available)																		

Abbreviations:
Educational Facilities: P-Primary School, **M-**Middle School**, SS**-Higher Secondary Schools, **SSS-** Senior Secondary School
Medical Facilities: CHC- Community Health Centre, **PHC-**Primary Health Centre, **PHSC**-Primary Health Sub-Centre, **MCWC-**Maternity and Child Welfare Centre, **H-**Hospital, **D-** Dispensary, **FWC**-Family Welfare Centre
Drinking Water Facilities: T-Tap Water, **W**-Well Water, **HP**-Hand Pump, **TW**-Tube Well Water, **R-**River Water, **Tk-**Tank Water, **O-**Other Drinking Water Facility
Communication and Transport Facilities: **PO-**Post Office, **SPO**-Sub-Post Office**, PTO-** Post & Telegraph Office, **BS-**Bus Services, **RS-**Railways Services
Approach to Village: PR- Paved Roads, **KR**-Kuchha Road, **FP-**Foot Path
Power Supply: ED-Power Supply for Domestic use, **E Ag.-** Power Supply for Agricultural use, **EC-** Power supply for Commercial use, **EA-**Electricity for All Purposes

Source: Secondary data Census 2011

3.13. Traffic Study

Proposed site is well connected through the rail and road. Nearest rail station is Meja Road Railway Station on Prayagraj-Mughalsarai section of North Central Railway is about 14.23 km from the project site in NE direction. The site is in south-west of Prayagraj-Mirzapur Highway. National Highway-135 C is passing about 0.7 km, east of the site. All the coal required for the project shall be transported through existing rail network. Fly ash, gypsum, limestone and construction material shall be transported through the road i.e NH 135 C.

National Highway-135 C is a National Highway having the standard PCU capacity. The current condition of NH-135C is satisfactory and a single lane road. The width of the road is around 7 meters. Details of the road condition and Traffic count of the road is given in **Table 3.67 & 3.68.**

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Table 3.67 Current Road condition of NH-135 C

S. No.	Road condition	Detail
1	Pavement/ Border width (Left side)	1.0 m
2	Pavement / Border width (Right side)	1.0 m
3	Carriage width	7.0 m
4	Road type/Condition	Pucca
5	Condition	Good
6	Lane	Two way

Table 3.68 Summary of Traffic Volume On NH-135C (Both way)

Time (Hrs.)	Two wheelers	Three wheelers	Four wheelers	Heavy vehicles	Total
6:00 AM-11:00 AM	278	78	220	38	614
11:00 AM-5:00 PM	234	68	270	44	616
5:00 PM-10:00 PM	262	72	169	42	545
10:00 PM-6:00 AM	110	34	64	48	256
Total	**884**	**252**	**723**	**172**	**2031**
PCU count	**442**	**252**	**723**	**602**	**2019**

Observation: Traffic load on NH-135Cis moderate as per the respective road classification. The condition of existing road is good.

Adequacy of Existing Road Network in Study Area

With present level of traffic on NH 135 C (to and fro) the adequacy of road/highway has been estimated by comparison with the recommendations stipulated by Indian Road Congress (IRC). As per Indian Road Congress (IRC: 64 – Guidelines for Capacity of Roads in Rural Area – Code of Practice, 1990) indicates the design service value of two lane (two way) road is 1500 PCU per hour(36000 PCU/day). The current average load on the NH-135 C is 84 PCU per hour (**2019** PCU/day) which is far below the carrying capacity of the road i.e 1500 PCU/hour.

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Chapter 4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter details the inferences drawn from the environmental impact assessment of the proposed project. It describes the overall impacts of the project activitiesand underscores the areas of concern, which need mitigation measures. Predictions have been done based on the various quantitative and qualitative methods suggested by MoEF&CC.

4.1. Introduction

Environmental Impact Assessment helps in identifying the likely impacts due to the project activities for all stages of the project viz, design, construction and operation stage. Impacts are quantified using established practices, tools and mathematical models followed by identification of mitigation measures to mitigate the impacts to acceptable levels.

The construction and operation of the project Expansion of Coal Based Thermal Power Plant from 2x660 MW by adding 3x800 MW involves various activities which may have impact on the environment. Impact analysis has been carried out for all the activities under project for physical, biological and socio-economic environment. Key issues identified requiring greater attention are related to impact on air, water, noise environment, solid waste management, traffic management and social impacts during construction and operation period of the project. Impacts are identified and evaluated in relation to all the project activities during project implementation (construction) phase and operation phase. Detailed impact assessment is given in sections below.

4.2. Identification of Project Activities and Associated Impact

The natural (physical & biological) and human (social) environmental components that have scientific, economic, social or cultural archaeological, historical, or other significance and are considered in the environmental assessment process. Project activities which may have impact on environmental components includes the following:

- Site clearance before start of construction work
- Construction of plant, Utilities and admin buildings
- Operation of the project (coal handling and storage, Dust and air emission due to production processes and dust and exhaust gas from transportation facilities, wastewater generation and ash generation etc.)

4.3. Impact Assessment and Evaluation

Identification of project activities (project implementation and operation phase) and environmental components which may be impacted due to each of project activities is carried out and is given in **Table 4.1**. Significance of impact on each of the identified environmental components for all the activities is assessed and evaluated using qualitative and quantitative techniques. Thereafter, cost-effective but appropriate mitigation measures are proposed to eliminate or minimise the identified impacts. An EMP has been designed to ensure the effective implementation of proposed mitigation measures (refer Chapter 10). Impact assessment and evaluation along with the mitigation measures are given in sections below.

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243

4.4. Impact Identification during Construction Phase

4.4.1. Identification of Impacts

The probable impacts during construction phase on various sectors of environment (such as air, water, soil, biotic, socio-economic environment etc. have been identified and listed in **Table 4.1**. The mitigation measures for significant impacts are also discussed in respective sections.

Table 4.1 : Identification of Probable Impacts (during Construction Phase)

Construction Activities	Sector	Probable Impact
A) Long Term Impact		
Land acquisition	Land	The acquisition of private land/Govt. land leading to change in land-use pattern / land-cover.
	Socio-Economics	Loss of land may impact the livelihood/socioeconomic condition of the affected people.
B) Short Term Impacts		
Site cleaning and levelling (cutting, stripping, excavation, controlled blasting (if necessary), earth movement, compaction)	Air	• Fugitive dust emissions • Noise / air emissions from construction equipment, vehicles & machinery
	Water	• Run-off from construction site
	Land	• Loss of fertile top soil • Change in drainage pattern
	Ecology	• Loss of vegetation • Topographic alteration
Transportation and storage of construction material/ Equipment	Air	• Noise and air emissions from vehicles • Fugitive dust emissions due to traffic movement • Spillage and fugitive emissions of construction materials
	Water	• Run-off from soil heaps, construction material storage area
	Soil	• Deposition of spilled construction material on soil
	Public utilities	• Increased flow of traffic • Congestion on roads
Civil construction activities	Air	• Noise and air emissions from construction machinery • Fugitive dust emissions due to movement of traffic
	Water	• Run-off from construction areas containing construction material
Mech. & Elec. erection activities	Air	• Noise & air emissions from machines/ activities
	Water	• Run-off from erection areas containing oils, paints
Influx of labour & Construction of temp. houses	Socio economics	• Stress on local infrastructure • Stress on social relations
	Land	• Change in land use pattern of the area in labour colonies

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Construction Activities	Sector	Probable Impact
	Water	• Sanitary effluents from labour colonies
	Public Utilities	• Increased consumption of Water and Electricity
Transportation and disposal of construction debris	Air	• Noise and air emissions from transport vehicles • Fugitive dust emissions due to movement of traffic • Spillage and fugitive emissions of debris materials
	Water	• Run-off from disposal areas
	Soil	• Spillage/ spread/ deposition of debris • Conversion of land into waste land
	Public Utilities	• Increased flow of traffic • Congestion on roads

4.4.2. Impact on Land use

Proposed expansion will take place within the existing premises of MUNPL, so no resettlement and rehabilitation (R&R) is needed for the existing land. The existing permises is already designated as an industrial area, so no major change in land use is anticipated for the existing site. However, an additional land 110 Ha of government land for the Ash Dyke (89 Ha), greenbelt and other (21 Ha). The current land use of this additional 110 Ha shall permanently change to industrial land use.

There are about 50 families in the proposed land to be acquired for Ash Dyke. The land acquisition for Ash Dyke is in advanced Stage and detailed R&R plan shall be made in consultation with the Dist. Authorities.

Mitigation Measures

- Detailed R&R plan, compensatory afforestation will be envisaged to mitigate the land diversion.
- The detailed R&R plan for 50 families shall be made in consultation with the Dist. Authorities. Hence, a tentative amount of Rs. 26.24 Cr. has been earmarked by MUNPL for R&R plan

4.4.3. Impact due to site clearance

The site is already developed, with all areas except the land designated for the ash dyke being levelled and equipped with internal roads, drainage networks, and other infrastructure. For development of Ash Dyke (89 Ha), greenbelt and other (21 Ha) for the Stage-II an additional land of 110 Ha. (Govt waste land) shall be required for acquisition. The current land use of this additional 110 Ha shall permanently changed into industrial land use. For site clearance for main plant and ash pond approximately 1,955 trees need to be removed. Additionally, the operation of construction machinery such as trucks, dumpers, and excavators is expected to result in short-term air emissions and fugitive dust. These impacts can be managed effectively with the proposed mitigation measures outlined below.

Mitigation Measures

- Compensatory Afforestation: Implement a compensatory afforestation plan by planting trees in alternative areas or creating green spaces elsewhere to offset the loss of trees. Compensatory plantation 1:2 shall be done.

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- Permission for felling shall be obtained from forest department.
- The excavated material (debris) shall be stacked at safe places for backfill at a later stage of construction .
- To control the fugitive emission during construction phase adequate water sprinkling system will be developed in dust generating area.
- All trucks/machineries used for construction shall have PUC.
- All the loose construction material will be transported in covered trucks/dumpers.
- Regular maintenance of all the construction equipment including dumpers/trucks to prevent leakage and other emissions.
- MUNPL Meja Stage-I was developed on Plateau/rocky land. Plantation and its survival in such land profile is a challenging. At present about 163 Ha with survival percentage of 81.7% is carried. Certificate from Divisional Forest Officer-Prayagraj for the existing plantation carried by MUNPL Meja in STAGE-I is provided in Section 10.10.1 of Chapter 10 of EIA Report.
- MUNPL has already established a greenbelt covering 163 Ha within its current facility.
- Following consultations with the Divisional Forest Office, MUNPL plans to expand the additional greenbelt of 318 Ha area within the plant.
- Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land.
- Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary.
- A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided in Section 10.10.2 of Chapter 10 of EIA report.

4.4.4. Impact on Topography

The topography of the proposed site is slightly undulating. The site is already developed and expansion is to be done within the existing premises. The elevation of the project area ranges between 81 to 128 amsl. The project site is sloping slightly towards west and southwest direction. For development of Ash Dyke (89 Ha), greenbelt and other (21 Ha) total 110 Ha land shall be required. The current land use of this additional 110 Ha shall permanently changed into industrial land use. The major change in the topographical feature of area would be due to the activities related to levelling of site, construction of main plant and other related structures, erection of boilers, turbines and land diversion for ash dyke. Further, the magnitude of the impacts is envisaged to be low, as the site and infrastructural facilities are fully developed in existing plant.

Mitigation Measures

- Existing drainage network shall be maintained & strengthened for new unit.
- Storm water drainage network along with sedimentation tank shall be developed at the site to minimize soil erosion.

4.4.5. Impact on Drainage Pattern

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The study area falls in southern part of the district and occupies the part of Yamuna and Tons basin. Yamuna has more constant channel and steeper banks. The drainage pattern of the study area is mainly controlled by the Tons River and its tributaries. The drainage pattern of the study area is mainly dendritic to sub dendritic type. Tons river is flowing about 0.95 km north of the project site. The site is already developed and expansion is to be done within the existing premises. The elevation of the project area ranges between 81 to 128 amsl. The project site is sloping slightly towards west and southwest direction. The Tons river[3] is located about 950 m away from the site. HFL of the Tons River is 87.18 m at Meja Road CWC Gauge near project site. (HFL at CWC Gauge station Meja Road CWC Gauge and Tons Aqueduct/Tons has already been established by the CWC department and HFL for the waterway was derived as per change in the ground profile of the river.) The elevation of the site towards river side is more than 90 amsl, hence chance of flooding is not anticipated. Further Certificate received from Chief Engineer (Water Resources) Irrigation and Water Resources Department, Govt of UP, regarding HFL level of River Tons dt.10.01.2025 is attached as **Annexure-26**

Mitigation Measures

- Existing drainage network shall be maintained & strengthened.
- Storm water drainage network along with sedimentation tank shall be developed at the site to minimize soil erosion.
- Design perimeter ditches around the ash pond to collect and divert surface runoff away from the pond area. These should be lined or reinforced to prevent erosion.
- Incorporate internal drains within the ash pond to manage seepage and water accumulation and contamination of water bodies.

4.4.6. Impact on Air Environment

As the internal roads, drainage network etc. is already developed. The dust will be the main pollutant affecting the ambient air quality of the area during the construction phase. The main sources of emission during the construction period are the movement of vehicles/equipment at site and dust emitted during the levelling, grading, earthwork, stockpiles and foundation works. Operation of DG sets are the other sources of air emission during construction period. Short term localized and reversible impact is expected due to dust emissions generated during the construction stage. The impact will be confined within the project boundary and is expected to be negligible outside the plant boundaries. Mitigation measures proposed are given below:

Mitigation Measures

- Water sprinkling shall be done at regular interval in dust generating areas.
- Providing suitable surface treatment to ease the traffic flow and regular sprinkling of water will reduce the dust generation.
- Aggregates and sand will be stockpiled at suitable places (after stabilizing the surface), near the boundary wall so that the wall acts as windshield.
- Necessary water sprinkling arrangement will be provided around the stockpiles and used whenever necessary to make them moist.

[3] FINAL FEASIBILITY REPORT ON DETAILED HYDROGRAPHIC SURVEY TONS RIVER by IWAI

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- Cement and steel will be stocked inside covered sheds.
- Construction vehicles having 'Pollution Under Control Certificate' will be deployed during the activity to restrict the vehicular emissions.

4.4.7. Impact on Noise Environment

Construction activities involve operation of heavy machinery and equipment for construction purpose, loading & unloading of construction material and pilling & other activities. All these activities will generate the noise. Typical noise generation from these equipment's as per CPCB are given in **Table 4.2**.

Table 4.2 : Typical Noise Levels of Construction Equipment

Construction Equipment for Different Activities	Noise Level in dB(A) at 50 feet
Crane	75-77
Welding generator	71-82
Concrete mixer	74-88
Concrete pump	81-84
Concrete vibrator	76
Air compressor	74-87
Pneumatic rods	81-98
Bulldozer	80
Cement and dump truck	83-94
Front end loader	72-84
Dump truck	83-94
Paver	86-88
Truck	83-94
Tamper	74-77
Backhoe	72-93

Source: CPCB

Due to operation of construction equipment, and construction activities ambient noise levels are likely to increase exceeding the prescribed limit. Workers involved in construction activities will be impacted due to exposure to high noise level at site. Thus, adequate PPE shall be provided to workers to prevent direct exposure to the noise levels. OSHA guidelines shall be followed for exposure to specific noise levels for workers and are listed in **Table 4.3.**

Table 4.3 : OSHA noise exposure limits for the work environment

Noise (dBA)	Permissible Exposure (hours & minutes)
85	16 hrs
90	8 hrs
96	3 hrs 30 minutes
102	1 hr 30 minutes
108	40 min
115	15 min
121	6 min
127	3 min
130	1 min

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Source: Marsh, 1991

With increasing distance from the source the noise level decreases due to wave divergence. Additional decrease also occurs due to atmospheric effects and interaction with objects in the transmission paths. For hemispherical sound wave propagation through homogeneous medium, noise levels at various distances can be predicted using a model based on the following principle:

$L_{p2} = L_{p1} - 20 \text{ Log } (r_2/r_1)$, where L_{p1} and L_{p2} are the sound levels at points located at distance r1 and r2 from the source. Combined effect of all the sources (A, B, C… etc) can be determined at various locations by the following equation:

$10 \text{ Log } (10^{lpa/10} + 10^{lpb/10} + 10^{lpc/10})$, where lpa, lpb and lpc are noise pressure levels at a point due to different sources.

Based on the above principal, Noise Model has been developed where noise levels can be predicted at any distance from the source for simple flat terrain. Attenuation factors are not applied hence the modeled results are overestimate.

The maximum noise expected from construction activities will be around 72 to 94 dB(A). **Figure 4.1** shows the noise contours at distance 100 m, 200 m, 300 m, 400 m, 500 m from 94.6 dB(A) source strength. At 200 m distance the predicted noise values are 37.6 dB(A). At 500 m distance the predicted values are 29.6 dB(A).

Baseline ambient daytime and nighttime Noise levels recorded at nearest village (Kohdar) outside the project area (0.9 km, northeast from project boundary) was found to be 52.0 and 41.7 dB(A) respectively which was found within the standard i.e. 55 dB(A) during daytime and less than 45 dB(A) during night time. The predicted noise level at 500 m distance from source is 29.6 dB(A). Therefore, there will not be any significant impact on the ambient noise quality in the surrounding villages.

Mitigation Measures:

- The noise generating equipment, machinery and vehicles shall be maintained properly to avoid generation of high noise due to lack of wear and tear.
- The standards for occupational exposures - tolerable level is 90 dB(A) for 8 hour exposure. This level will be achieved inside work area through use of properly maintained machines, pumps, compressors and vehicles.
- In case of overexposure found inside working area, workers will be provided with ear plugs/ earmuffs for use so that the exposure is minimized / brought to acceptable level.
- Equipment will be maintained so that noise level does not increase due to improper maintenance.
- DG sets will be provided with acoustics enclosures.
- Mufflers, silencers, acoustics treatment of room will be done wherever required.
- It is expected that noise level at the project boundary will be within the prescribed norms of CPCB due to operation of the proposed project and no significant impact on noise environment is expected.
- Greenbelt developed within the project premises will also act as a barrier to the propagation of noise from the industrial area premises. This shall further reduce the noise levels appreciably. Hence, no significant impact is envisaged.

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It is, therefore, expected that noise level at the project boundary will be within the prescribed norms of CPCB due to operation of the proposed project and hence no significant adverse impact on noise environment is expected.

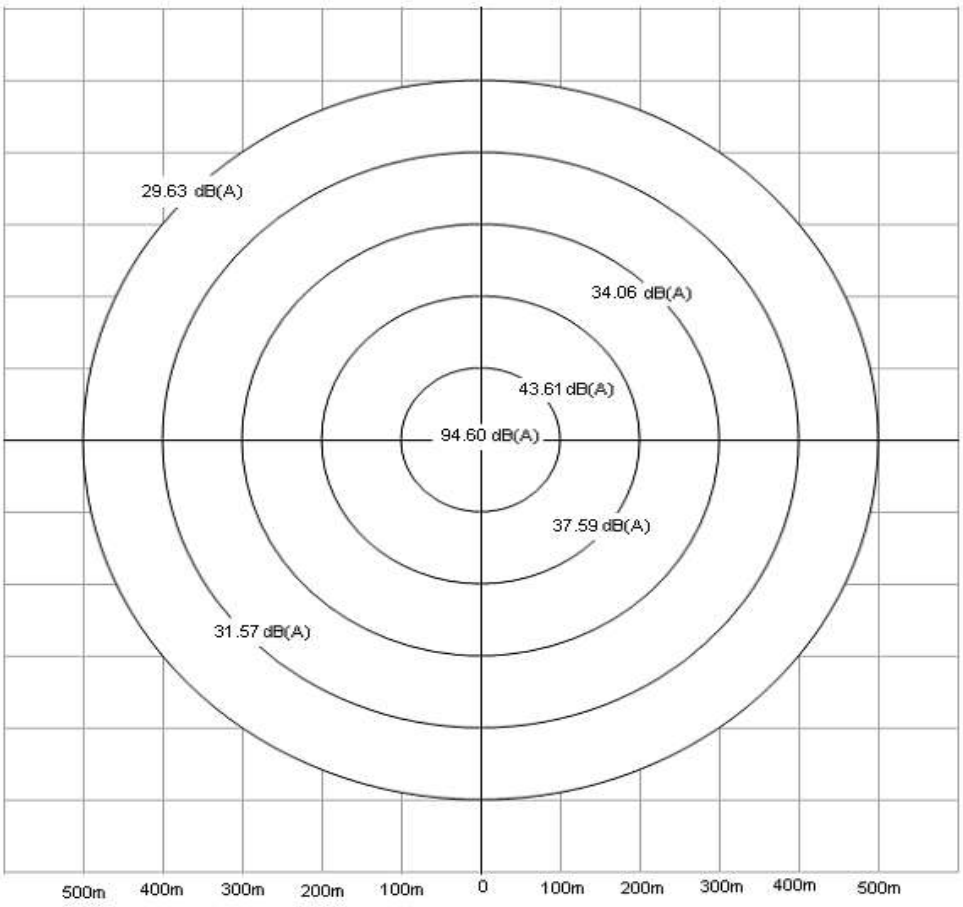


Figure 4.1 : Predicted Noise Level– (source strength 94 dBA)

4.4.8. Impact on Water Quality

Approx. 400 KLD of water shall be required during the construction phase. Water shall be sourced from the existing source of water and however, groundwater is proposed to be utilized for the project during construction as contingent arrangement. Hence, no quantitative impact is envisaged on the ground water resources. Drinking and sanitation facilities shall be provided to workers and staff during construction. Water will also be needed for sprinkling to reduce dust emission. Storm water drains will be made immediately after starting construction activity. Wastewater from site offices, canteens and other washing facilities which may impact the ground water if not managed properly.

Mitigation Measures

- Wastewater arising from site offices, canteens and other washing facilities will be collected and treated in the STP and then reused for Horticulture and green cover development.
- Oil separator / interceptor will be provided near vehicle parking site, workshop and canteen to prevent the release of oil and grease into drainage system.
- The oil and grease separators will be cleaned on regular basis.

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- The treated water will be reused for gardening and horticulture purpose. Sedimentation pits will be provided at appropriate location to trap the silt laden runoff water and prevent excessive silt from going outside.

4.4.9. Impact on Hydrology

Construction water will pass through an existing sedimentation tank to arrest sediments and treated water will be reused in water sprinkling. Discharge of this water into reservoir is not expected. As the construction activities will be confined to the existing project site only, no significant impact on the hydrogeology as part of the study area envisaged. As per the Hydrogeological study conducted by NIH Roorkee no impact of MUNPL effluents is found on the surface and ground water regime because no effluents are discharged out by the MUNPL and the effluents from the ash dyke also do not indicate any harmful parameter. However, following mitigation measures has been suggested in the report:

- RCC drains will be provided for carrying effluents to treatment plant.
- Creating plantations and irrigate them.
- Continuous monitoring of the groundwater conditions using piezometers.
- Maximum recycle and reuse of the treated effluents in the plant.
- Public awareness raising programmes are also important for the preventive measures.

4.4.10. Solid Waste Management

Solid waste generated during construction phase comprise of soil, used bags, bricks, concrete, MS rods, tiles, wood etc, Excavation of the soil will make the soil loose thereby making soil prone to wind and water erosion. Development of project will lead to loss of topsoil. Construction & demolition waste (debris, unused iron bars or damaged support structures, quarry dust) may affect soil at the site, if such wastes are disposed in an uncontrolled manner. In case fuel/oil is stored at site then occurrence of accidental fuel spillage or leakage cannot be ruled out which in the process will contaminate the adjoining soil strata. Such soil contamination can be severe in case of voluminous leakage, thus are required to be managed. Movement of construction vehicles and equipment may lead to soil compaction on haulage roads and soil in nearby area, if the vehicle/equipment are parked in nearby areas. Soil may be contaminated due to inappropriate disposal of liquid waste, (lubricating oil and fuel spills, waste oil and lubricant and vehicle/equipment washing effluent) and solid waste (fuel filters, oily rags) likely to be generated from repair and maintenance of transport vehicles, construction equipment and machinery. Soil may also be contaminated due to inappropriate disposal of domestic solid waste and sewage from construction camps. But such a surface soil contamination will be short term and insignificant in nature. But in proposed project, the workers can be tapped from nearby village so there will be no issue of generation of domestic waste and sewage from labour camps. The impact during construction phase will be temporary till the construction process and will be insignificant as all the waste will be managed as per the guidelines as mentioned below:

Mitigation Measures

- Entire excavated soil will be re-used completely either for filling or for landscaping purpose.

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- Recyclable material will be sold to authorized recyclers and remaining will be disposed off at the designated locations by Municipal Authorities as per C & D Waste Management Rules, 2016 and further amendments.
- Excavation and filling operation shall be carried out in parallel so as to minimize the soil erosion. Unusable debris material shall be suitably disposed off at the designated locations by Municipal Authorities as per C & D Waste Management Rules, 2016
- Compaction of soil shall be undertaken by sprinkling the water to minimize the surface runoff and erosion.
- Prohibiting usage of plastic bags and thermocol disposables.
- Construction & demolition waste generated should be segregated at site into recyclable, reusable & rejected fraction. Recyclable should be sold to authorized vendor, reusable waste should be stored at site for usage and rejected fraction should be disposed as per C & D Waste Management rules, 2016.
- Adequate toilets & bathrooms shall be provided to prevent open defecation. Sewage shall be disposed-off on a daily basis at STP.
- Storm water drainage network along with sedimentation tank has been already developed at the site to minimize soil erosion.
- Fuel, hazardous waste like used oil from DG sets shall be stored in HDPE containers and shall be stored on paved surfaces in isolated location to prevent its spillage and contamination of soil. Used oil shall be disposed of through authorized vendors only.
- Movement of construction vehicles shall be restricted to the designated roads only to prevent compaction of soil in other areas.

4.4.11. Impact on Ecology

The initial construction works at the project site involves land clearance. The construction of main plant will be within existing plant premises. Since land is already for industrial purpose, during construction phase, there will be minimal disturbance of vegetation.

For site clearance for main plant and ash pond approximately 1,955 trees need to be removed. No significant vegetation removal is needed for the 4 hectares of land designated for the railway siding.

Deposition of fugitive dust on pubescent leaves of nearby vegetation may lead to temporary reduction of photosynthesis. Such impacts would, however, be confined mostly to the initial periods of the construction phase and would be minimized through adoption of control measures such as paving and surface treatment, water sprinkling and plantation schemes.

The runoff from construction area may lead to a short-term increase in suspended solids and decrease in dissolved oxygen near the discharge point in receiving water body. This may lead to a temporary decrease in the photosynthetic activity of phyto-planktons, rise in anaerobic conditions and food chain modification.

Mitigation Measure

- MUNPL Meja Stage-I was developed on Plateau/rocky land. Plantation and its survival in such land profile is a challenging. At present about 163 Ha with survival percentage of 81.7% is carried.

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- Following consultations with the Divisional Forest Office, MUNPL plans to expand the additional greenbelt of 318 Ha area within the plant.
- Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land.
- Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary.
- A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided.
- Water sprinkling shall be done at regular interval in dust generating areas.
- Adequate toilets & bathrooms shall be provided to prevent open defecation. Sewage shall be disposed-off on regular basis in STP.
- Storm water drainage network along with sedimentation tank has been already developed to arrest the sedimentation.

4.4.12. Socio-economic environment

The land is already in possession of MUNPL. Proposed expansion shall be done with in the existing premises. For development of Ash Dyke (89 Ha), greenbelt and other (21 Ha) for the Stage-II, an additional land of 110 Ha. (Govt land) shall be required for acquisition. No forest land is involved. This will impact land use patterns of 110 Ha to industrial use.

The other social impacts associated with project are people, will get subjected to additional pollution stress, noise from heavy vehicles, road accidents, lower aesthetics of natural beauty, etc. There are no cultural and archaeological sites present with in the project influence area as well as study area of the site hence an impact on the archaeological site is not anticipated.

However, some positive impacts are also associated with the project. This expansion project will provide employment opportunities for the local people. In terms of gross economic yield will accrue on account of the project. The gross economic yield will increase through increase in high economic group and subsequent market multiplier effect and indirect employment opportunities will generate due to indirect job opportunities in the area. The proposed expansion power plant will require skilled, semi-skilled and unskilled personal during construction and operational phase. Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase.

The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment) and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases.

Mitigation Measures

- R&R of 50 families shall be made in consultation with the Dist. Authorities.
- MUNPL has earmarked a fund of Rs. 26.24 Cr. for addressing the R&R issues involved for acquisition of additional land.

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- Short term positive impacts will result in better quality of life. The project proponent/ contractors shall ensure that most of the workforce shall be engaged from the nearby villages/town.
- The total manpower from various agencies during construction of Stage-II would be about 5406 (60 permanent and 4986 temporary) during peak deployment.
- During the construction phase, DG sets should be operated only as a backup power at project site. Adequate provision should be made to mitigate the problem.
- The construction materials, which will be used at the project site shall be sourced from authorized dealer.
- Increase in population density in core zone study area due to workforce involvement during construction phase is only for short term impact.

4.5. Impacts During Operation phase

4.5.1. *Identification of Probable Impacts*

The probable impacts during operation phase on various sectors of environment (such as air, water, soil, biotic, socio-economic environment etc. have been identified and listed in **Table 4.4**. The mitigation measures for significant impacts are also discussed in respective sections.

Table 4.4 : Identification of Probable Impacts (during Operation Phase)

Operation and Maintenance Activities	Sector	Probable Impacts
Transportation of coal/ oil	Air	• Noise and air emissions from vehicles • Fugitive dust emissions due to traffic movement • Spillage and fugitive emissions of coal/ oil
	Water	• Spillage of coal/ oil and flow into streams
	Public utilities	• Increased flow of traffic • Congestion on roads
Unloading, crushing and storage of crushed coal/ unloading and storage of oil	Air	• Noise and air emissions from vehicles • Fugitive dust emissions from coal handling areas
	Water	• Effluents for CHP/ oil storage areas • Effluents from dust extraction/ suppression systems • Run-off from coal stock yard
Burning of fuel	Air	• Stack emissions (PM, SO_2 and NOx)
Withdrawal of water	Water	• Reduced availability to downstream users • Reduced flow in downstream direction/ change in regime
	Ecology	• Entrapment/ Impingement of organisms
Water treatment for various uses	Water	• Generation of effluents and sludge from treatment plant • Clarifier sludge • Filter backwash • DM plant regeneration waste • Tube settler sludge
Power cycle	Water	• Discharge of blow down
Equipment cooling	Water/ Ecology	• Discharge of hot water containing chemicals/ biocide
Transportation, storage & use of chemicals/ Cl_2O	Air/ Water	• Risks of accidental spillage/ waste of chemicals
Operation of transformers and switchyard	Water	• Generation of effluents containing oil
Maintenance (cleaning, over-haul, oil change, lubrication etc.)	Water	• Generation of effluents containing oil/ chemicals

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Domestic use of water in plant and township	Water	• Generation of sanitary effluents
Transportation of lime	Air	• Minimal fugitive emissions due to rail transportation
Disposal and storage of gypsum	Water	• Generation of effluents and sludge

4.5.2. *Impact on Air Quality*

4.5.2.1 Sources of emission and Model used

Emissions from point sources at TPP are very important for impact assessment as these sources are comparatively large, continuous in nature and are released at higher elevations above ground level. The impacts on air environment from stacks depend on the quality of Coal used and can extend far distances depending on prevailing meteorological conditions.

The impacts of air pollution from a Coal based thermal power plant (TPP) on air quality depend upon various factors, viz. design capacity, process technology, quality of fuel (coal) used for combustion, operation & maintenance of process units and air pollution control equipment installed. The severities of impacts on air environment from any thermal power project are also governed by terrain conditions around the project site and the prevailing micro-meteorological conditions in the project region. Generally, thermal power project besides the main units like boilers, turbines also have several onsite and offsite facilities, viz. Coal yard, conveyor system, Coal crusher/pulverizes, Coal handling (loading/unloading) etc. which also contribute to air pollution in the form of fugitive emissions.

The major air pollutants from a TPP are Particulate Matter (PM), SO_2, and NOx which are emitted continuously from the stacks (point sources), attached to Coal combustion boilers.

Prediction of impacts on air environment is carried to using mathematical model based on a steady state Gaussian plume dispersion model. In the present case, AERMOD Version 9.8.1 dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from point sources. The model set-up details are presented in **Table 4.5.**

Table 4.5 : Model Set-Up

S. No.	Parameter	Details
1	Model Name	AERMOD (Version 9.8.1)
2	Model Type	Steady state Gaussian plume air dispersion model
3	Topography	Rural, Flat
4	Averaging Time	24 hours
5	Source Type	Point source
6	Boundary Limits	10 km X 10 km
7	Co-ordinate System	Uniform Cartesian Grid
8	Receptor Height	Ground level
9	Anemometer	10 m

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S. No.	Parameter	Details
10	Surface meteorological data	Site Specific data processed by AERMET
11	Upper air Data	Upper air Estimator using AERMET processor

4.5.2.2 *Model Input Data*

For modeling purposes, pollutants like PM, SO_2 and NOx are considered. Their net emissions have been calculated for modeling purpose. The details of the emissions considered from the proposed expansion project are presented in **Table 4.6.** Different scenarios for stack emission is given in **Table 4.7.** Incremental GLC is presented in **Table 4.8.**

Table 4.6 : Stack Emissions from MUNPL

S. No	Parameters	Units	MUNPL		
			Stage-I (2x 660 MW)	Stage-II (1x 800 MW)	Stage-II (2x800 MW)
1	Stack Height	m	275	150*	220
2	No. of flue per stack	No.	2	1	2
3	Number of stacks	no	1	1	1
4	Flue internal diameter at top	m	7.65	8.8	8.8
5	Flue Gas velocity (at Exit)	m/sec	22	18.3	18.3
6	Flue Gas temperature (at Exit)	°C	124	62	62
7	Flue Gas Flow rate (at Exit)	Nm^3/sec	757.43	868	865 (for each)
8	Rate of coal consumption	TPH	433	446	892
9	Sulphur in coal (maximum)	%wt/wt	0.5	0.5	0.5
	Emission Load				
A	PM	gm/sec	22.72	26.04	51.9
B	SO_2	gm/sec	75.74	86.8	173
C	NOx (100 mg/Nm^3)	gm/sec	75.74	86.8	173
D	NOx (350 mg/Nm^3)	gm/sec	265.10	303.8	605.8

Above data is based on Stage-I Coal and may vary slightly based on actual Coal Source: MUNPL, Meja

Table 4.7 : Different scenarios for stack emissions

	*Scenario:1	Scenario:2
	Stage – I (2x 660 MW) + Stage – II (1x 800 MW) & (2x800 MW)	**Only Stage–II (1x 800 MW) & (2x800 MW)**
Stack Height (mts)	275	220 & 150
	150 & 220 (twin flue)	
	Emission Load	
PM (gm/sec)	100.7	77.94
SO_2 (gm/sec)	335.5	259.8

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	*Scenario:1	Scenario:2
NOx (gm/sec) (100 mg/Nm^3)	335.5	259.8
NOx (gm/sec) (350 mg/Nm^3)	1174.4	909.3
	Maximum Incremental GLC	
PM (µg/m^3)	3.04	2.71
SO_2 (µg/m^3)	10.12	9.05
NOx (µg/m^3) (100 mg/Nm^3)	10.12	9.05
NOx (µg/m^3) (350 mg/Nm^3)	35.43	31.63

**Scenario:1 is considered for the Cumulative Air modelling*

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Table 4.8 : Incremental Data (Considering the Scenario:1)

Ambient Air Quality Locations			Max. Baseline (µg/m³)			Incremental Concentration (µg/m³)			Resultant incremental (µg/m³)			NAAQS Standards (µg/m³)		
Monitoring location	Distance (Km)	Direction	PM	SO_2	NO_x	PM	SO_2	NO_x	PM	SO_2	NO_x	PM_{10}	SO_2	NO_x
AAQ1	Project site	--	94	13.9	17.3	2.42	8.06	8.06	96.42	21.96	25.36	100	80	80
AAQ2	0.7	SW	88	12.2	15.5	1.10	3.66	3.66	89.1	15.86	19.16	100	80	80
AAQ3	1.5	NE	82	9.6	13.2	2.01	6.71	6.71	84.01	16.31	19.91	100	80	80
AAQ4	5.2	NE	84	10.3	12.8	1.21	4.02	4.02	85.21	14.32	16.82	100	80	80
AAQ5	9.4	E	90	11.9	14.5	1.44	4.80	4.80	91.44	16.7	19.3	100	80	80
AAQ6	2.0	S	80	8.8	13.4	1.02	3.39	3.39	81.02	12.19	16.79	100	80	80
AAQ7	3.5	NE	81	9.6	13.2	1.80	6.00	6.00	82.8	15.6	19.2	100	80	80
AAQ8	2.1	W	83	9.3	12.8	2.30	7.68	7.68	85.3	16.98	20.48	100	80	80
AAQ9	0.9	E	85	10.5	13.5	1.96	6.55	6.55	86.96	17.05	20.05	100	80	80
AAQ10	7.0	NE	82	9.9	12.7	1.55	5.17	5.17	83.55	15.07	17.87	100	80	80

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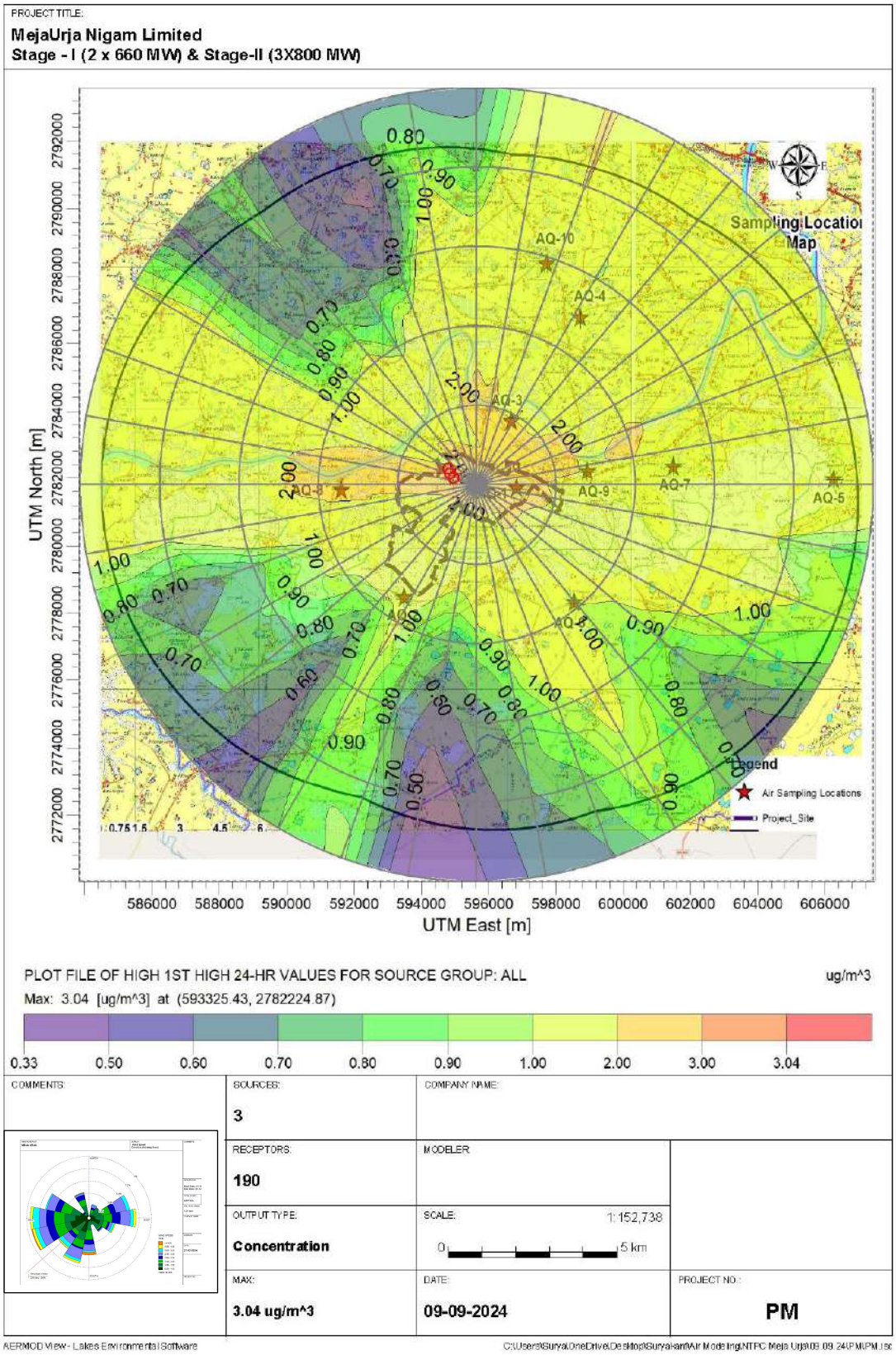


Figure 4.2 : Predicted GLC of PM

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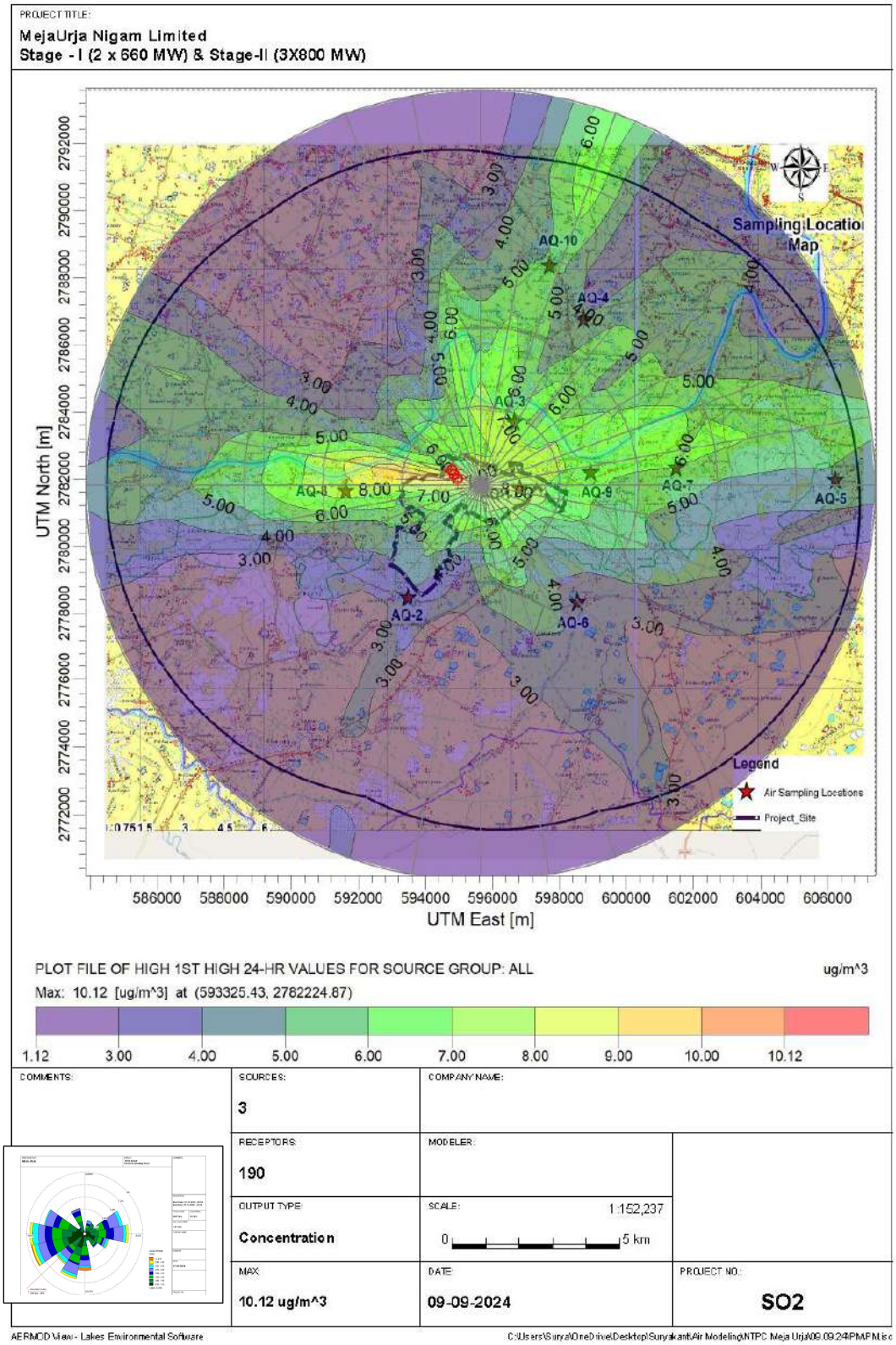


Figure 4.3 : Predicted GLC of SO_2

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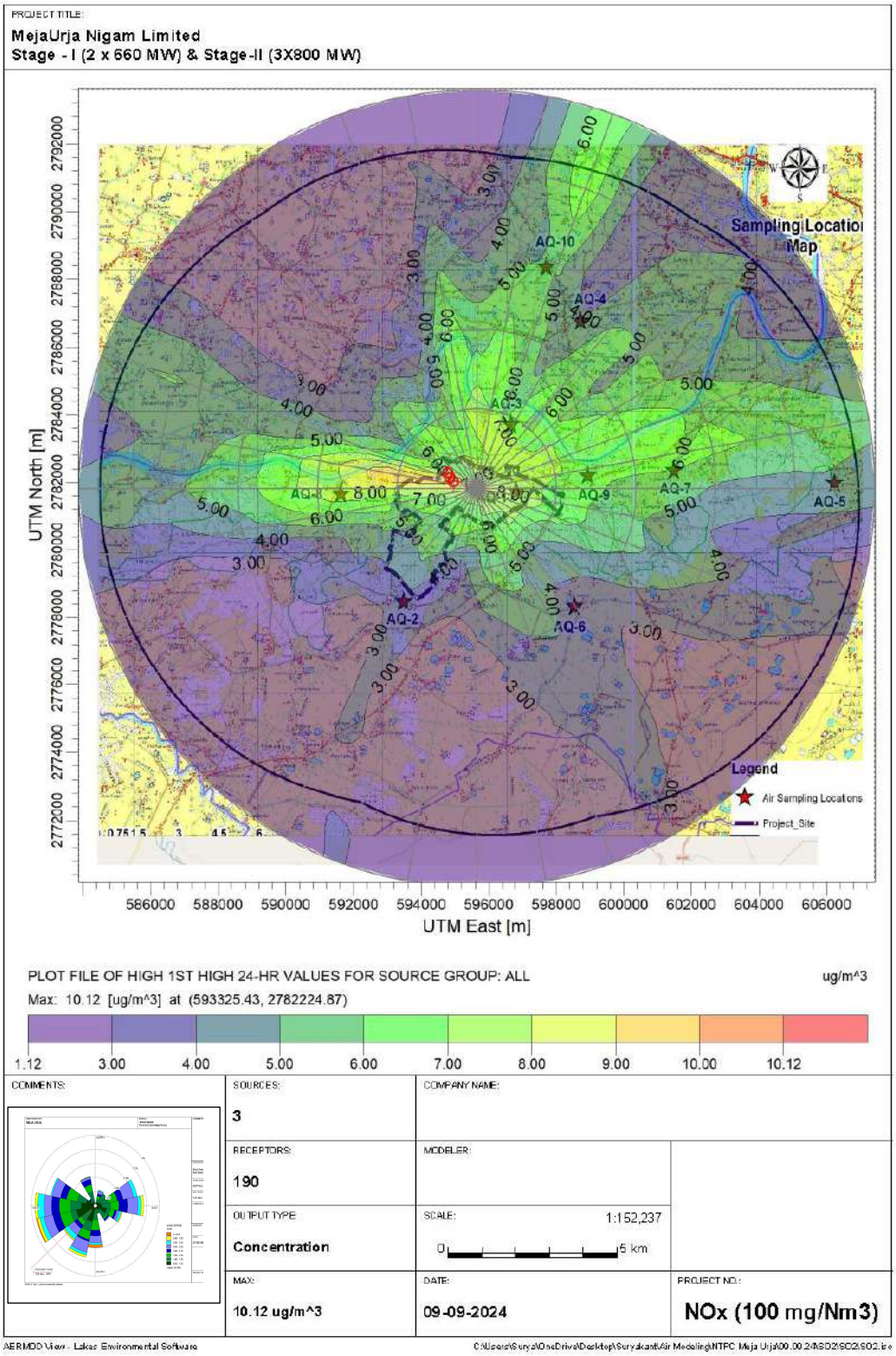


Figure 4.4 : Predicted GLC of NOx

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Fugitive Emissions control

The fugitive dust emissions are expected from coal storage yards, coal conveyor belt area, ash dumping areas, transportation of fuel and solid waste. The dust emissions, if any, from the above areas will be fugitive in nature. The dust emissions are likely to be confined to the place of generation only.

Mitigation Measures

- Tall stack, as per MoEF&CC Notification dated 28.06.2018, will be constructed to facilitate wider emissions. One Twin Flue Chimney (220 m height) and one Single Flue Chimney (150 m height) shall be installed.
- To control the PM emission, high efficiency ESPs will be installed
- NO_x emission from the steam generator shall be controlled by low NO_x Burners/System and combustion staging.
- A wet limestone-based Flue Gas Desulphurization (FGD) system will be installed behind ESP, for control of SO_2 emission.
- In the proposed project, coal handling plant will be properly operated with control measures such as dust extraction and dust suppression system.
- HCSD system of ash disposal will be practiced and hence, no dust emissions are envisaged from ash dump areas.
- Coal will be received through rail line and the solid waste will be sent to dyke areas in slurry form through pipeline. Hence, very minimal amount dust emissions from transportation are envisaged.
- Dust control system will be provided in the Ash Pond area
- Internal roads are to be asphalted to reduce fugitive dust emissions.
- Regular water sprinkling shall be done in dust generating areas.

4.5.3. Impacts of Installation of FGD Plant on Ambient Air Quality

Reduction in SO_2 (Positive Impacts) in Ambient Air: SO_2 emissions react in the atmosphere with ammonia to form fine particles ($PM_{2.5}$ in the form of ammonium sulphate) and with water to form sulfuric acid (acid rain). Particulate Matter (PM) has been linked to heart and lung disease, but also to impacts on brain development and functioning (Brockmeyer & D'Angiulli, 2016; Landrigan et al., 2017). It also impairs visibility. Acidic deposition can reduce soil quality, impair timber growth and harm freshwater ecosystems (US EPA, 2011). In estimating the benefits of reducing SO_2 emissions, specially focus on health benefits.

The Flue Gas Desulfurization (FGD) plant removes sulphur dioxides (SO_2) from flue gas produced by boilers, furnaces, and other sources. The FGD effectively contributes to the prevention of air pollution due to SO_2, which in turn reduces the impacts on human and plant health.

Impact due to CO_2 emission: The attempt to solve the problem of sulphur dioxide emissions by using the wet scrubbing FGD system may in fact create another long term impact of greenhouse gas as the chemical process replaces SO_2 emissions with CO_2 emissions. Each molecule of SO_2 removed from flue gas leads to emission of a molecule of CO_2 formed during

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the reaction. However, as the sulphur content in the Indian Coal is low, the additional CO_2 emitted due to FGD is very small (of the order of 0.4% of total CO_2 emitted from power plants).

Gypsum management and utilisation: Gypsum is a valuable product with the following uses/ users:

- Cement Industries – Set retarder (Estimated annual consumption is 10-12 Million Tons in Cement Industry and which is expected to grow 6-7%).
- Building Industries – Projection plaster/Gypsum Vermiculite Plaster (GVP), self levelling floor screeds, Gypsum plaster boards, Gypsum blocks, bricks, artefacts, pottery etc.
- Agriculture – Sodic soil reclamation, soil conditioning and nutrients. Potential utilisation: 35 to 40 Million Tons.
- Export to neighbour countries: Nepal, Bhutan, Bangladesh etc.
- Import substitution: At present gypsum is imported from Oman, Pakistan, which could be substituted for domestically produced FGD Gypsum.
- NTPC has an approved policy for management and sale of gypsum generated from its power projects. The policy includes the following options for 100% utilisation of gypsum
- Installation of POP/Gypsum Plaster Plant at NTPC Stations
- Sodic soil reclamation: as an initiative for community development
- Sale of Raw Gypsum on as where basis

4.5.4. Impact on nearest settlement

The closest inhabited settlement to the project site is Mai Khurd village, which is situated approximately 0.5 kilometres to the northwest (in the crosswind direction) of the project location. Additionally, an educational institution, Vijay Degree College, is located in Salaiya Kala village, approximately 0.68 kilometres to the south-southwest (in the upwind direction) from the project boundary.

To address environmental concerns and minimize pollution from the existing plant, mitigation measures have already been implemented by MUNPL. Furthermore, for the proposed expansion of the plant, additional mitigation strategies have been planned to ensure effective pollution control and adherence to environmental regulations. These measures aim to minimize the environmental impact and maintain air quality standards in the vicinity of the project site.

Mitigation measures

1. State-of-the-art “Ultra Super Critical Technology” with higher efficiency has lesser emission of CO_2 (12-13 % less with respect to sub critical units).

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2. Increase of number of Dry fly ash closed wagon rakes through railways to further reduce the vehicular emission.
3. Use of Low NOx burner will reduce NOx emission.
4. Use of highly efficient ESP will reduce PM emission to less than 30mg/Nm^3 as per MoEF&CC norms.
5. Use of Wet Flue Gas Desulphurization (FGD) will reduce the PM and SO_2 emission as well as low flue gas exit temperature, which shall improve climatic conditions.
6. Additional plantation on 318 Ha land shall be developed on MUNPL land.
7. As a mitigation measure, MUNPL has already undertaken plantation activities in nearby settlements close to the project site. Additionally, as part of the proposed expansion project, a dense greenbelt will be developed within the project area and around the ash dyke. Out of the total 318 ha, approximately 60 ha of land has been identified by MUNPL, prioritizing the nearest settlement, Vijay Degree College, and other sensitive areas.

4.5.5. Cumulative Impact assessment

There are no major industries present within 15 Km radius of the proposed project site hence cumulative impact is not applicable. All the other sources of air pollution in study area is already reflected in baseline condition, the impact of proposed Meja TTP only, which is presented above. The impact and mitigation measures are elaborated.

4.5.6. Impact on Noise Quality

Noise Impact Prediction: Main source of noise in the proposed expansion project are delivery of equipment and raw materials by trucks, Transfer of coal through railway line and conveyor, Operation of generators and turbine inside the powerhouse and Operation of various pumps, fans and motors etc.

With increasing distance from the source the noise level decreases due to wave divergence. Additional decrease also occurs due to atmospheric effects and interaction with objects in the transmission paths. For hemispherical sound wave propagation through homogeneous medium, noise levels at various distances can be predicted using a model based on the following principle:

Lp2 = Lp1 – 20 Log (r2/r1), where Lp1 and Lp2 are the sound levels at points located at distance r1 and r2 from the source. Combined effect of all the sources (A, B, C… etc) can be determined at various locations by the following equation:
10 Log (10lpa/10 +10lpb/10 + 10lpc/10), where lpa, lpb and lpc are noise pressure levels at a point due to different sources.

Based on the above principle, Noise Model has been developed where noise levels can be predicted at any distance from the source for simple flat terrain. Attenuation factors are not applied hence the modelled results are overestimate.

The maximum noise expected from the plant is 94.6 dB(A) (from turbine generator at 1 m distance from source). Other noise levels will be around 85 to 94 dBA. **Figure 4.2** shows the noise contours at distance 100 m, 200 m, 300 m, 400 m, 500 m from 94.6 dBA source strength. At 200 m distance the predicted noise values are 37.6 dB(A). At 500 m distance the predicted values are 29.6 dB(A).

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Baseline ambient daytime and nighttime Noise levels recorded at nearest village (Kohdar) outside the project area (0.9 km, northeast from project boundary) was found to be 52.0 and 41.7 dB(A) respectively which was found within the standard i.e. 55 dB(A) during daytime and less than 45 dB(A) during night time. The predicted noise level at 500 m distance from source is 29.6 dB(A). Therefore, there will be insignificant impact on the ambient noise quality of the surrounding villages.

The standards for occupational exposures - tolerable level is 90 dB(A) for 8-hour exposure. This level will be achieved inside work area through use of properly maintained machines, pumps, compressors, and vehicles. In case of overexposure found inside working area, workers will be provided with ear plugs/ earmuffs for use so that the exposure is minimized / brought to acceptable level.

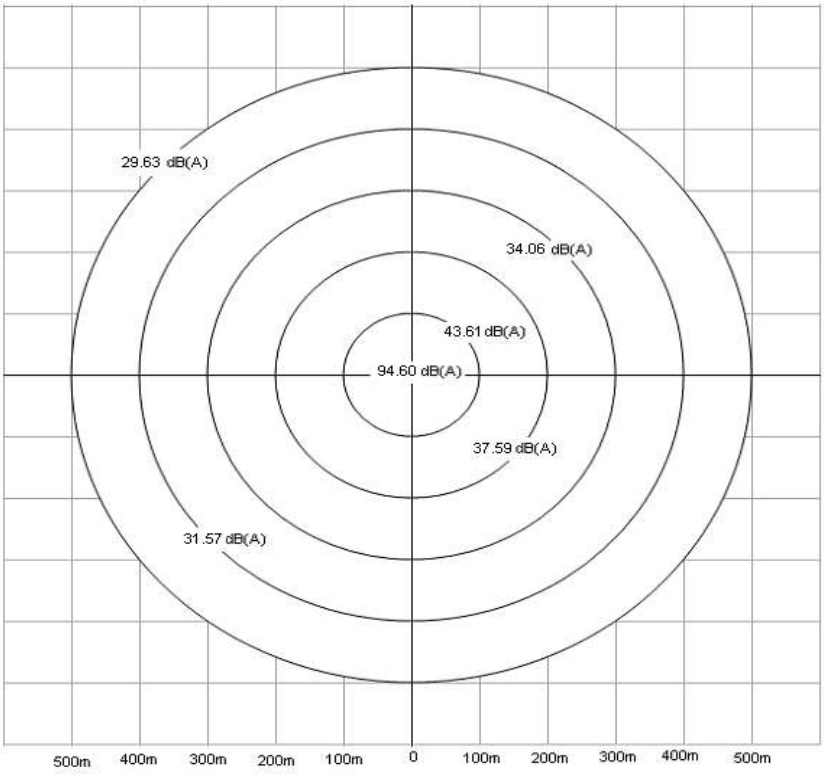


Figure 4.5 : Predicted Noise Level– (source strength 94 dBA)

Mitigation Measure

- Acoustic enclosures shall be provided wherever required to control the noise level below 85 dB(A).
- Wherever it is not possible technically to meet the required noise levels, the personnel protection shall be provided.
- Provision of plantation in available spaces, wherever feasible, will further help in reducing the noise levels.
- To protect the workers within plant area, adequate protective measures in the form of ear-muffs/ ear plugs/ masks shall be provided, which will minimize/eliminate adverse impacts.

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Impact on Work Zone: There are, turbine, boilers, pumps and motors are the noise generating. However, impacts on the working personnel are not expected to be significant on account of the high level of automation of the plant, which means that workers will be exposed for short duration only that too intermittently.

Mitigation Measure

- To protect the workers within plant area, adequate protective measures in the form of ear-muffs/ ear plugs/ masks shall be provided, which will minimize/eliminate adverse impacts.

4.5.7. Impact on Water Resources and Water Quality

Impact on Water Resources and Water Quality

Water requirement for existing Stage-I is about 39 Cusec and is presently being drawn from Ganga River. Govt. of UP (GoUP) has allocated 44 Cusec of water for Stage-I. The water requirement for Stage-I is 39 Cusec and Surplus water available is 5 Cusec. The make-up water requirement for stage - II would be about 30 Cusecs with bottom ash as lean slurry and fly ash as HCSD system for ash handling. For meeting the requirement of Stage-II, an additional water allocation of 25 Cusec shall be obtained from GoUP from Ganga River. Additional make-up water pipeline shall be laid for STG-II water drawl from River Ganga.

Air Cooled Condensers (ACC) is envisaged for Stage-II (3x800 MW) units. The consumptive water requirement for Stage-II includes make up water requirement and various evaporation losses. Out of total makeup water requirement (3000 m^3/Hr), approx. 2950 m^3/Hr will be used for industrial purposes and about 50 m^3/Hr for domestic purposes.

The water system for the project has been developed to reduce the quantity of effluents generation from the plant and recycle and reuse of the same to meet various plant usages after proper treatment, as required. The water system of the proposed project has been designed with Zero Liquid Discharge (ZLD) concept. The proposed expansion project is expected to generate 2065 m^3/Hr effluent through different sources and shall be completely recycled/reused within the plant processes with and without treatment. Out of 2065 m^3/hr of wastewater, only 150 m3/hr requires treatment through ETP (300 m^3/Hr) before re-use. The domestic wastewater generated from the plant and township shall be treated in STP and will be utilized in development of green cover and horticulture.
The entire effluent generation from the project shall be adequately treated, meeting to the statutory requirement and thereafter reused for various industrial purpose up to the maximum possible extent. Treatment and disposal of the waste generated from the proposed expansion unit is provided in following **Table 4.9.**

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Table 4.9 : Wastewater generation, Treatment and disposal (m^3/hr)

Name of the Effluent Stream	Qty. before Treatment	Treatment Accorded	Qty. after Treatment	Net Qty. Discharged	Remarks
Clarifier Sludge from CW clarifier	60	None	60	Nil	Total quantity shall be utilized in ash slurry disposal system, leading to ash dyke.
Clarifier Sludge from DM clarifier	10	None	10	Nil	
DM Plant regeneration waste	15	Neutralization Pit	15	Nil	Total treated quantity shall be utilized in ash disposal system, leading to ash dyke.
Power Cycle Blowdown	30	None	30	Nil	Total qty shall be used in Aux. Cooling makeup system.
Aux C.T. Blowdown	50	None	50	Nil	Entire quantity shall be used in various plant usages *i.e, blow down shall be used in Fire Fighting, Make up to bottom ash handling, Plant, CHP & Dust Suppression system.*
Plant Service Water Effluent	150	ETP Clarification in Tube settler	140	Nil	Total ETP treated qty shall be recycled in plant service water system and balance quantity shall be utilized in ash slurry disposal system.
Ash Water	1750	Settling Pond & Clarification	1700	Nil	Total treated qty (after evaporation loss) shall be recycled and utilized in Ash Handling Plant.
Total	**2065**	-	**2050**	**Nil**	ZLD complied

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About 50 KLD of water shall be used for potable water system. Domestic effluent generated shall be treated in STP. STP treated water shall be used for development of horticulture and development of green cover. Ministry of Power (MoP) vide Office Memorandum (OM) dated 10th January 2023 has exempted from linking and use of Naini Sewage Treated Water by Meja Thermal Power Plant as it is allocated across the river. Copy of MoP OM mentioned above is attached as **Annexure-18**.

4.5.8. Impact on Groundwater Regime

No ground water shall be used for the project during the operation phase. The entire water demand for the project is proposed to be sourced from the Ganga River. Hence, no adverse impact on ground water sources is envisaged. Operation of the proposed thermal power project will not have any long-term impact on water quality as it is proposed to be almost ZLD from plant.

Mitigation Measures

- The filter backwash water of PT Plant shall be collected and recycled back to the DM system clarifier.
- The sludge from clarifiers of Water PT plants shall be taken to a sump/pit and pumped to ash slurry sump for disposal to ash dyke.
- The waste effluents from neutralization pits of DM plant and Condensate Polishing Plant shall be collected in respective neutralization pit and neutralize before pumping to ash slurry sump for final disposal.
- A coal settling pond shall be provided to remove coal particles from coal handling plant waste. Decanted water shall be pumped back to the coal dust suppression system for use. To receive & treat excess storm water (considering rainstorm condition), Clarifier feed pumps (2x50%), reactor clarifier (2x50%), belt filter press (2x50%), Clarified Water Transfer Pumps (2x50%) and required chemical storage & dosing system shall also be provided.
- Service water effluent drains from various areas shall be separately routed to a sump. From the sump, the waste service water shall be pumped up to lamella clarifier / tube settler for treatment. Treated service water shall be sent back to service water tank for possible reuse.
- The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant.
- Drain separation shall be made for plant effluents and storm water.

4.5.9. Impact due to Effluent generation from FGD

Flue Gas Desulphurisation (FGD) system requires water for making limestone slurry. The make-up to the system shall be drawn from clarified water. The effluents generated from FGD System shall be used in bottom ash handling. It shall be discharged into bottom ash dyke which has impervious lining and ash water recirculation system. As there is no effluent discharged from the FGD Plant, no impacts are anticipated on the surface or ground water system.

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4.5.10. Impact due to Solid waste generation

Used oil, Empty/ contaminated drums, ETP Sludge, etc will be generated from the proposed project operation. The waste generated shall be disposed as the Hazardous & Other Waste (Management and Transboundary Movement) Amendment Rules, 2022. Details of the waste generated and their disposal mechanism is described in **Table 4.10**.

Table 4.10 : Details of Waste generation and its Management

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
Empty barrels/container / liners contaminated	Operation and Maintenance works (O&M works)	60	Sale/disposal to authorized recyclers / TSDF.	Road
Spent Ion exchange resin containing toxic metals	Water treatment	2		Road
Used or spent Oil	O&M works	100		Road
Waste residue containing oil	O&M works	10		Road
Insulation waste	O&M works	10	Disposal through TSDF	Road
Asbestos	O&M works	0.1		Road

Other Waste

S. No	Type	Quantity After Expansion	Disposal Plan
1.	Fly Ash	3.024 MTPA	It shall be sent to all users as per list of avenues mentioned in MOEF&CC Notification
2.	Bottom Ash	0.756 MTPA	It shall be sent to all users as per list of avenues mentioned in MOEF&CC Notification
3.	Gypsum	434250 TPA	MUNPL/ NTPC has an approved policy for management and sale of gypsum generated from its power projects. The policy includes the following options for 100% utilisation of gypsum ➢ Installation of POP/Gypsum Plaster Plant at NTPC Stations ➢ Sodic soil reclamation: as an initiative for community development ➢ Sale of Raw Gypsum on as where basis

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Mitigation Measures

- The fly ash and bottom ash are handled separately. Fly ash is transported by the pneumatic conveying system and delivered to the fly ash silos. Then it is carried by end user through bulker or wagons.
- MUNPL has proposed total area of 110 Ha comprising of Ash Dyke (89 Ha), greenbelt and other (21 Ha) near the project boundary.
- The proposed ash pond is for emergency disposal only.
- Fly ash and bottom ash shall be utilized as per the MoEF&CC notification and given to Cement Industries, Tile and brick manufacturer and other users for 100% utilization.
- Petroleum oil tank sludge shall be sent to TSDF.
- Sewage sludge generated from STP will be used as manure in greenbelt development plantation.
- MUNPL/ NTPC has an approved policy for management and sale of gypsum generated from its power projects. The policy includes the following options for 100% utilisation of gypsum
  - Installation of POP/Gypsum Plaster Plant at NTPC/MUNPL Stations
  - Sodic soil reclamation: as an initiative for community development
  - Sale of Raw Gypsum on as where basis
- Used oil or Spent oil will be generated will be generated as per Schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, which will be sold to CPCB authorized recycler.
- Municipal Solid waste generated from plant canteen & colony will be collected, segregated, and disposed off scientifically in compliance of Solid Waste Management Rules, 2016.
- Used Lead acid batteries will be stored in the designated storage area and will be sold to registered vendors as per Battery waste.
- Plastic waste generated will be disposed through authorized recycler.
- E-Waste generated will be disposed to authorised recyclers.
- Dense greenbelt shall be developed in total 481 Ha.

4.5.11. Impacts due to Traffic

Since coal will be transported using rail, no significant traffic movement due to this is envisaged in the proposed project on existing public road network. Water sprinkling on filled rail wagons shall be done at loading point, mid-way and unloading point to minimize fugitive emissions in coal transportation.

Effective implementation of the pollution emission compliance prescribed under Motor Vehicles Act by the transport authorities will minimize the vehicular pollution impact. It will be ensured that the vehicles will be always environmental compliant

Increased use of existing public infrastructure i.e., road due to vehicular traffic involved in transportation of construction material and fly ash during operation phase may cause congestion

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on roads. The proposed site is connected to Prayagraj-Mirzapur Highway. through NH-135 C. The NH-135 C is passing about 0.7 km from the plant site.

NH-135 C is a national Highway having the standard Passenger Car Unit (PCU) capacity. The current condition of NH-135 C is satisfactory and a single lane road. The width of the road is around 7 meters. The ccondition of highways is good and capable to bear the additional traffic load due to the construction vehicles. No village road shall be used for the transportation.

The current daily load on NH-135C is 2019 PCU. During construction phase about 10-12 additional truck movement is anticipated which far below the carrying capacity of the of the Highway i.e. 84 PCU per hour (2019 PCU/day).

During operation phase about 59 LMT per year ash shall be generated. For which on its peak transportation about 16-17 truck of 35 Ton capacity shall be required hour.

And about 1,34,028 TPA of Limestone is required & 2,17,125 TPA of Gypsum will be generated from Stage – I, and about 2,68,056 TPA of Lime stone is required & 4,34,250 TPA of Gypsum will be generated from Stage – II. For which on its peak transportation about 3-4 Truck of 35 Ton capacity shall be required per hour.

For transportation of various material like fuel oil, chemicals, spares etc. will be brought periodically by road network due to which vehicular traffic will increase intermittently.

As per Indian Road Congress (IRC: 64 – Guidelines for Capacity of Roads in Rural Area – Code of Practice, 1990) indicates the design service value of two lane (two way) road is 1500 PCU per hour (36000 PCU/day). The current average load on the NH-135 c is 84 PCU per hour (2019 PCU/day) and the additional load will be around 20 Trucks per hour hence the total load will be around 104 Trucks per hour, which is far below the carrying capacity of the road i.e 1500 PCU/hour. The exiting traffic on these roads is quite low compared to PCU hence the existing road is adequate to cater to the additional traffic load due to the project expansion. Effective implementation of the pollution emission compliance prescribed under Motor Vehicles Act by the transport authorities will minimize the vehicular pollution impact.

Mitigation Measures

- Provide adequate traffic signs and signages to notify residents.
- Install safety mirrors to aid visibility in conflict points.
- Prevent on street parking.
- Provide speed humps to regulate speed of vehicles on local streets.
- Provide pedestrian crossings and dedicated footpath to cater to the walking population.
- Assign traffic wardens to regulate flow of project traffic during peak hours
- Vehicle movement will be regulated inside the site with adequate roads and parking lots shall be provided.
- Track Measures: rail grinding, welding to smooth discontinuities, lubrication, use of soft rail pads, and relocation of signals or turnouts

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- Rolling Stock Measures: effective muffling of diesel locomotive exhaust noise, wheel truing, on-board wheel lubrication, use of disc brakes, dampening of wheels, and use of resilient wheels, wheel vibration absorbers and low-squeal brake blocks.
- In applying mitigate on measures the principles of 'Best Management Practice' (BMP) and 'Best Available Technology Economically Achievable' (BATEA) will be followed.

4.5.12. Impact on Ecological Environment

During the operation phase, activities that might impact on terrestrial flora include, operation of boiler, turbine and generator, coal conveying, disposal of gypsum, fly ash and bottom ash, hazardous and domestic waste disposal. The major pollutants from the operation of coal based thermal power plants are PM, SO_2 and NO_x. Accidental dispersion of flue gas, fly ash and bottom ash might create impacts of terrestrial flora.

Nitrogen and Sulphur containing air pollutants can affect plants health indirectly, via chemical reactions, or directly after being deposited on plant leaves. The direct impact of airborne nitrogen is due to toxic effects, eutrophication, and acidification. Stack emissions such as sulphur dioxide, nitrogen oxides, carbon monoxide and heavy metals (such as mercury). Coal unloading and conveying will also generate particulate matter. Dust for instance will affect plants growth by interrupting physiological processes like transpiration when lodged on leaf surfaces thereby blocking their stomata.

No national park, wildlife sanctuary, biosphere reserve exists within 10 km area of the project. However, there are some schedule-I species are present in the study area. Fugitive emission from ash pond, ash handling area, coal handling, conveyor belt etc will lead to dust deposition in surrounding vegetation that may affect the photosynthesis process of the plant. The predicted concentration of PM due to the project is within the national standard. However, deposition of small amount of pollutants may also affect the surrounding ecosystem. The project is therefore planned with most efficient air pollution control systems for achieving less than 30 mg/Nm^3 dust emission level from all the stacks so that the impact on nearby ecosystem are minimized. Most of the fugitive dust emission generation points are also fitted with efficient air pollution control systems (Plant dust suppression systems). Water sprinkling / dry fog type sprinkling system will be used at material handling points to suppress the generation of fugitive dust.

4.5.12.1 Impact on Avifauna and other terrestrial fauna

The study area has resident avifaunal and commonly found wild faunal species. The noise produced by turbines, generators, compressors, pumps, fans, coal conveyors, and the coal handling plant will be confined to the plant premises, resulting in minimal noise-related impacts. Dust emissions from vehicle movement and the coal handling system are significant potential threats to avifauna and other wildlife if not properly managed. Suggested mitigation measures are outlined in the following section.

4.5.12.2 Impact on Aquatic Ecology:

Water for the project is proposed to be sourced from the Ganga River. There is a concern about the potential negative impact on aquatic fauna during the water supply process and larger aquatic

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organisms (e.g., fish, frogs, and toads) and foreign matter, could drawn into the pumps along the water supply pipeline to the reservoir from the intake point.

The plant is based on Zero Liquid Discharge, hence no wastewater shall be discharged outside the plant premises.

Mitigation Measures

- The incremental emission of air pollutants will not be likely to induce any significant changes in the ecology because the national ambient air quality standards will remain within the limits.
- The project is therefore planned with most efficient air pollution control systems for achieving 30 mg/Nm^3 dust emission level from all the stacks.
- Further the modelling study proves that the incremental MGLC of PM, SO_2 and NOx generated from the proposed plant will be very less and overall incremental GLC will remains within the NAAQS. And it will not have any significant impact on ecology in the study area.
- Most of the fugitive dust emission generation points are also fitted with efficient air pollution control systems (Plant dedusting systems).
- Water sprinkling / dry fog type system will be used at material handling points to suppress the generation of fugitive dust.
- Have a standard operating procedure on how to deal with spills;
- Intake Screens: Install intake screens or mesh at the entry point of the water supply pipeline. These screens can help prevent larger aquatic organisms (e.g., fish, frogs etc.) and debris from entering the pipeline while allowing water to pass through.
- Wildlife Conservation Plan for the Schedule -I species has been prepared to conserve the Schedule-I species. A Wildlife Conservation budget of Rs 3.51 Crores has been earmarked by MUNPL for conservation of Schedule-I species.
- All the process wastewater generated from the plant shall be treated and reused in process.
- The domestic wastewater generated from the toilets, washrooms and canteen of the plant shall be treated in STP.
- Acoustic enclosures shall be provided wherever required to control the noise level below 85 dB(A).
- The equipment like turbine, Compressors, blowers, fans, various drums etc will be provided with Acoustic pad insulation / Acoustic enclosures to limit the noise level as per the standard.
- DG sets will be provided with acoustics enclosures. Mufflers, silencers, acoustics treatment of room will be done wherever required. Equipment will be maintained so that noise level does not increase due to improper maintenance.
- MUNPL has already established a greenbelt covering 163 Ha within its current facility.
- Following consultations with the Divisional Forest Office, MUNPL plans to expand the additional greenbelt of 318 Ha area within the plant.
- Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land.
- Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary.

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- A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is provided.
-

4.5.13. Socio–Economic Environment

Due to proposed project operation and emission of dust, wastewater and solid waste generation and Improper management of waste material (Solid waste or liquid effluents) from the proposed activities may affect the aesthetic look of the area. Due to noise generation during the operation phase of the proposed project, there is no significant impact on the local people is anticipated. There will be air emissions in the operation phase of the plant. There will be generation of direct or indirect employment and efforts will be made to provide unskilled employment to claimants from the project affected families as far as possible in the contract agencies involved in construction and operation of MUNPL. MUNPL will undertake various social development programmes under the banner of Corporate Social & Environment Responsibility (CSR/CER) which will be ultimately improve the infrastructure of surrounding villages.

Mitigation Measures

- All possible air pollutants will be scrubbed properly by various pollution control equipment's before emitting into atmosphere. The norms will be maintained through regular monitoring and analysis of flue gases.
- Domestic sewage is treated in Sewage Treatment Plant and reused in horticulture
- The greenbelt area development and tree plantation will help in enhancing the aesthetics of the plant area.
- All the wastewater generated from the plant shall be treated and reused in process and green cover.
- Demographic profile of the area will undergo significant change. More people will come from other places in search for business and employment. More and more amenities like educational facility, health centres, recreation centres, etc. will come up in the area along with several other infrastructure facilities. Large beneficial impacts in terms of gross economic yield will accrue on account of the project. The gross economic yield will increase through increase in high economic group and subsequent market multiplier effect. The benefits accrued will be tremendous in local as well as in regional context.
- The proposed expansion power plant will require skilled, semi-skilled and unskilled personal during construction and operational phase. Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase.
- The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases.
- MUNPL has earmarked a budget of Rs. 40.1 Cr for undertaking CER/CSR activities based on need-based analysis. This budget is for upcoming 5 years. This money will be spent for

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different CER/CSR activities like agro based livelihood, women empowerment, health and community welfare in surrounding villages.

- With the implementation of the CER/CSR budget, the living conditions will be improved due to the improvement in socio-economic conditions, employment, education, health care and physical infrastructures like roads and other facilities.

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Chapter 5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITES)

This chapter presents a comparative analysis of various alternatives considered to avoid or minimize impacts that would be inevitable if technically (based on design) best-fit technology and site are followed.

5.1. Site Selection

The proposed expansion project shall be accommodated within the existing plant premises. The total plot area is 1295 Ha acquired for Meja TPP Stage-I. The main plant for the proposed Meja Stage-II will be set up in the available land within the existing premises of Meja TPP Stage-I. This site for Meja TPP Stage-I was selected based on the following considerations:

- Availability of suitable and adequate land
- Reliable source of water
- Road and railway access
- Facility for interconnection with transmission system for evacuation of power
- Availability of infrastructural facilities; and
- Environmental aspects.

Some of the existing infrastructural facilities and auxiliaries facilities of Stage-I can be utilized for the proposed Stage-II project. That will reduce the land requirement and other resources considerably.

5.1.1. Alternate site analysis for Existing Plant

The site for Meja TPP was initially identified based on the following considerations:

i. Availability of suitable and adequate land
ii. Distance from source of coal
iii. Distance from reliable source of water
iv. Road and railway access
v. Availability of infrastructural facilities
vi. Environmental aspects

Subsequent to signing of MOU with NTPC, the following two alternative sites were examined:

1. Alternate Site-I: Site near Village Pratappur
2. Alternate Site-II: Site near Village Kohdar in Meja Tehsil

Relative merits and demerits of Alternate Site-I and Site-II are discussed in the following sections.

1. Site Near Village Pratappur (Alternate Site-1)

Location & Approach: This site is located on right side of Prayagraj Banda highway (when approached from Prayagraj) at a distance of about 1.5 Km from highway. This site is on the right bank of River Yamuna. Distance from Prayagraj would be about 55 Km.

Land: About 445.15 Ha land is available which is not sufficient for locating a large capacity power project. The land is irrigated and agricultural. The land is fairly levelled.

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Water: River Yamuna which is located about 2 Km north to the proposed site. At the proposed site, about 2-3 feet of water was observed. An intake river pump house with lift pumps (horizontal centrifugal pumps) of Baghla irrigation canal has been provided.

An independent river pump house needs to be provided on River Yamuna to meet plant make-up water requirement.

Coal: Raw coal is proposed as fuel. Likely coal source for the project is BCCL/NCL/CCL/SLC

Environmental Aspects: There are no metropolitan cities within 25 Km from the proposed site and the site is 500 m away from Highways, Railway Lines and Rivers. There are no national parks or wildlife sanctuaries within 25 Km of the proposed site. The land is mostly wet agricultural irrigated through canal system.

2. Site near Village Kohdar in Meja Tehsil (Alternate Site - II)

Location & approach: The Alternate Site -II is located near villages Kohdar and Laltara of Meja Tehsil in Prayagraj district of Uttar Pradesh, southwest of Prayagraj-Mirzapur road. Nearest railway station is at Meja Road at approx. 20 Km and nearest commercial airport is at Prayagraj is approx. 50 Km from the site.

Land: About 1011 Ha of land (mostly barren, rocky and highly undulating terrain with undulation to the tune of 10 to 15 meters) is available.

Water: River Tons flows adjacent to the proposed site and River Ganga is about 22 Km from site. Water requirement can be sourced from River Ganga.

Coal: Raw coal is proposed as fuel. Likely coal source for the project is BCCL/NCL/CCL/SLC.

Environmental Aspects: There are no metropolitan cities within 25 Km from the proposed site and the site is 500 m away from Highways, Railway Lines and Rivers. There are no national parks or wildlife sanctuaries within 25 Km of the proposed site. As the land is mostly hilly undulating terrain, free from habitation, the acquisition may not involve major Rehabilitation & Resettlement issues.

Conclusion: Keeping in view of basic inputs like availability of sufficient land free from agriculture, availability of water, the site near village Kohdar (Site-II) in Meja tehsil has been found to be techno- economically and environmentally suitable out of the two alternate sites.

5.2. Power Plant Technology & Alternatives

Coal-fired power generation is achieved by coal combustion through a boiler, heating high-pressure water in a heat-transfer pipe by high-temperature combustion gas to produce steam that runs a turbine. The principle of thermodynamics states that power generation efficiency becomes higher as steam temperature and steam pressure increase. High-temperature, high-pressure steam is utilized to generate power is key to higher power-generation efficiency. Once it boils, water changes into steam. As pressure gets higher, the boiling point also increases. Once

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pressure reaches a critical point (374^{O}Celsius, 22.1 MPa), water is turned into a supercritical (SC) pressure unit; the later system ensures higher efficiency.

The technological developments in the past decades have primarily involved increasing plant thermal efficiencies by raising the steam pressure and temperature. Based on the differences in temperature and pressure, the technology is categorized into three tiers:

a) Sub-Critical
b) Super Critical (SC)
c) Ultra Super Critical (USC)

a) Sub-Critical Units

Sub-Critical conditions occur when the steam pressure is below 221.2 bar(a) where mixture of steam and water co-exists. Typical steam pressure for sub-critical units will be about 170 kg/cm2 (a). Subcritical power plant units in India operate at steam conditions 170 kg/cm2(a) main steam pressure and at 540 degree Celsius main steam and reheat steam parameters at turbine inlet.

b) Super-Critical Units

Super-critical conditions occur when the boiler steam pressure increases above the critical pressure of 221.2 bar(a). Above this point, two phase mixtures of water and steam cease to exist and are replaced by a single supercritical fluid. This eliminates the need for water/steam separation in drums during operation, and allows a simple separator to be employed during start-up conditions. Supercritical technology operates above steam/water critical pressure of 221.2 bar(a) and 374.15 degree Celsius.

Supercritical steam parameters: Steam pressures up to 250 kg/cm2(a) and steam temperatures ranging from 538 degrees Celsius to 593 degrees Celsius at turbine inlet.

c) Ultra Super Critical

In case of Ultra Super Critical Steam Pressure upto 270 kg/cm2(a) and steam temperature ranging from 600-610 degrees Celsius at turbine inlets are applied, which results into higher efficiency as compared to super-critical plants.

5.3. Advantages of Ultra-Super Critical Technology

The Ultra Super-Critical technology based thermal power plants have following advantages:

- **Higher Efficiency**

Ultra-Supercritical steam conditions improve the turbine cycle heat rate significantly over subcritical steam conditions. The extent of improvement depends on the main steam and reheats steam temperature for the given supercritical pressure.

A typical Ultra-Supercritical cycle having turbine throttle pressure of 270 bar with temperatures for steam 600 degree Celsius respectively, will improve the station heat rate by more than 7.5%. This results in fuel savings to the extent of 7.5%. Overall supercritical power plant efficiency of 42% is achievable with current supercritical parameters.

- **Lower Emissions**

Improved heat rate results in 7.5% reduction in fuel consumption and 7.5% reduction in CO2 emissions per MWh energy output.

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- **Operational Flexibility**

Supercritical technology units also offer flexibility of plant operation such as shorter start-up times, faster load change flexibility and better temperature control, better efficiency even at part load due to variable pressure operation and high reliability and availability of power plant. The above steam parameters for ultra supercritical technology are considered in this expansion project.

5.4. Condenser Cooling Technology & Alternatives

As a part water conservation measure Air Cooled Condensers (ACC) is envisaged which will reduce the water requirement from 7200 m^3/hr (in case of wet cooling tower) to 3000 m^3/hr (ACC).

Dry cooling option shall be adopted at MUNPL Meja TPP Stage-II. The condenser shall be a direct air-cooled condenser wherein the finned cooling tubes shall be arranged in the form of an inclined roof. Circulating air fans shall be installed below the roof for forced air circulation. The combination of roof and one fan forms one module. The whole condenser shall consist of several modules based on required surface area. Hence at MUNPL Meja TPP Stage-II, ACC is considered.

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Chapter 6. ENVIRONMENT MONITORING PROGRAMME

This chapter presents a monitoring programme for pollution control at source, monitoring pollutants at receiving environment for appropriate notified parameters, specific programme to ensure safe working environment.

6.1 General

Regular monitoring in a systematic manner provides information on operational performance of installed pollution control facilities, checks the extent of environmental degradation taking place and adequacy of mitigation measures applied. The monitoring plan also ensures compliance with the environmental legislation. The objectives of the monitoring plan are as follows:

- To verify the results of the EIA Report.
- Verify effectiveness of planning decisions and measure the effectiveness of the operational procedures.
- To study the trend of various pollution parameters, which are identified as critical.
- To check the efficacy of pollution control equipment.
- To ensure that any additional parameters, other than those identified in the EIA, do not become critical after the commissioning of plant.
- Confirm the statutory and corporate compliance

The effectiveness of monitoring program depends mainly how best the objective of the monitoring is addressed through its core elements, for example.

- Monitoring network
- Manpower and Instruments
- Parameters to be monitored
- Frequency of monitoring
- Method and duration of sampling
- Method of analysis

Environment Monitoring Group (EMG) exist, and it will be strengthened. Following monitoring plan is suggested to verify the safeguards and pollution mitigation measures. The attributes which merit regular monitoring based on the environment setting and nature of project activities are listed below:

- Source emissions and ambient air quality
- Work zone air quality monitoring near ash silo, coal handling plant, loading and unloading points, etc. for PM10.
- Groundwater levels and ground water quality.
- Water and wastewater quality (water quality, effluent & sewage quality etc).
- Solid and hazardous waste characterisation (fly ash, bottom ash, oily wastes, ETP sludge, used and waste oil).
- Soil quality.
- Noise levels (equipment and machinery noise levels, occupational exposures and ambient noise levels)
- Green belt development.

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All the above observations shall be compiled and documented by the environment management department to serve the following purposes.

- Identification of any environmental problems that are occurring in the area.
- Initiating or providing solutions to those problems through designated channels and verification of the implementation status.
- Controlling activities inside the plant, until the environmental problem has been corrected.

Table 6.1 : Name of Instruments Required for Environmental Monitoring

S.No	Name of Instruments	Number	Purpose	Budget in Rs.
1	PM_{10} Sampler	2	Air Quality Monitoring	Rs. 2.0 Cr for environment monitoring
2	$PM_{2.5}$ Sampler	2	Air Quality Monitoring	
3	Refrigerator	1	Preserving collected samples	
3	Spectrophotometer	1	Analysis of air and water samples	
4	pH meter	1	pH measurement	
5	Conductivity meter	1	Conductivity measurement	
6	DO Meter	1	DO measurement	
7	Electronic Balance	1	Weighing	
8	Oven	1	Drying	
9	Desiccator	1	Desiccation	
10	Stack Monitoring Kit	1	Stack Monitoring	
11	Online PM Monitor	1	Power Plant stack	

6.2 Proposed Environmental Monitoring programme

6.2.1. Construction Phase

The constructional activities involve clearing of vegetation, mobilization of constructional material and equipment. Moreover, mobilization of constructional material & equipment for excavation of earth etc. will be involved. The construction activities are expected to last for a 5-6 year period. The generic environmental measures that need to be undertaken during project construction stage are given in the following **Table 6.2**.

Table 6.2 : Environmental Monitoring during Constructional Phase

Potential Impact	Detailed actions to be followed as per EMP	Parameters for Monitoring	Frequency of Monitoring
Air Emissions	All equipment are operated within specified design parameters.	Random checks of equipment logs/ manuals	Periodical Monitoring
	Vehicle with PUC certificate to be allowed	Vehicle PUC to be checked	Periodical/ Random Monitoring
	Compaction of soil during various construction activities	Construction logs	Periodical Monitoring

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Potential Impact	Detailed actions to be followed as per EMP	Parameters for Monitoring	Frequency of Monitoring
	Ambient air quality within the premises of the proposed Industrial Area to be monitored.	Gaseous emissions Particulate matter, SO_2, NOx and CO	Periodical Monitoring
Noise	List of all noise generating machinery onsite	Equipment logs, noise reading	Regular Monitoring
	Generation of vehicular noise	Maintenance of records of vehicles	Periodical Monitoring
	Implement good working practices (equipment selection and siting) to minimize noise and also reduce its impacts on human health (ear muffs, safe distances, and enclosures).	Site working practices records, noise reading	Periodical Monitoring
	No machinery running when not required.		
	Acoustic mufflers / enclosures to be provided in large engines	Mufflers / enclosures shall be in place	Prior to use of equipment.
	Noise to be monitored within the plant premises	Noise levels will be recorded	As per CPCB/SPCB requirement
	Noise level will not exceed the permissible limit both during day & night times.		
	All equipment's operated within specified design parameters.	Random checks of equipment logs/ manuals	Periodical Monitoring
Wastewater Discharge	No direct discharge of wastewater to be made to surface water, groundwater or soil	No discharge hoses shall be in vicinity of water courses	Periodical Monitoring
	The discharge point would be selected properly and sampling and analysis would be undertaken prior to discharge	Discharge norms for effluents as given in permits	Periodical Monitoring
	Take care in disposal of wastewater generated such that soil and groundwater resources are protected.	Discharge norms for effluents as given in permits	Periodical Monitoring
Soil Erosion	Minimize area extent of site clearance, by staying within the defined boundaries	Site boundaries not extended / breached as per plan document	Periodical Monitoring
	Protect topsoil stockpile	Effective cover in place.	Periodical Monitoring

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Potential Impact	Detailed actions to be followed as per EMP	Parameters for Monitoring	Frequency of Monitoring
Drainage and effluent Management	Ensure drainage system and specific design measures are working effectively. The design to incorporate existing drainage pattern and avoid disturbing the same	Visual inspection of drainage and records thereof	Periodical Monitoring
Waste Management	Implement waste management plan that identifies and characterizes every waste arising associated with proposed activities and which identifies the procedures for collection, handling & disposal of each waste arising.	Comprehensive Waste Management Plan should be in place and available for inspection on-site. Compliance with MSW Rules, 2016 and Hazardous Wastes (Management and Handling Rules), 2016	Periodical Monitoring
Non-routine events and accidental releases	Plan will be drawn, considering likely emergencies and steps required to prevent / limit consequences.	Mock drills and records of the same	Periodical Monitoring
Health	Employees and migrant labour health check ups	All relevant parameters	Regular checkups

6.2.2. Environment Monitoring Plan for Operation Phase

A. Noise Quality Monitoring:

24 hrs reading shall be collected for ambient Noise monitoring which includes monitoring during daytime as well as night time. The monitoring shall be carried out as per CPCB guidelines, through Ministry of Environment, Forests and Climate Change (MoEF&CC) recognized laboratory using standard instruments and methodology. The noise monitoring in work zone and at surrounding villages shall be done as follows

Table 6.3 : Equipment and Noise monitoring Plan

Component	Location	Parameter	Monitoring & Analysis Method	Monitoring Frequency
Noise Levels Monitoring	Equipment and Workplace (all units)	Average Leq values and Maximum value of Sound Pressure Level in dB(A)	CPCB method using equipment as per IS-9989 & IS:9779	Quarterly
Ambient Noise Levels	Plant Boundary (4 sides), nearest villages outside the plant (at 9 nearest villages)	Leq values in dB(A)	CPCB method using equipment as per IS-9989 & IS :9779	Quarterly (day & night time)

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B. Air Quality Monitoring:

Four continuous ambient air monitoring station to monitor $PM_{2.5}$, PM_{10}, SO_2, NO_2 have already been installed for Stage-I. Continuous Metrological station is also installed at one location in township to monitor Wind Speed, Wind direction, Temperature, Relative Humidity, Rainfall and Solar Radiation. Ambient air of the premises (upwind and downwind of fugitive dust generating point like unloading point /coal handling plant/ stock yard /silo/ near ash pond, etc.) shall be manually monitored quarterly using High Volume Sampler as per method prescribed by CPCB. Continuous stack monitoring shall be installed for the proposed stack's, beside that third party monitoring shall be conducted in every three months.

Ambient Air Quality Monitoring of the surrounding villages shall be done manually at four nearest villages. The monitoring height should not be less than 3 m from ground. The station should not have any obstacles around 500 m area. Station should be 500 m away from road. Monitoring shall be done during the construction stage as well as during the operation stage. The sampling details are given in **Table 6.4.**

Table 6.4 : Ambient Air Monitoring Plan

S.No	Monitoring Stations	Parameters for Monitoring/ Proposed Monitoring Program	Frequency of Monitoring	No. of Monitoring locations
1	Continuous Meteorological Station.	Wind Speed, Wind direction, Temperature, Relative Humidity, Rainfall Solar Radiation	Continuous. as per SPCB/CPCB requirements	One at existing location.
2.1	Continuous Ambient Air Quality Monitoring Station.	PM_{10}, $PM_{2.5}$, SO_2 & NOx	Continuous. as per SPCB/CPCB requirements	4 at existing locations
2.2	Ambient Air Quality Monitoring Stations around plant manual monitoring (Respirable Dust Sampler)	PM_{10}, $PM_{2.5}$, SO_2, NOx, NH3, O3, & others as per NAQMS 2009.	Quarterly /as per SPCB norms, through 3rd party laboratory approved by MoEF&CC / CPCB / SPCB / NABL recognized laboratory	3 in existing STG-I and additional 3 locations in STG-II
3	Continuous Stack Emission monitoring system	PM, SO_2, & NOx	Continuous	All stacks
4	Stack Monitoring through Iso-kinetic Sampling	PM, SO_2, NOx & Hg (Particulate Emissions)	Quarterly through 3rd party laboratory approved by MoEF&CC / CPCB / SPCB / NABL recognized laboratory. Twice in a month-inhouse	All stacks

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S.No	Monitoring Stations	Parameters for Monitoring/ Proposed Monitoring Program	Frequency of Monitoring	No. of Monitoring locations
5	Ambient Air Quality monitoring around ash pond, Coal handling plant, material handling areas for fugitive dust.	Particulate matter	Quarterly/ As per SPCB norms through 3rd party laboratory approved by MoEF&CC / CPCB / SPCB / NABL recognized laboratory.	4

C. Water Quality Monitoring:

Water and wastewater monitoring shall be done at observation wells and STP/ETP inlet and outlets respectively. Surface water sample shall be collected from up stream and downstream of Tons River and shall be checked regularly. The details of sampling plan are given in **Table 6.5.**

Table 6.5 : Water Quality Monitoring Plan

S. No	Water Quality Monitoring	Proposed Monitoring Program	Frequency	Number of Monitoring Stations
1	Surface Water Quality	Physico-chemical & Metal, concentration as per BDU criteria of CPCB	Sampling and analysis will be carried through 3rd party laboratory approved by MoEF&CC / CPCB / SPCB / NABL recognized laboratory on quarterly basis.	Raw Water Reservoir, River upstream and downstream.
2	Ground Water Quality	Physico-chemical & Metal concentration	Do	10 sample (4 near Ash Ponds and rest in nearby hotspot/villages)
3	STP Effluents	Physico-chemical & Metal concentration	Do	STP treated water shall be reused for horticulture, green cover development and others.
4	Plant Wastewater Quality (ETP treated effluent)	pH, TSS, TOC (BOD/COD), Conductivity, Temperature, Oil & grease, compliance to wastewater discharge standards.	Online continuous recording of pH, TSS, TOC (BOD/COD), Temp, O&G, as per CPCB/ SPCB requirement.	Station is conceptualized as ZLD. ETP treated water shall be reused for ash disposal and other plant processes.

6.3 Environmental Cost towards Monitoring Setup

The cost of setting up the laboratory, Equipments / instruments required for monitoring of various environmental parameters will be approximately Rs. 2.0 Crores.

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6.4 Reporting Schedule of the monitoring Data

It is proposed that voluntary reporting of environmental performance with reference to the EMP should be undertaken.

The environmental monitoring cell shall co-ordinate all monitoring programmes at site and data thus generated shall be regularly furnished to the state regulatory agencies.

The frequency of reporting shall be on as per consent conditions (six monthly basis) to the State Pollution Control Board officials and to Regional Office of MoEF&CC.

The environmental audit reports shall be prepared for the entire year of operations and shall be regularly submitted to regulatory authorities.



Existing Meteorological Station



Existing CEQMS & AAQMS

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Existing WTP and ETP



Existing STP



Water sprinkler provided to Control Fugitive Dust emission – CHP

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Chapter 7. ADDITIONAL STUDIES

Public consultation, Risk Assessment, Social impact assessment (R&R Action Plan).

7.1. Public Consultation

MUNPL (Meja Urja Nigam Private Limited) submitted the application for public hearing to the Chief Environment Officer, UPPCB office on 01.04.2024. The public hearing was scheduled to be held on 24.06.2024 at 11:00 AM.

The advertisement for public hearing for Meja Stage-II (3x800 MW) was published in the local newspaper Amar Ujala & in the main edition of the national newspaper Hindustan Times, on 22.05.2024. Accordingly, public hearing was held on 24.06.2024 at 11:00 noon at Salai Kala Community Center village Salai Kala, Tehsil Meja, District Prayagraj, UP. The proceeding of public hearing and other documents were forwarded by Regional Office, UPPCB vide letter no: G00410/ लोक सुनवाई/2024, dated 27.06.2024 to Chief Environment Officer (Circle – 2), UPPCB, Lucknow. Further it was forwarded by Member Secretary UPPCB to MoEF&CC, New Delhi vide letter no. H13497/ सी-2/NOC-5376/Public Hearing/24 dated 03.07.2024.

About 55 participants attended the public hearing and 5 persons had spoken during the public hearing and 22 written statements have been received during public consultation. The proceedings of public hearing and other documents like newspaper clippings, objections/ suggestion received during public hearing, reply of project proponent on main issues/quarries related to public hearing, proceedings of public hearing, attendance sheet, objections/suggestion received by RO-UPPCB, and project proponent's response to the queries and the suggested action plans are attached as **Annexure-19** in the EIA Report.



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Few Photogrpahs of Public Hearing

Action plan and budget allocation to resolves specific issues raised during the public hearing is given in Table-7.1 & activities planned under capital expenditure for Corporate Environment Responsibility (CER) is given in **Table 7.1**

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Table 7.1 : ACTION PLAN TO RESOLVE SPECIFIC ISSUES RAISED DURING PUBLIC HEARING

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
1	**Santosh Kumar, Sanjay Kumar Yadav and others (Salaiya Kalan)**	1.1 PAP cards should be given to the displaced people.	1.1 PAP Card will be provided to the land outsees by MUNPL.	-	01 year
		1.2 Displaced people should be given permanent jodbs	1.2 Meja Thermal Power Plant has been set up on the basis of state-of-the-art technology, hence employment opportunities in this project are very limited. In the past years, there has been a lot of change in the manpower requirement in the power generation industry and the requirement of executives and non-executives/workers has become very limited. Optimum utilization of manpower has become very important to maintain the long-term financial capability and viability of the plant. The construction of 03 units proposed in the project will also be set up on the basis of super critical technology, hence there will be very limited employment opportunities in the project. However, efforts will be made to address employment issues as follows (1) Efforts will be made to provide unskilled employment to claimants from the project affected families as far as possible in the contract agencies involved in construction and operation of MUNPL. (2) Skilled and semi-skilled categories in the construction and operation related agencies associated with MUNPL will be		

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
			given priority as per their qualification and requirement.		
		1.3 The cases filed against the displaced people during the agitation should be withdrawn	1.3 Matters relating to action against displaced persons are related to law and order which falls within the jurisdiction of the State Government.	-	-
		1.4 A drain should be constructed for the drainage of water of the displaced people living near Triveni Road	1.4 Based on need based analysis report and consultation with stakeholders, construction of drains in public interest will be done under community development work.	10 Lakh	01 year from start of construction of Project Phase 2
		1.5 Free electricity facility should be provided to displaced people	1.5 MUNPL only generates electricity, as per rules, the work of electricity distribution is the responsibility of the State Government. Electricity distribution is beyond the scope of MUNPL.	-	-
		1.6 NTPC Meja should provide education facility to displaced children	1.6 St. Joseph School located in NTPC Meja Township is available for providing education to the children of nearby residents/displaced persons, in which school fees are charged at concessional rates for the children of displaced persons as per rules. In addition to the above, the primary school can be renovated in the public interest by conducting a need-based analysis report and engaging with stakeholders.	100 Lakh	1-2 years from the commencement of the construction of Phase 2 of the project.
		1.7 Hospitals should be built for the health care of displaced people and free facilities should be provided to the displaced people	1.7 The Township Hospital of the project provides OPD, IPD, Pathology, and X-Ray services, 24X7 emergency services to the displaced people at concessional rates. Apart from this, from time to time, rural medical camps (with medicine distribution), specialty camps (anemia identification, NCD screening, etc.), health awareness camps (common diseases, prevention of anemia, etc.), free TB	200 Lakh	1-5 years from the commencement of the construction of Phase 2 of the project.

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
			testing (National TB Control Program), breast cancer awareness and screening, anemia identification and iron distribution camps, menstrual hygiene awareness and sanitary kit distribution are organized in the nearby villages. Also, cataract surgery camps are organized at Superspeciality Hospital Prayagraj. Apart from the above, Meja Urja Nigam is also going to install mobile health vans under community responsibility.		
		1.8 A playground should be constructed for the children to play	1.8 Playgrounds can be constructed in public interest through need based analysis report and interaction with stakeholders.	40 Lakh	02 Years From beginning of construction of Project Phase 2
		1.9 water tank needs to be repaired	1.9 Whatever community development work is done by Meja Urja Nigam, it is transferred to the Gram Sabha as per the rehabilitation and resettlement policy of NTPC, after which the entire responsibility of maintenance and repair lies with the concerned Gram Sabha. However, in public interest, some important repairs of the infrastructure built by Meja Urja Nigam will be done once again on the basis of need.	10 Lakh	01 year from start of construction of Project Phase 2
		1.10 Drains and roads should be repaired	1.10 Whatever community development work is done by Meja Energy Corporation, it is transferred to the Gram Sabha as per the rehabilitation and resettlement policy of NTPC, after which the entire responsibility of maintenance and repair lies with the concerned Gram Sabha. However, in public interest, some important repairs of the infrastructure built by	10 Lakh	01 year from start of construction of Project Phase 2

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
			Meja Energy Corporation will be done once again on the basis of need.		
		1.11 A boundary wall should be constructed around the Rakhad pond. Everyday stray cattles are falling into it and losing their lives.	1.11 Rakhad Dam is a restricted area where ash utilization and dam raising works are carried out from time to time, hence it is not possible to construct a boundary wall. However, the concerned contracting agencies have posted their guards to prevent the movement of stray animals.	-	-
		1.12 Ash flying from the pond is making the surrounding lands unfertile. Arrangements should be made.	1.12 Meja Urja Nigam is very sensitive and serious about dust flying and every possible option is worked upon to stop it such as: (1) Our tireless efforts are to keep the Rakhad Dam submerged. (2) Water is sprinkled in Rakhad Dam through sprinkler system. (3) Apart from this, water is also sprinkled on the roads through water tankers. (4) Further for dust suppression pro additional water sprinkler, fog cannon, dust sweeping machine and wheel washing facilities shall be provided. Therefore, the impact of Rakhad Dam on the environment is minimal and there is no possibility of air, water, soil pollution and cultivable land of the concerned villages being affected due to this.	99 lakh	-
		1.13 NTPC's small tenders should be given to displaced people	1.13 The committees established by the displaced persons are given contract work as per the rehabilitation and resettlement rules applicable in NTPC. Some works such as grass	-	-

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
			cutting, water sprinkling, deployment of tractors/tankers, etc. have been specifically identified to be executed through the committees established by displaced persons and are being done. Also, Meja Urja Nigam Limited encourages the formation of committees from time to time so that displaced persons can get maximum benefits. Apart from this, to provide regular income to PAP, Meja Urja Nigam Limited has also allotted 05 shops in the township under Rehabilitation and Resettlement Rules and 43 jeeps have been deployed through PAP under contract.		
2	**Shri Siddheshwar Nath Pahari Mahadev Service Institute , Meja (Gadewara, Bhatauti, Mamoli) Prayagraj**	Our Seva Samiti is continuously serving Pahadi Mahadev. The boundary of Pahadi Mahadev starts from Mamoli entrance gate, extending for approximately 800 meters. I would like that Pahadi Mahadev is one of your displaced areas. The following works may be done at the earliest: • Installation of street lights from Mamoli entrance gate to Pahadi Mahadev's premises • Construction of entrance gate at the boundary of Pahadi Mahadev premises • Construction of Havan Kund in the premises • Installation of 4 nos. of high mast lights	As per the guidelines of the Government of India, any activity that promotes or supports religious causes, institutions, or sectarian interests is not considered a CER initiative under the Companies Act, 2013 and the CSR Rules. In light of this, we regret to inform that the proposed temple renovation activity does not fall within the purview of permissible CER activities and, therefore, cannot be considered under our CER initiatives.	Nil	Nil

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
		• Provision of accommodation for 50 Jogis and Shiva devotees who reside at the temple complex 24 hours a day. Conducting the recital of Sundarkand at Pahadi Mahadev once a month by NTPC Meja.			
3	**Vardhaman Seva Samiti, Secretary Ashwani Jain, Advocate**	Vardhman Seva Samiti NGO Kohdar is doing social work since last many years. Join this committee and make them partners in social work. We'll be grateful to you.	Community development work is done in the respective villages as per the suggestions given in the meeting of Village Development Advisory Committee (VDAC). The concerned NGOs can give their suggestions to the Village Development Advisory Committee.	-	-
4	**Brijesh Singh S/o Rajbali Singh Virendra Singh S/o Samarjit Singh Pankaj Singh S/o Ramsundar Singh Resident of Village Mai Khurd, Meja Prayagraj**	**Regarding the recruitment of other men in place of P.A.P. at Tons Pump.** We, the applicants Brijesh Singh and Virendra Singh etc., on receiving the new tender, the contractor has removed the P.A.P. and has appointed an outsider and has fired us whereas we are the poor people affected by the project and have become unemployed. Hence, we humbly request the gentleman to please give jobs to the affected people again. We will be forever grateful to you.	The applicants were appointed by the contracting agency. The contractor has the right to keep or remove workers as per the requirement. But the contractors have been instructed to give priority to the land-displaced people in the contract work as per their eligibility, qualification and requirement.	-	-
5	**Ram Khelawan S/o Ambika Prasad Brijesh Pandey Vikash Kumar Yadav Lalita Prasad Yadav**	**Subject: Regarding construction work of public road.** People face a big problem in commuting from Gram Panchayat Salaiya Kalan to Dasauti main road. Small children face	Public roads will be constructed in public interest based on need-based analysis report and consultation with stakeholders.	300 Lakh	02 Years From beginning of construction of Project Phase 2

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
	Ram sajivan Ambika Prasad Bhola Nath Vidyakant Resident Salaiya Khurd	problems in studying. Vijay Degree College and Vijay Intercollege are located in Salaiya Kalan. Children face a lot of difficulty in commuting, so a public road should be made soon, the distance is about 1-2 kilometers.			
6	**Head of Village Jhadiahi Meja Prayagraj**	**MoU for expansion of Stage-II of Meja Urja Nigam Scheme** I and my Gram Sabha give our consent for the expansion of Stage-II and I have no objection to it.	**Village head Jhadiyahi Meja Prayagraj has given his consent for the expansion of Stage-II**.	-	-
7	**Mohan Lal Shukla S/o Vishwanath Prasad Shukla**	**Subject: Pollution related** gate no. 03 of NTPC Meja. It is requested that along with 7.1 Providing electricity 7.2 Water and roads 7.3 Irrigation facility 7.4 Facility of schools, 7.5 Facility of hospitals 7.6 Employment facilities, 7.7 Pollution should be controlled immediately so that crop damage can be prevented and people can live their full lives..	7.1 Electricity- As per answer of No. 1.5 7.2 Based on the need analysis report and consultation with the stakeholders, solar small drinking water and public road will be constructed in public interest. 7.3 As per rules, the work of irrigation is the responsibility of the State Government. This subject is beyond the scope of MUNPL. 7.4 School- As per answer of number 1.6 7.5 Hospital- As per answer to No. 1.7 7.6 Employment- As per answer to no. 1.2 7.7 Control of Pollution- As per reply to Sr. No. 1.12. Additionally, Electrostatic Precipitators (ESPs) have been installed. PM emission is maintained within 30 MG/NM3. Installation and commissioning work of FGD has been completed, it will be run regularly from October 2024 as against the cut-off date December 2026	70 Lakh	03 Years From beginning of construction of Project Phase 2

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
			as per Gazette Notification GSR 628(E) dated 5th December 2022 of MOEF&CC. Low NOx Burners have been installed and are in use. Specific water consumption for FY 23-24 is 2.56 (Std. 3.0 m3/KWhr). All wastewater is treated and recycled for reuse. 4 Ambient Air Monitoring Stations and 01 Waste Water Quality Station have been installed. Online data is sent to Pollution Control Board. During normal operation of the plant all parameters are as per standards.		
8	**Gram Panchayat Gadevra Anil Kumar Shukla**	The village adjacent to your Urja Nigan is Gadewara, which is a very backward village where your kind attention is required. • 10 nos. hand pump • 5 pieces high mask • 15 nos. street lights • 400 meter interlocking to connect tribal and Harijan settlements	Based on need-based analysis report and interaction with stakeholders, hand pumps, high mast lights, street lights and public roads will be constructed in public interest.	50 Lakh	02 Year from beginning of construction of Project Phase 2
9	**Village head – Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	The details of hand pump reboring and new hand pumps in the displaced families of Gram Panchayat Salaiya Kalan (New Colony) are as follows new hand pump • Hand pump work in front of Lal Bahadur Yadav's house • Hand pump work in front of Ram Babu Yadav's house • Hand pump work in front of Ram Shiromani Yadav's house • Hand pump work in front of Balgovind Yadav's house.	Based on need based analysis report and discussion with stakeholders, hand pumps and hand pump reboring will be done in public interest.	30 Lakh	02 Years From beginning of construction of Project Phase 2

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
		• Hand pump work in front of Indrajit Yadav's house • Hand pump work in front of Nand Kumar Yadav's house • Hand pump work in front of Moolchand Yadav's house • Hand pump work in front of Gore Lal Yadav's house **hand pump reboring** • Mauji Lal Yadav • Uma Shankar Yadav • Munshi Lal Yadav			
10	**Village head– Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	Repair work of roads and drains is very necessary for displaced families of village Salaiya Kalan (new colony). • Road repair work • Repair work of drains • Solar panel and repair work in water corporation tank	Whatever community development work is done by Meja Urja Nigam, it is transferred to the Gram Sabha as per the NTPC policy, after which the entire responsibility of maintenance and repair lies with the concerned Gram Sabha. However, in public interest, some important repairs of the infrastructure built by Meja Urja Nigam will be done once again on the basis of need.	50 Lakh	02 Years From beginning of construction of Project Phase 2
11	**Village head- Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	It is very important to beautify Kotiya (Shankar Ji's temple) and construct a boundary wall in Gram Panchayat Salaiya Kala (New Colony). This is a public temple. Fairs and festivals are always celebrated here, therefore it is very important to renovate this temple for betterment.	As per the guidelines of the Government of India, any activity that promotes or supports religious causes, institutions, or sectarian interests is not considered a CER initiative under the Companies Act, 2013 and the CSR Rules. In light of this, we regret to inform that the proposed temple renovation activity does not fall within the purview of permissible CER activities and, therefore, cannot be considered under our CER initiatives.	Nil	Nil
12	**Village head- Devi Shankar Yadav**	Meja Urja Nigam Pvt. Ltd. The expansion of Stage II will provide sufficient electricity to the country, state and village. For this,	**Village head Salaiya Kalan Meja Prayagraj has given his consent for the expansion of Stage-II**.	-	-

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
	Address-Salaiya Kalan Meja Prayagraj	Gram Sabha Salaiya Kalan is agreeing to the expansion of Stage II.			
13	**Village head- Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	The individual demand letter of the displaced family of Gram Panchayat Salaiya Kalan (New Colony) is as follows. 13.1 Establishment of Community Health Centre (Hospital) 13.2 Establishment of Girls Inter College 13.3 Employment to persons undergoing IITI (training) 13.4 One job per house for each displaced family 13.5 Security Guard Jobs •13.6 For farmers' compensation dues	13.1 Presently, health facilities are being provided through Project Hospital as per answer to No. 1.7. Apart from this, 01 Health ATM has also been donated to PHC-Meja by Meja Urja Nigam under community responsibility. -Community Health Center (CHC) can be constructed after talking to the district administration and stakeholders. But the district administration and the concerned Gram Sabha will have full responsibility for the maintenance and operation of the CHC. 13.2 Girls Inter College can be constructed after preparing a need based analysis report and after discussing with the district administration and stakeholders. But the district administration and the concerned Gram Sabha will have full responsibility for the maintenance and operation of the school. 13.3 Employment- As per answer to no. 1.2 13.4 Employment- As per answer to no. 1.2 13.5 Security guards are engaged by the security agency empaneled with Directorate General of Resettlement (DGR) as per the qualification, eligibility of the person and as per DGR guidelines. Accordingly, at present 8 persons from project affected villages are employed by the security agency. 13.6 Meja Urja Nigam has deposited the outstanding compensation of the farmers in the office of Special Land Acquisition Officer (SLAO),	100 Lakh 50 Lakh	03 Years From beginning of construction of Project Phase 2 1-3 Years from beginning of construction of Project Phase 2

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
			Prayagraj. Contact the said office regarding compensation.		
14	**Village head- Sunita Singh, Village Panchayat Maikala**	MoU for expansion of Stage-II of Meja Urja Nigam Project	**Village head Mai kala Meja Prayagraj has given his consent for the expansion of Stage-II**.	-	-
15	**Village head- Sunita Singh, Village Panchayat Maikala**	15.1 Lift canal pump through which the fields of farmers of Mai Kala, Mai Khurd, Patai Dandi, Isota, Shahpur Kala, Kohdar Ghat can be irrigated. 15.2 A permanent bathing ghat should be constructed on Mai Kala and Mai Khurd Tons river. 15.3 1200 m interlocking road and drain work in Gram Panchayat Mai Kala. 15.4 15 hand pumps should be installed in the Gram Panchayat Mai Kala. 15.5 30 solar lights should be installed in the Gram Panchayat Mai Kala. 15.6 Tiles and infrastructure should be provided in Panchayat Bhawan and primary schools in Gram Panchayat Mai Kala. 15.7 A big gate and straw boundary wall should be built in the cowshed in Gram Panchayat Mai Kala. 15.8 05 tanks should be installed under small drinking water scheme in village Panchayat Mai Kala. 15.9 05 Solar Himax should be installed in Gram Panchayat Mai Kala. 15.10 Himax and solar pump should be installed in the cowshed in village panchayat Mai Kala.	15.1 Irrigation- As per answer to No. **7.3** 15.2 Based on the need based analysis report and interaction with stakeholders, the possibility of bathing ghats on Mai Kala and Mai Khurd Tons river will be explored in consultation with Uttar Pradesh Irrigation Department in public interest. If feasible, it will be implemented through Irrigation Department. 15.3-15.15 Based on need analysis report and through dialogue with stakeholders, road construction, construction of Panchayat Bhawan, hand pump, solar light, renovation of primary school, Gaushala boundary wall, small drinking water scheme, solar high mast light, distribution of blankets and mosquito nets, and plantation of trees and distribution of fruit trees will be done in public interest. 15.16 In the current project, around 230 PAPs (Project Affected Persons) and approximately 2,000 local people have been employed through contractors. Employment opportunities in the Meja Thermal Power Project will remain very limited. However, during the construction and operation of the proposed three units, PAPs and local people will be given priority for temporary employment through contractors, based on eligibility, qualifications, and requirements.	330 Lakh	04 Years From beginning of construction of Project Phase 2

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
		15.11 02 charhi sheds should be made in the cowshed in the Gram Panchayat Mai Kala. 15.12 Trees should be planted along the road in Mai Kala village panchayat till Jhadiyahi. 15.13 Blankets and mosquito nets should be distributed in the Gram Panchayat Mai Kala. 15.14 A community hall should be constructed in the Gram Panchayat Mai Kala. 15.15 Fruit trees should be given to farmers in the Gram Panchayat. 15.16 25% of the workers in the project should be from the project affected villages.			
16	**Dashrath Nishad Head of Village Village Panchayat Bijaura**	With the installation of 03 units of power plant, my village will develop even more, with which I completely agree and I give my full consent to your project and my Gram Panchayat completely agrees with it.	**Village head Bijaura Meja Prayagraj has given his consent for the expansion of Stage-II**.	-	-
17	**Neeta Nishad Head of Village Gram Panchayat Isauta**	Public welfare works such as provision of drinking water, roads for transportation and interlocking roads, etc. have been arranged in my village. My village will benefit more from the expansion of Stage 02. Hence, I give my consent for the expansion of Meja Urja Nigam Private Limited Stage 02.	**The Village Head, Gram Panchayat Isota, Meja Prayagraj has given his consent for the expansion of Stage-II**.		

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
18	**Suresh Kumar Head of Village Gram Panchayat Salaiya Khurd**	Meja Urja Nigam Kohdar has proved to be very useful for us, through it not only the whole country is getting electricity, but the people of the area are also being given employment and prosperity has also been achieved through CSR welfare works like road construction, education, drinking water. After this Meja Urja Nigam project is especially important for us, in this context, looking at the demand of electricity in the country, the supply of electricity will increase further with the construction of a new unit, along with this, the construction of the project will open up new opportunities for development along with increase in employment contract work in our area. Therefore, it is very important to expand Meja Urja Nigam Limited Stage 02 so that there can be further development in our area, for this I and our Gram Sabha give their consent for the expansion of Stage 02.	**Village head Salaiya Khurd Meja Prayagraj has given his consent for the expansion of Stage-II**.	-	-
19	**Ramesh Kumar Head of Village Gram Panchayat Kohdar**	With the advent of Project Stage 02, the supply of electricity will increase and there will also be benefits of village development, employment etc. Therefore, Kohdar Gram Sabha gives its consent for the expansion of Meja Energy Corporation Stage 02 and my villagers also agree.	**Village head Kohdar Meja Prayagraj has given his consent for the expansion of Stage-II**.	-	-

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
20	**Ramesh Kumar** **Head of Village** **Gram Panchayat Kohdar**	Gram Panchayat Kohdar is your project affected Gram Panchayat which is a very backward area, therefore it is very important to get the development work done. 20.1 1500 m of paver blocks have to be installed. 20.2 05 pieces of small drinking water scheme tanks should be installed. 20.3 2000 m paved drain 20.4 20 nos. hand pumps 20.5 Beautification of Kohdar Bazar 20.6 To fully develop Kohdar playground 20.7 Mass marriage hall in Kohdar bazaar 20.8 Interlocking in Gaushala 20.9 20 Pieces Solar Lights 20.10 Provision of pure drinking water in Kohdar market 02 pieces	Reply of 20.1 to 20.6 and 20.8 to 20.10: Based on need based analysis report and discussion with stakeholders, interlocking road, solar small drinking water scheme, hand pump, beautification of market, playground, interlocking and solar lights will be constructed in cowshed in public interest. Reply of point 20.7 Community hall at Kohdar Bazar has been constructed by MUNPL under Stage-I community development works, which can also be used as a mass marriage hall.	340 Lakh	01-04 Years From beginning of construction of Project Phase 2
21	**Vandana Soni** **Area Panchayat Member Ward No. (52)** **Kohdar Meja**	The village of the applicant is connected to a river, stream and hilly area. There is a need of solar lights in it. The applicant is in urgent need of 12 solar lights. Therefore Sir, it is my humble request and request that you kindly provide solar light to the applicant so that by making the facility provided by you accessible to people they can lead a happy life and it will be a great favour from you.	Solar lights will be installed in public interest by preparing need based analysis report and discussion with stakeholders.	30 Lakh	0 to 1 Year from beginning of construction of Project Phase 2

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
22	**All the applicants Salaiya Kala (New Colony) meja prayagraj**	Letter addressed to the MP 22.1 The land and house of the applicants were acquired. They were assured that drinking water would be arranged but after constructing a tank, the matter was closed and they have to crave for every drop of water. 22.2 Some people have been settled between the canal and the road, and some between the south and north of the canal. Rainwater enters the houses. There is no drainage system, although NTPC had promised to build it. 22.3. The hand pumps provided by NTPC are given by the Pradhan himself near his house or to his favourites. We displaced people are left deprived. Some people have to fetch water from a distance of 200-300 metres, such as Bal Govind, Indrajit, Ram Kailash, Lal Bahadur, Ram Janam, Ram Babu etc. 22.4. Some people were given ITI by NTPC and after taking exam and training they were kept in the company. After four years they were thrown out. When the boys went to Honorable Kunwar Sahib they were kept on Rs. 13000/- per month whereas earlier they were paid Rs. 18000/- 22.5 Some boys are not being given jobs even after getting them through ITI and apprenticeship, while the land and house have been acquired. They themselves	22.1 Arrangement of water tank- As per answer of no. 1.9 22.2 Drainage arrangement- As per answer of no. 1.4 22.3 The work of installing hand pumps is done as per the decision taken in the meeting of the Village Development Advisory Committee. 22.4 All contract labour employed in the project are paid wages as notified by the Government of Uttar Pradesh according to their skill category and work. 22.5 Employment- As per answer to number 1.2 22.6 and 22.7Point no. 6 is not related to MUNPL. 22.8 School - as per answer to number 1.6 and Hospital - as per answer to number 1.7 22.8 All contract workers employed in the project are paid wages as notified by the Government of Uttar Pradesh according to their skill category and work. 22.9 As per reply to case no. 1.3 22.10 Toilets have been constructed in all the houses built for displaced persons in the rehabilitation colony. For other displaced persons, community toilets can be constructed in the second phase of the project by preparing a need-based analysis report and talking to stakeholders. 22.11 MUNPL only produces electricity, as per rules, the work of electricity distribution is the	50 Lakh	02 Years From beginning of construction of Project Phase 2

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
		get it distributed among their family members, their favourites and the people of Purva. 22.6 Occasionally, NTPC provides blankets, bags, mosquito nets, and solar energy devices. However, instead of distributing them to the displaced persons, the village head distributes them to their own family members and favored individuals from other hamlets. 22.7 In plot number 237 in which we have been settled, 5 bighas of land belonging to the village society remains. The Pradhan has given this land to Uma Shankar son of Sharda Din and Munna Nishad son of Sukhai after taking money. These people do farming on it and have also built houses after occupying it. The remaining displaced people do not even have place for their animals and barns. 22.8 At the time of displacement, assurances were given to build a school and hospital in the village but nothing was done. Even the red cards of the displaced people have not been made yet. 22.9 In the name of job, they are making people do hard duty of 8 hours in this scorching sun on the basis of daily wages of Rs. 300/-. 22.10 The contractors used to come to us to get our work done without giving us compensation. We used to go to the spot to present our case for compensation and	responsibility of the state government. Electricity distribution is beyond the scope of MUNPL. Apart from the above, about 10 hand pumps and solar powered drinking water scheme have also been installed for drinking water. 22.12 MUNPL only produces electricity, as per rules, the work of electricity distribution is the responsibility of the state government. Electricity distribution is beyond the scope of MUNPL. Apart from the above, about 10 hand pumps and solar powered drinking water scheme have also been installed for drinking water. 22.13 The land acquisition for the ash pond is in accordance with the standards prescribed by the Government of India. During the construction and operation of the ash pond, measures will be implemented to ensure that there are no adverse impacts on health, grazing areas for livestock, wildlife, or neighbouring agricultural land.		

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline
		housing. In order to suppress the peaceful demands, dozens of fake cases have been registered against most of the people under harsh sections, while neither any fighting nor any vandalism took place. Therefore, the fake cases should be withdrawn.. 22.11 All displaced people were asked to be given a toilet each, but it was not given to everyone. 22.12 Three of the displaced people, Dayashankar, Ram Ganesh and Devnath settled in Laltara. Ramkumar settled in his farm near the canal in the village itself. Electricity, water and transformer facilities have not been provided to these people till date. 22.13 The land of Salaiya Kala is being re-acquired for the pond (ash). This will have adverse effects on health, animal grazing, wild animals and the nearby agricultural land. The land will become barren and the fruit trees will not bear fruits. There is still land left to build ten ponds in the land acquired by NTPC, so the acquisition should not be done again.			

Oral demands by speakers

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CER/CD Works) Lakh	Timeline

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23	**Sanjay Kumar Yadav son of Shri Basant Yadav, Salaiya Kala, Meja Prayagraj**	23.1 PAP cards should be given to the displaced. 23.2 Permanent jobs should be given to the displaced. 23.3 The cases filed during the agitation should be withdrawn. 23.4 Near Triveni Road Drains should be constructed for the drainage of water for the displaced people. 23.5 Free electricity should be provided to the displaced children. 23.6 NTPC Meja should provide facilities for studying to the displaced children. 23.7 A hospital should be constructed for the health care of the displaced people and free facilities should be provided. 23.8 A ground should be arranged for the children to play. 23.9 The water tank should be repaired. The repair work of drains and roads should be done. 23.10 Fencing should be done all around the ash pond so that stray cattle do not fall into it and lose their lives. 23.11 The ash flying from the pond is making the surrounding lands infertile. Proper arrangement should be made for it. 23.12 Small tenders should be given to the displaced people.	23.1 PAP Card- As per answer to Sl. No. 1.1 23.2 Employment- As per answer to no. 1.2 23.3 As per reply to case no. 1.3 23.4 Based on the need analysis report and consultation with the stakeholders, the drain will be constructed in public interest under community development work. 23.5 Electricity - As per answer to serial no. 1.5 23.6 As per answer of school no. 1.6 23.7 Hospital- As per answer of No. 1.7 23.8 Playground - As per answer to no. 1.8 23.9 Repair of water tank and drain - As per answer of no. 1.9 & 1.10 23.10 Fencing around ash dam-As per answer to serial no. 1.11 23.11 Ash Management- As per answer to No. 1.12 23.12 As per reply to Small Contract Work No. 1.13 for displaced people	50 Lakh	Around 02 year from the beginning of Stage 2 construction activities.
24	**Ashwani Jain, son of Shri Ramu Jain, Village- Kodhar**	24.1 Regarding the power project proposed by him, the view was expressed that there is a huge problem of flying ash from the power plant.	24.1 Ash Management- As per answer to No. 7.7	30 Lakh	Around 01-02 year from the beginning of Stage 2 construction activities.

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		24.2 There is only greenery inside the plant and the conditions outside are like a desert. Fruit trees should be planted. 24.3 Through the project, street lights should be installed on one side till Kohdhar and on the other side till Laltara Bazaar. 24.4 Fly ash should be disposed of properly and water should be sprinkled to control road dust. There are hundreds of schools and busy markets from Kohdar to Rampur. In such a situation, the movement of vehicles carrying fly ash should be restricted from 10:00 am to 10:00 pm. This creates the problem of traffic jam. 24.5 Kohdar town should be beautified. Roads should be constructed as per the need. 24.6 People's representatives should be included in the Gram Vikas Advisory Committee formed by NTPC. If work is done as per the suggestions given through the committee, it will help a lot in the development of the area.	24.2 Trees inside the plant have been planted under the notification issued from time to time by the Ministry of Environment, Forest and Climate Change, Government of India, and trees outside the plant have been planted with the help of the Forest Department. MUNPL-MEJA has planted about 374000 trees have been planted inside and outside the plant. MUNPL-MEJA will plant fruit trees with the help of Gram Sabha and Forest Department as per the availability of land. Additional budget of 57.49 Cr has been earmarked for greenbelt development inside plant premises in 481Ha area and outside the plant in 271 ha area. This budget is excluding the CER budget and included in EMP. 24.3 Street lights have been installed by MUNPL-MEJA, on its land for lighting and security, which are maintained by MUNPL. Street lights can be installed in public interest at any other place by MUNPL after preparing a need-based analysis report and talking to stakeholders, but the entire responsibility of power supply, maintenance and operation of street lights lies with the department related to the district administration and the concerned Gram Sabha. 24.5 The ash from the plant is mainly used for cement production and road/ national highway construction. In future, fly ash will also be used for production of ash bricks and its transportation will be done through rail. For various uses of ash, transportation of ash is necessary which is done by tarpaulin covered or closed container vehicles (bulkers). Water		

			is regularly sprinkled on the haulage road by tankers so that there is no inconvenience in traffic. The timing of arrival and departure of vehicles carrying fly ash is decided by the administration. 24.6 Based on the need based analysis report and discussion with the stakeholders, beautification of Kohdar and construction of roads will be done in public interest. 24.7 Village Development Advisory Committee (VDAC)- As per answer to serial no. 3.0		
25	**Mr. Vimlesh Mishra, President, Labor Union, Village-Salaiya Kala, Meja Prayagraj**	25.1 The temperature of the area has increased due to the installation of the plant. People of the area should have access to electricity 24 hours a day. 25.2 There is a problem of unemployment. Local people should be given employment. 25.3 The problem of dust persists due to the movement of open vehicles from Kohdhar to Naini and water is not sprinkled. 25.4 Instead of giving employment to local people, people from other states are being given employment. Which is wrong. 25.5 The check dam built in village Isota should be repaired and the surrounding roads should also be repaired. 25.6 Lift canal facility should be provided for irrigation in the surrounding villages. He said that if the issue raised by me is not paid	25.1 Electricity - As per answer to serial no. 1.2 25.2 Employment- As per answer to no. 1.2 25.3 Ash Management- As per answer to no. 24.5 25.4 In the current project, about 230 PAPs and about 2000 local people have been given employment through contract. Employment opportunities in Meja Thermal Power Project will be very limited. But even at the time of construction of the proposed 03 units, PAPs and local people will be given priority in temporary employment through the contractor as per eligibility, qualification and requirement. 25.5 Based on the need analysis report and consultation with the stakeholders, the check dam constructed in village Isota and the surrounding roads will be repaired in public interest. 25.6 Irrigation- As per answer to No. 7.3	35 Lakh	Around 02 year from the beginning of Stage 2 construction activities.

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		attention to by Meja Urja Nigam, then we will be forced to protest.			
26	**Mr. Anil Shukla, Village-Gadewara Pradhan, Meja Prayagraj**	In Shri Siddheshwar Nath Pahadi Mahadev Mandir, street lights should be installed from the entrance to the temple, the main gate should be constructed and the Pahadi Mahadev Mandir should be developed and arrangements for livelihood should be made for the Shiva devotees residing in the temple.	As per answer to serial no. 2.0	-	Around 02 year from the beginning of Stage 2 construction activities.
27	**Shri Shailesh son of Shri Rajkumar, Village-Salaiya Kala**	27.1 A water tank was constructed by Meja Urja Nigam which collapsed within a month and is not being repaired again. 27.2 Being a hilly area, there is a water problem, this should be resolved immediately. As an alternative arrangement for water supply, water should be provided through tankers and the water tank should be repaired. 27.3 Employment has not been provided to local people in the plant. Even the job of a guard has not been given to the local people in the plant.	27.1 Repair of water tank as per answer to no. 1.9 27.2 Based on the need analysis report and discussion with the stakeholders, solar small drinking water scheme and hand pumps will be installed in public interest. 27.3 Employment of local people: As per answer to Sr. No. 1.2. Employment of Security Guards: Security guards are engaged by security agency empanelled with Directorate General of Resettlement (DGR) as per qualification, eligibility of the person and as per DGR guidelines. Accordingly, at present 8 persons from project affected villages are employed by the security agency.	-	Around 02 year from the beginning of Stage 2 construction activities.

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Table 7.2 Action plan to resolve the issues raised during Public Hearing of proposed Stage -II, (Activities under Public Hearing and Written Demands given by Gram Pradhans & Individuals – CER/CD)

S. No.	Proposed CER works to address the issues raised during Public Hearing	Total Estimated Cost (Rs. Crores)	Estimated Timelines
1	Installation of 10 hand pump, 05 solar high mast light, 15 solar streetlights, and construction of public road in village Gadewara (400 m)	1.25	01-02 Year
2	Repair of roads (500 mtr.), drains and water tank in (New Basti), construction of public roads (3000 mtr.), construction of drain for drainage near Triveni Road (500 mtr.), construction of 01 playground for children, providing hand pumps (08) and reboring (03) etc. in village Salaiya Kala and mobile health clinic (for all villages including Salaiya Kala)	7.15	02-05 Year
3	Renovation of primary school, construction of public roads (1200 mtr.), installations of hand pumps (15), solar high mast lights (05), solar streetlights (30) and construction of bathing ghat, solar powered mini water scheme(05), cattle shed (02) etc. in Village Mai Kala	4.00	02-05 Year
4	Construction of interlocking road (1500 mtr.), mini solar water scheme (07), hand pumps (20), solar streetlights (32), beautification of market, development of playground, interlocking in cowshed (gaushala), construction of paved drains (2000 mtr.) etc. in village Kohdar	4.90	02-05 Year
5	Renovation of primary school, construction of interlocking road (2000 mtr.), mini solar water scheme (03), hand pumps (20), solar streetlights (40) etc. in village Salaiya Khurd	3.00	02-04 Year
6	Construction of inter-locking road (2000 mtr.), hand pumps (10), solar streetlights (40), repair of overhead water tank and renovation of primary school etc. in village Jhariyahi	2.00	02-04 Year
7	Construction of inter-locking road (2000 mtr.), hand pump (20) , solar streetlights (35), and renovation of primary school etc. in village Isota	2.00	02-04 Year

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S. No.	Proposed CER works to address the issues raised during Public Hearing	Total Estimated Cost (Rs. Crores)	Estimated Timelines
8	Construction of interlocking road and drain (1000 mtr.), mini solar water scheme (02), hand pump (10), community toilet, Anganwadi Centre, solar streetlights (30) and renovation of primary school etc. in village Bijaura	2.00	02-04 Year
9	Other Miscellaneous Work: Women Empowerment through skill development and Job oriented skill development trainings to youth such as CIPET, CRISP, CIDC and other implementation partners	3.25	01-05 Year
10	Provisioning for CD Works in village Amiliya Kala	5.00	01-05 Year
11	Rejuvenation of ponds in surrounding villages (100 Lakh), construction of new 4 ponds (254 Lakh), Environmental Lab (2.50 Lakh.	3.56	01-05 Year
12	Dust suppression measures: Additional 4 Fog cannon (56 Lakh), Truck mounted Sprinkling & mechanized truck mounted sweeping machine (125 Lakh), Wheel Washing System (17.85 Lakh)	0.99	01-02 Year
13	Approx. 100 m long approach road to ash dyke for diversion of ash bulkers shall be constructed matching with the construction of Kohdar-Meja-Khiri road	1.00	01-02 Year
Total		**40.10***	
Note: * Additional budget of Rs.57.49 Cr is earmarked for development of green belt and incorporated in EMP budget			

Note: i. Final measurement for CD works village wise shall be done after discussion with the stakeholders and Need Assessment Survey (NAS), which is under progress.
ii. Community Development (CD) works shall be executed only after the allotment of Govt. Land for infrastructural projects in the nearby villages.

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Table 7.2 (a): Theme wise breakup of proposed works (CER/CD)

S. No.	Proposed works to address the issues raised during Public Hearing and written demands given by Gram Pradhans & individuals	Estimated Cost (Rs Crore)	Estimated time	Remarks
1	**Infrastructure Development** - Construction of roads in project affected villages, community development works, solar high mast light, solar streetlights, beautification of market, interlocking in Gaushala, Anganwadi Centre etc.	16.55	01-05 Year	-
2	**Cleanliness** - Construction/Repair of drains, toilets and related infrastructure etc.	4.00	01-05 Year	-
3	**Water** – Repair of overhead tanks and construction of related infrastructure facilities etc.	3.00	01-05 Year	-
4	**Health** - Development of health infrastructure, conducting medical camps etc.	3.50	01-05 Year	-
5	**Education** - Renovation of schools, provision of playgrounds, smart classes, furniture, and renovation of infrastructure etc.	3.50	01-05 Year	-
6	**Skill Development and Job Oriented Trainings** - to increase employability	4.00	01-05 Year	-
7	**Environment related works** (Dust suppression, Alternate route for ash transport, Environment lab and rejuvenation pond)	5.55	01 -05 Year	
	TOTAL	**40.10***		

** Additional budget of Rs.57.49 Cr is earmarked for development of green belt and plantation for carbon sink and incorporated in EMP budget.*

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Table 7.2 (b): Works proposed under CSR Meja Stage-II (Activities under CSR – Recurring)

S. No.	Proposed Recurring Works Under CSR	RE 2024-25	BE 2025-26	Remarks
		Estimated Cost (Rs. Crore)	Estimated Cost (Rs. Crore)	
1	Education infrastructure, improvement in the level of education etc.	0.65	1.00	Every Year
2	Medical - Mobile Medical Units, health camps etc.	0.07	0.09	Every Year
3	Water infrastructure and other drinking water facilities etc.	0.45	0.70	Every Year
4	Basic Infrastructure like road, drains, renovation etc.	0.95	1.60	Every Year
5	Sports and cultural development	0.03	0.05	Every Year
6	Skill development and vocational trainings - to increase the employability	1.60	1.75	Every Year
7	Schemes/facilities for the PwDs/Differently abled persons	0.07	0.04	Every Year
8	Other community development activities	1.12	0.85	Every Year
	TOTAL	**4.94**	**6.08**	

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7.2. Risk Assessment

7.2.1. Purpose

The purpose of this Risk Assessment is to evaluate potential hazards associated with the operation of NTPC's thermal power plant, focusing on bulk storage and handling of hazardous materials. The assessment aims to identify risks, assess their impact, and recommend control measures to mitigate potential hazards.

7.2.2. Scope

This Risk Assessment covers various accident scenarios involving chlorine, hydrogen, and diesel. It examines failure scenarios, evaluates impacts, and proposes safety measures and procedures.

7.2.3. Methodology

The Risk Assessment utilizes historical data, engineering judgment, and professional expertise to evaluate potential failure scenarios. The analysis includes:

- Identification of failure scenarios
- Impact assessment using modeling tools (ALOHA)
- Evaluation of weather effects on hazard dispersion
- Consequence analysis for toxic and thermal hazards
- Recommendations for safety measures and emergency response

7.3. Identification of Failure Scenarios

7.3.1. Likely Failure Scenarios

The following failure scenarios have been identified based on a critical appraisal of raw materials and storage inventories:

S. No	Scenario	Remark
1	Chlorine (~2 cm dia. pipe leakage)	Toxic
2	Chlorine Cylinder Leakage (~1 cm Leak)	Toxic
3	Hydrogen Pipe (2 cm dia) leakage - fire	Thermal
4	Diesel [Spillage - Fire]	Thermal

7.4. Impact Assessment

7.4.1. Weather Effects

Ambient conditions significantly impact the dispersion of hazardous materials and the extent of their impact. The following weather conditions were considered for modeling based on historical meteorological data for Meja:

- Stability Class C: Wind—2.8 m/s; Temperature—35°C; Humidity—50%
- Stability Class B: Wind—1.4 m/s; Temperature—8°C; Humidity—50%
- Wind Direction: East

7.4.2. Hazardous Incidents Impact

The identified failure scenarios were analyzed using ALOHA to determine impact zones. The impact zones for various scenarios are shown in the tables below:

Table 7.3 : Impact Zones for Chlorine Pipe Leakage

Scenario	Impact Zone (m)	Remarks
Chlorine (pipe leakage)	417 (Stability Class C)	IDLH; Template: 1
	472 (Stability Class B)	IDLH; Template: 2

Table 7.4 : Impact Zones for Chlorine Cylinder Leakage

Scenario	Impact Zone (m)	Remarks
Chlorine Cylinder Leakage	778	IDLH; Stability Class C; Template: 3

Table 7.5 : Impact Zones for Hydrogen Leakage-Jet Fire

Scenario	Impact Zone (m)	Remarks
Hydrogen Leakage-Jet Fire	<10	1st degree burn (4kW/m²); Template: 4

Table 7.6 : Impact Zones for Diesel Spillage

Scenario	Impact Zone (m)	Remarks
Diesel Heavy Spillage Fire	17	1st degree burn (4kW/m²); Template: 4

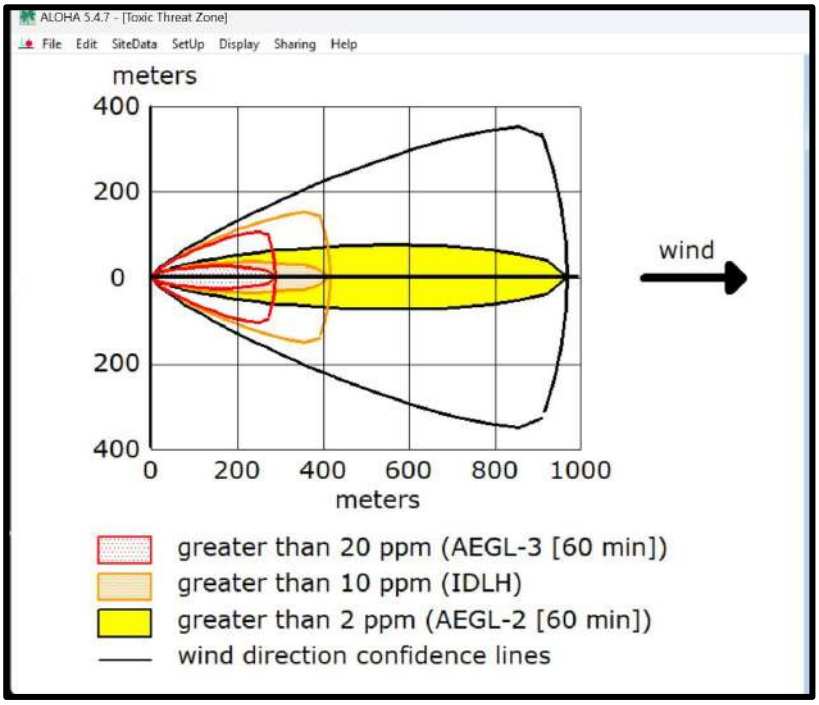


Figure 7.1 : Chlorine Pipe Leakage; Toxic Impact Zone (Stability Class C)

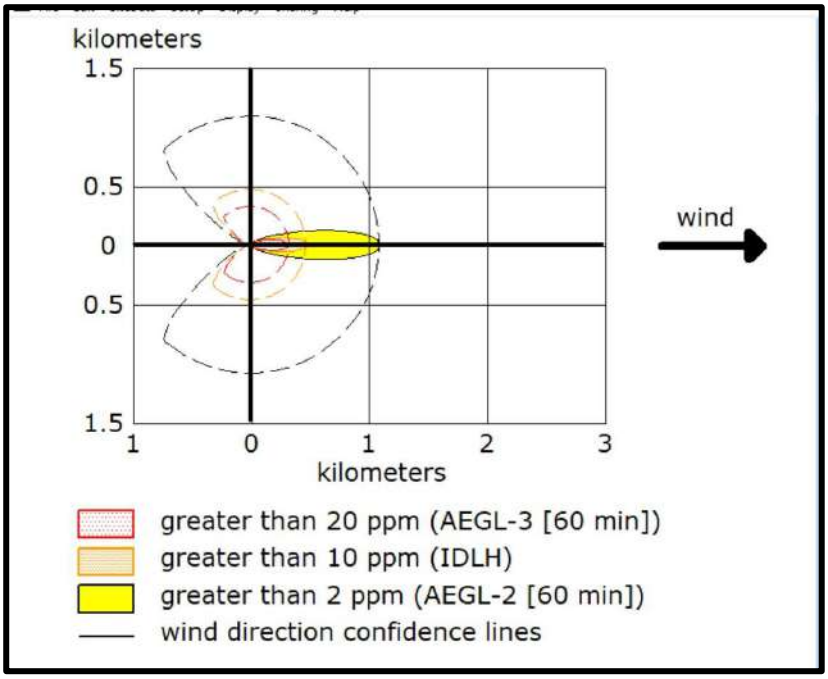


Figure 7.2 : Chlorine Pipe Leakage; Toxic Impact Zone (Stability Class B)

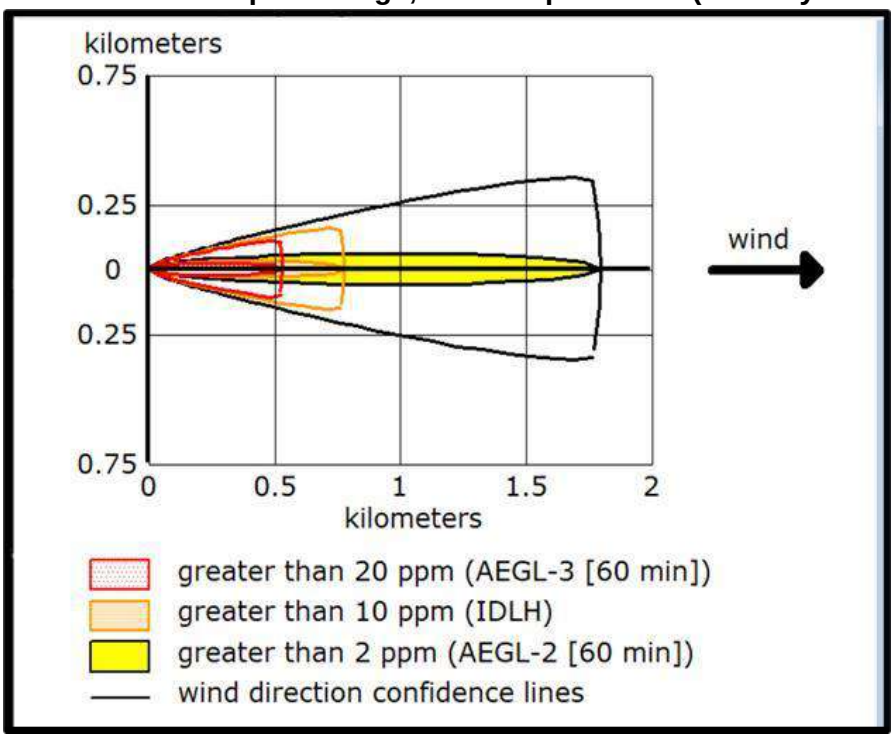


Figure 7.3 : Chlorine Cylinder Leakage; Toxic Impact Zone (Stability Class C)

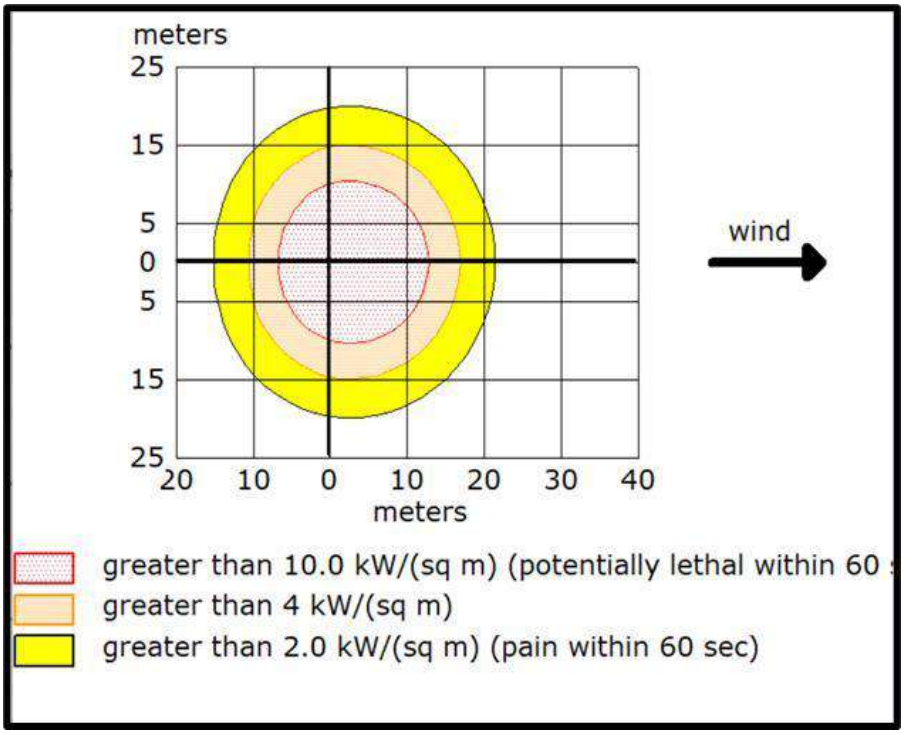


Figure 7.4 : Diesel Spillage—Burning Puddle; Thermal Impact Zone

7.5. Consequence Analysis

7.5.1. Toxicity

The primary toxic hazard is chlorine, which can have severe impacts if not controlled. Chlorine releases can cross plant boundaries depending on the storage location and prevailing wind direction.

7.5.2. Thermal Hazards

Thermal hazards arise mainly from hydrogen and fuel. These impacts are generally confined within the plant boundary but can extend due to domino effects.

7.5.3. Hazardous Scenario Chemicals

Detailed analysis of hazardous chemicals involved is provided below:

Table 7.7 : Hazardous Scenario Chemicals

S. No	Hazardous Chemical	Specific Safety Measures
1	Chlorine	Strong oxidizing agent; water-reactive
2	Hydrogen	Flammable; requires careful handling
3	Diesel	Flammable; may spread and ignite

7.5.4. Detailed Chemical Information

- Chlorine (CAS No: 7782-50-5):
  - Properties: Toxic, strong oxidizing agent

- Health Hazards: Poisonous, may cause burns; bronchitis or chronic lung conditions
- Fire Hazards: Not flammable but can ignite other materials; requires specific firefighting procedures

- Hydrogen:
  - Properties: Colorless, odorless, highly flammable o Health Hazards: Can cause explosion; requires careful handling
  - Fire Hazards: Invisible flame; requires special firefighting measures

- Diesel (CAS No: 68476-30-2):
  - Properties: Flammable, can cause health issues on exposure
  - Health Hazards: Inhalation can cause rapid breathing, dizziness, nausea
  - Fire Hazards: Requires foam, CO2, or dry chemical extinguishers

7.6. Safety Measures and Recommendations

7.6.1. General Recommendations

To manage and mitigate the risks identified in the assessment, the following safety measures are recommended:

- Installation of Sensors: Smoke, thermal, and toxic sensors with alarms should be installed in storage areas.
- Distance from Main Tank Farm: Storage areas for chlorine, hydrogen, and other sensitive chemicals should be located at a safe distance from the main tank farm.
- Caustic Pit: A caustic pit should be constructed to handle heavy chlorine cylinder leaks.

7.6.2. Firefighting Systems

To ensure effective response to fire incidents, the following components should be incorporated into the firefighting system:

- Fire Water Storage: Adequate capacity for fire water storage tanks.
- Fire Water Pumps: Reliable pumps to ensure consistent water supply.
- Water Sprinklers: Installed around storage areas to cool adjoining tanks.
- Fire Water Network: Comprehensive network around storage areas for efficient water distribution.
- Foam System: Foam systems to suppress fires involving flammable liquids.

7.6.3. Safe Operating Procedures

- Documentation: Safe operating procedures must be available for all operations, practices, and equipment.
- Training: Workers should be trained on the importance of adhering to these procedures and understanding the consequences of non-compliance.

7.6.4. Ventilation

- Adequate Ventilation: Ensure proper ventilation to control dust and gaseous emissions.

- Regular Assessment: Regularly assess and monitor the work environment to ensure effective ventilation.

7.6.5. Static Electricity

- Earthing: All equipment and storage tanks containing flammable chemicals should be grounded and earthed.
- Maintenance: Regular inspections of earthing circuits and maintenance of records are essential.

7.6.6. Instrumentation

- Testing: Instruments such as pressure, temperature transmitters, gauges, and alarm switches should be tested according to the preventive maintenance schedule.
- Emergency Shutdown System: Regular testing of the emergency shutdown system is crucial.

7.6.7. Limit Access and Storage

- Quantity Limitation: Limit the quantity of hazardous materials stored to 80% of the maximum capacity.
- Access Control: Restrict access to hazardous material storage areas and post appropriate warning signs.

7.6.8. Spillage and Leakage Prevention

- Maintenance: Implement a preventive maintenance plan to avoid failures in flanges, pipelines, and other components.
- Containment: Confine leakage to the dyke area. Use temporary barriers to control spreading outside the dyke.
- Decontamination: Provide safety showers and eye wash fountains for decontamination in case of exposure.

7.7. Emergency Response and Safety Procedures

7.7.1. Spillage-Fire and Decomposition Products

In case of a spillage-fire, the following considerations are essential:

- Thermal Decomposition Products: Hazardous combustion products may include carbon monoxide, hydrochloric gas, hydrogen, and carbon dioxide.
- Explosive Mixtures: Vapours from solvents/chemicals may form explosive mixtures with air.
- Firefighting Precautions: Staff should be aware of the potential hazards of toxic decomposition products and take appropriate measures.

7.7.2. *Transportation and Unloading of Hazardous Chemicals*

- Standard Procedures: Implement standard procedures for the safe unloading of road tankers.
- Static Earthing: Ensure static earthing is provided during tanker unloading.
- Handling Equipment: Use drum handling trolleys for internal transportation.
- Fire Extinguishers: Provide fire extinguishers as required.

- First Aid: Equip the site with first aid boxes and water showering systems for the storage area.
- No Smoking Zone: Designate the area as a “NO SMOKE ZONE.”

7.7.3. Occupational Health and Safety

- Health Precautions: Ensure adequate precautions are in place to prevent harm to workers handling toxic materials.
- Training: Employees should be trained on:
  - Hazardous chemical substances and potential exposure
  - Protective measures and safety equipment
  - Proper use of safety equipment and good housekeeping practices
  - Procedures for spillages and leakages

7.7.4. Risk Assessment Procedures

- Hazard Identification: Identify potential hazards and assess risks.
- Control Measures: Implement control measures based on risk evaluation.
- Documentation and Review: Record findings and review assessments regularly.

7.8. HIRA (Hazard Identification and Risk Assessment)

7.8.1. Overview

The Hazard Identification and Risk Assessment (HIRA) provides a structured approach to identifying hazards, assessing risks, and implementing control measures. It ensures all potential risks are evaluated and managed effectively.

7.8.2. Risk Assessment Procedure

- Identify Hazards: Systematically identify hazards associated with operations.
- Assess Risks: Evaluate the risks associated with identified hazards.
- Implement Controls: Apply appropriate control measures to mitigate risks.
- Document Findings: Maintain records of risk assessments and control measures.
- Regular Reviews: Conduct regular reviews and updates of risk assessments.

7.8.3. Safety Policy Principles

The safety policy principles of NTPC emphasize:

- Hazard Identification: All hazards can be identified and managed.
- Safety Responsibility: Safety is a responsibility and must be demonstrated visibly.
- Procedural Compliance: Following procedures to control risks.
- Training and Commitment: Ensuring a trained and committed team for safe operations.
- Regulatory Compliance: Adherence to safety regulations and continual improvement.

7.8.4. NTPC Safety Policy NTPC’s safety policy is built around:

- Identification and Management: Identifying and managing all hazards.
- Procedural Safety: Ensuring all jobs are done safely.
- Responsibility and Accountability: Demonstrating safety responsibility.

- Control Measures: Implementing appropriate control measures.
- Training and Commitment: Ensuring a well-trained team.
- Regulatory Compliance: Complying with safety regulations and striving for better standards.

7.9. Hazard Identification and Risk Analysis (HIRA)

7.9.1. Overview

The Hazard Identification and Risk Analysis (HIRA) focuses on systematically identifying potential hazards associated with various processes and assessing their associated risks. It ensures that all identified risks are evaluated and controlled effectively to minimize impact.

7.9.2. Methodology

- Hazard Identification: Conduct a thorough analysis of operations to identify potential hazards, including chemical, thermal, and mechanical risks.
- Risk Assessment: Evaluate the risks associated with each hazard by considering the likelihood and impact of occurrence.
- Control Measures: Develop and implement control measures to mitigate identified risks.
- Documentation: Maintain comprehensive records of the risk assessment process, including identified hazards, assessed risks, and implemented control measures.
- Review: Regularly review and update risk assessments to reflect changes in operations and regulations.

7.9.3. Risk Assessment Procedure

- Identify Hazards: Systematic identification of hazards through inspections, historical data, and expert judgment.
- Evaluate Risks: Assess the potential impact and likelihood of each hazard, considering existing control measures.
- Implement Controls: Apply necessary controls to reduce the risk to an acceptable level.
- Monitor and Review: Continuously monitor the effectiveness of control measures and review risk assessments periodically.

7.10. Detailed Failure Scenarios and Impact Analysis

7.10.1. Likely Failure Scenarios

The selection of accident scenarios is based on engineering judgment, historical data from similar plants, and expertise in risk analysis. The identified failure scenarios are:

- Chlorine (~2 cm dia. pipe leakage): Toxic
- Chlorine Cylinder Leakage (~1 cm Leak): Toxic
- Hydrogen Pipe (2 cm dia) leakage - fire: Thermal
- Diesel [Spillage - Fire]: Thermal

7.10.2. Weather Effects on Impact

Ambient weather conditions can influence the impact of hazardous releases:

- Stability Class C: Wind—2.8 m/s; Temperature—35 °C; Humidity—50%
- Stability Class B: Wind—1.4 m/s; Temperature—8 °C; Humidity—50%
- Wind Direction: East

7.10.3. Impact Analysis

The impact of various scenarios was analyzed using ALOHA software, considering thermal and toxic impacts. The impact zones for each scenario are:

Chlorine (pipe leakage)	417 (Stability Class C), 472 (Stability Class B)	IDLH levels; different templates for stability classes
Chlorine Cylinder Leakage	778	IDLH levels; Stability Class C Template
Hydrogen Leakage - Jet Fire	<10	1st degree burn (4 kW/m²)
Diesel Heavy Spillage Fire	17	1st degree burn (4 kW/m²)

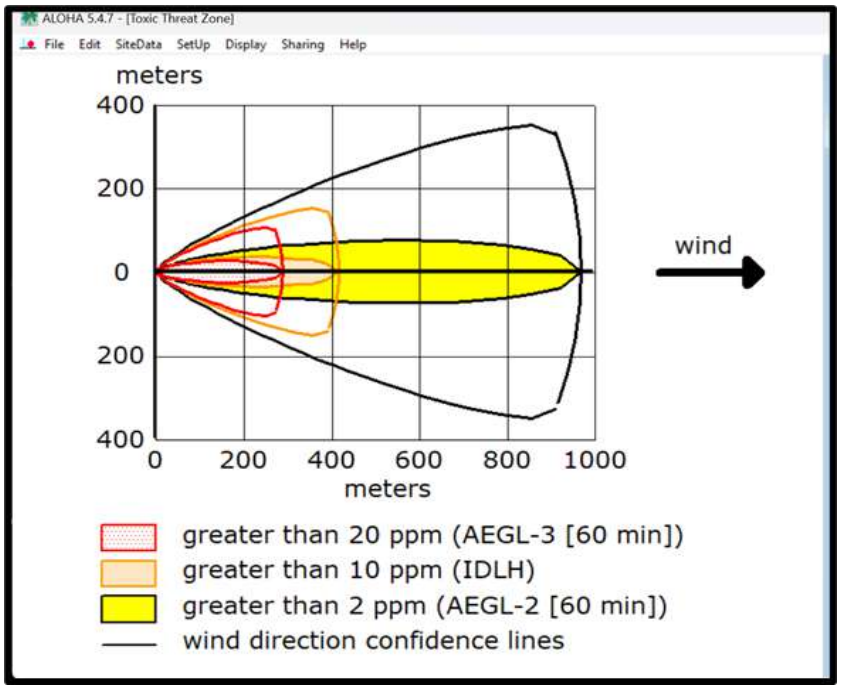


Figure 7.5 : Chlorine Pipe Leakage; Toxic Impact Zone (Stability Class C)

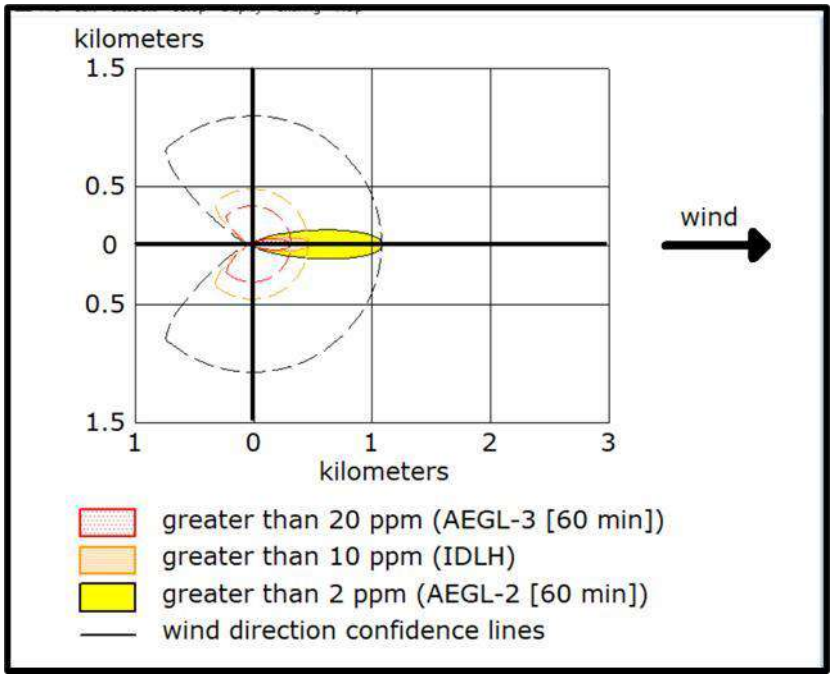


Figure 7.6 : Chlorine Pipe Leakage; Toxic Impact Zone (Stability Class B)

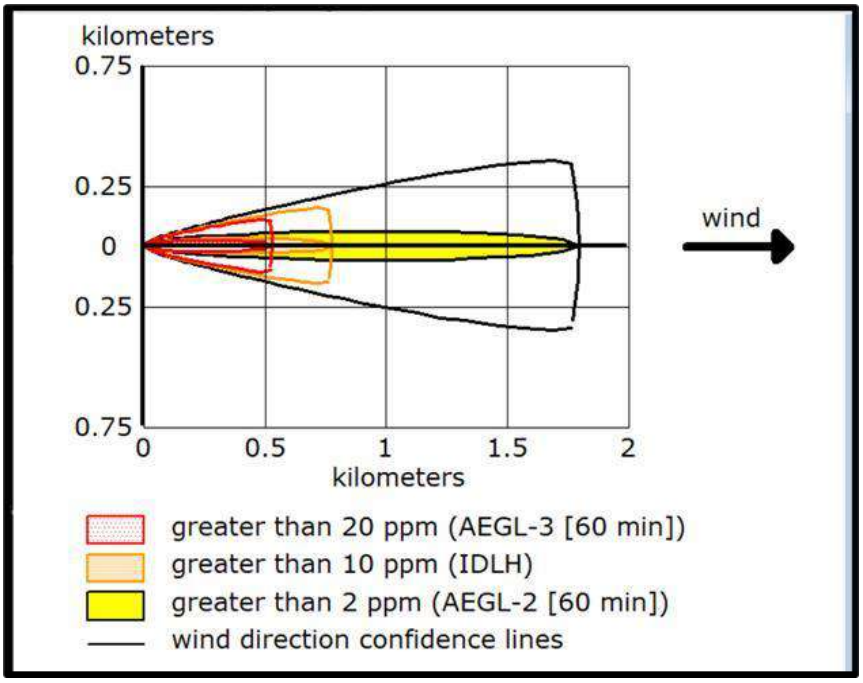


Figure 7.7 : Chlorine Cylinder Leakage; Toxic Impact Zone (Stability Class C)

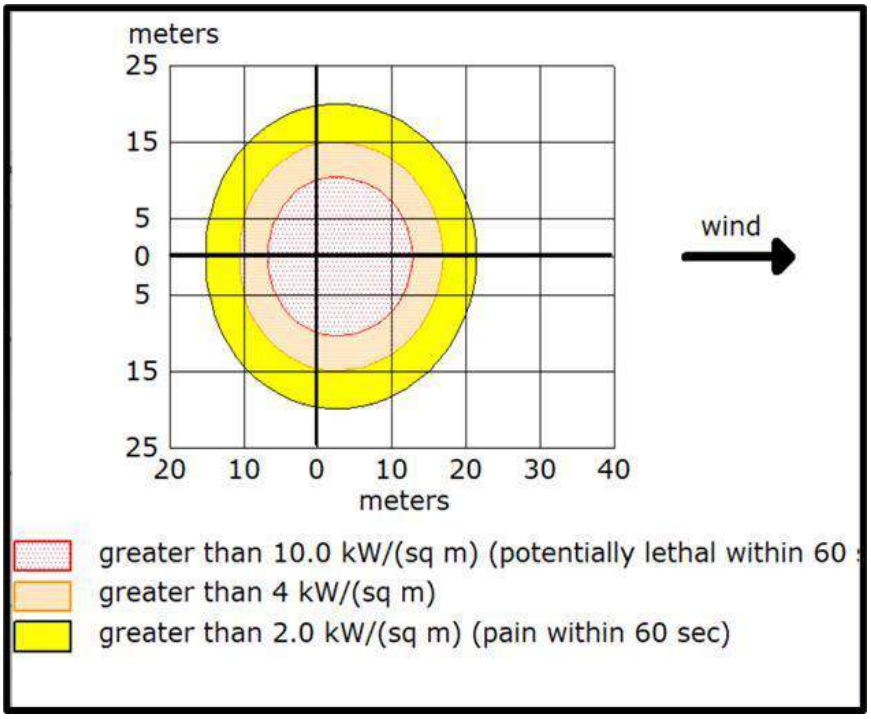


Figure 7.8 : Diesel Spillage—Burning Puddle; Thermal Impact Zone

7.11. Toxicity and Thermal Hazards

7.11.1. Toxic Hazards

Chlorine: Chlorine poses a significant toxic hazard. If not controlled, its impact can extend beyond the plant boundary depending on storage location and wind direction.

7.11.2. Thermal Hazards

Hydrogen and Fuels: Thermal hazards are primarily due to hydrogen, fuels, and other combustible materials. Thermal impacts are generally limited to within the plant boundary but can extend further due to domino effects.

7.11.3. Hazardous Scenario Chemicals

Detailed safety measures for each hazardous chemical are outlined below:

Chemical	Specific Safety Measures	Conditions	Reactivity/In-compatibility	Health Hazard	Fire Hazard	Fire-fighting
Chlorine	Strong oxidizing agent; water reactive	Ambient Boiling Point: -34.0°C	Reacts explosively with common materials	Poisonous; may be fatal if inhaled	Not flammable but may ignite other materials	Evacuate area, stay upwind, use positive pressure breathing apparatus, cool containers with water

Chemical	Specific Safety Measures	Conditions	Reactivity/In-compatibility	Health Hazard	Fire Hazard	Fire-fighting
Hydrogen	Colorless, odorless; easily ignited	Ambient Boiling Point: -252.8°C	Reacts explosively with certain metals; forms explosive mixtures with air	Highly flammable; burns with an invisible flame	Do not extinguish a leaking gas fire unless the leak can be stopped	Small fires: Dry chemical or CO_2; Large fires: Water spray or fog
Diesel	Yellow brownish liquid	Boiling Point: 215—376°C	Incompatible with oxidizers like peroxides	Causes respiratory issues, skin irritation	Fire may liberate hazardous gases	Use foam, CO_2, or dry chemical powder; cool containers with water

7.12. Conclusion

7.12.1. Summary

The risk assessment has identified key hazards, including toxic and thermal risks associated with chlorine, hydrogen, and diesel. The assessment includes recommendations for safety measures, emergency response protocols, and detailed analysis of impact zones.

7.12.2. Recommendations

- Implement recommended safety measures and procedures.
- Ensure proper training and equipment maintenance.
- Conduct regular safety audits and reviews to maintain effective risk management.

7.13. Occupational Health and Safety

7.13.1. Overview

Occupational health and safety are crucial for maintaining productivity and ensuring the wellbeing of workers in the NTPC Thermal Power Plant. Effective safety measures and health practices must be in place to manage the risks associated with handling toxic materials and hazardous chemicals.

7.13.2. Fundamental Principles

- Preventative Measures: Prevent harm by identifying hazards, assessing risks, and implementing control measures.
- Chemical Safety: Assume all chemicals are toxic and take appropriate precautions.
- Accident Preparedness: Be prepared for potential accidents by understanding emergency procedures and following SOPs during hazardous substance handling.

7.13.3. Hazard Identification and Risk Assessment

- Steps to Follow:
  1. Identify the hazards.
  2. Determine who might be harmed and how.

3. Evaluate the risks and decide on appropriate precautions.
4. Record findings and implement control measures.
5. Review and update assessments as necessary.

- Worker Training: Ensure workers are trained on:

o Chemical substance properties and hazards.
o Exposure prevention and protective measures.
o Correct use and maintenance of safety equipment.
o Safe working procedures and emergency response.

7.13.4. Risk Assessments and Safety Audits Risk Assessments:

- Conduct regular risk assessments to evaluate the potential dispersal of toxic chemicals and the impact of explosions.
- Safety Audits: Perform safety audits to ensure hazards are identified and risk control measures are effectively maintained.

7.13.5. NTPC's Safety Commitment

- Core Values: NTPC is committed to providing a safe, healthy, and hygienic work environment. The safety policy emphasizes the importance of preventing accidents and maintaining high safety standards.
- Safety Policy Principles:
  1. Identify all hazards associated with activities.
  2. Prioritize safety in all tasks, regardless of urgency.
  3. Demonstrate responsibility and accountability for safety.
  4. Apply the right procedures and actions to control risks.
  5. Ensure a trained and committed workforce for incident-free operations.
  6. Comply with safety regulations and strive to exceed minimum standards.

7.13.6. Safety Policy and Framework

- Safety Policy: The NTPC safety policy outlines the organization's commitment to safety and includes detailed procedures, manuals, and documentation developed by the safety department.
- Compliance: Adherence to safety policies and procedures is mandatory for all NTPC activities, ensuring the safety and well-being of employees and contractors.

7.13.7. Safe Operating Procedures

7.13.7.1 General Overview

Safe Operating Procedures (SOPs) are essential for ensuring the safety and efficiency of operations within the NTPC Thermal Power Plant. SOPs should be well-documented for all operational practices and equipment to mitigate risks and ensure a safe working environment.

7.13.7.2 Employee Awareness

- Training: Workers must be trained to understand the importance of following SOPs.
- Consequences: Employees should be made aware of the consequences of noncompliance with SOPs, including potential health risks, safety hazards, and legal ramifications.

7.13.7.3 Ventilation

Adequate Ventilation: Ensure that work areas are equipped with sufficient ventilation to maintain air quality and reduce exposure to harmful substances.

- Regular Assessment: Conduct regular assessments of the work environment to monitor ventilation effectiveness.
- Local Ventilation: Implement local exhaust ventilation systems to effectively control dust and gaseous emissions at the source.

7.13.7.4 Static Electricity

- Earthing and Bonding: All equipment and storage tanks containing flammable chemicals should be properly earthed and bonded to prevent static electricity buildup.
- Inspection: Regularly inspect the electrical resistance of earthing circuits. Maintain records of inspections and ensure compliance with established standards.

7.13.7.5 Instruments

- Maintenance: Regularly test and maintain instruments such as pressure and temperature transmitters, gauges, alarm switches, and safety interlocks according to the preventive maintenance schedule.
- Emergency Shutdown System: Ensure that the emergency shutdown system is tested and maintained as per the preventive maintenance schedule.

7.13.7.6 Limit Access

- Storage Limits: Restrict the quantity of hazardous materials in storage to no more than 80% of the storage capacity.
- Access Control: Limit access to hazardous materials storage areas to authorized personnel only.
- Warning Signs: Post clear warning signs in areas where hazardous materials are stored to alert workers of potential dangers.

7.13.7.7 Safety Measures for Spillage and Leakage of Toxic Chemicals

- Preventive Maintenance: Plan and execute preventive maintenance to prevent failures in flanges, pipelines, and other components of transfer lines.
- Containment: Confine any leakage or spillage to the dyke area underneath the vessel.
- Spillage Response: In case of leakage outside the dyke wall or in-plant, control the spread by creating temporary barriers with sand or other neutral, non-reactive materials. Recover and dispose of the material safely.
- Decontamination: Provide decontamination facilities, such as safety showers and eye wash stations, in the plant area. Develop and maintain Standard Operating Procedures (SOPs) for decontamination.

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7.13.7.8 Spillage-Fire-Decomposition Products

Thermal Decomposition: During spillage fires, hazardous decomposition products such as carbon monoxide, hydrochloric acid, hydrogen, and carbon dioxide may be released.

- Explosive Mixtures: Vapors from solvents or chemicals may form explosive mixtures with air. Firefighters should be aware of these hazards when responding to fires.

7.13.7.9 Safety Measures for Transportation and Unloading of Hazardous Chemicals

- Standard Procedures: Implement standard procedures for the safe unloading of hazardous chemicals from road tankers.
- Static Earthing: Ensure static earthing provisions are in place during the unloading process.
- Handling Equipment: Use drum handling trolleys for the transportation of drums within the plant and from storage to processing areas.
- Fire Safety: Equip areas with fire extinguishers as required and ensure the availability of first aid boxes.
- Water Showering: Install water showering systems in flammable chemicals storage areas.
- No Smoke Zones: Clearly mark areas as “No Smoke Zones” to prevent ignition sources.

7.13.8. NTPC Safety Framework:

NTPC safety framework is a guidance document to the various functions and roles. It contains a set of expectations that ensure that all efforts are aligned with the overall policy and objectives of NTPC. The expectations are expressed broadly in the form of components –

- Safety Policy & Objective,
- Safety Risk Management,
- Safety Assurance and
- Safety Promotion.

This Framework also covers functional implementation expectations: what the different functions & roles must do to implement a robust system and provides essential guidance and how it will be accomplished. To facilitate such guidance, where required, components are divided into smaller Elements and Processes, as mentioned in Exhibit-1. These components are described as follows.

Component 1. Safety Policy and Objectives

The Policy serves as the foundation for the NTPC Safety Framework, its Components and Elements. The Business unit, functional and individual employee goals and objectives are typically aligned to those of the overall organization.

Component 2. Safety Risk Management

The objective of safety risk management is to ensure that a formal system of hazard identification is in place so that the activity or, situation posing the risk may be avoided, accepted, reduced, shared, or transferred, depending on the facts and circumstances.

Component 3. Safety Assurance

Safety assurance ensures that all projects comply with safety policy, rules, procedures, legal requirements in achieving safety targets and objectives, ensure continual improvement and effectiveness of implementation of the safety framework; through regular inspections, audits and reviews, in order to provide assurance that procedures are followed, and appropriate controls are in place. Safety Assurance also includes Contractors and Contract Control to ensure Safety Policy objectives are achieved effectively.



Figure 7.9 : Over View of Safety Framework

Component 4. Safety Promotion

The objective of safety promotion is to promote Safety as a core value with practices that facilitate & support a sound safety culture. Elements of such promotion include communication, training & promotional activities.

7.13.8.2 SAP Integrated Safety Framework

NTPC has successfully completed full-fledged SAP INTEGRATION OF SAFETY FRAMEWORK in all NTPC stations. This ensures implementation of a uniform and evidence based safety management system across all stations.



SAP Integration of Safety Framework

It triggers auto generated orders for uploading evidence of compliance (in central repository) for mandatory safety activities as per defined set of expectations for different roles and functions. It enables the executives with ease of tracking, monitoring and auditing the safety system of the plants in a seamless manner.

7.13.8.3 Safety Training for Agency Workers:

- Induction training modules and 23 Job Specific Standard Training Module are developed in English and in Hindi. The standard modules of safety trainings include Induction Training, Caught In/ Caught By, Heavy Vehicle Safety, Working at Height, Electrical Safety, Working in Confined Spaces, Struck By, Safety in Using Hand Tools, Safety in Using Power Tools, Fire Prevention, Safety in Hot Works, Safety in Work On or Near Water, Work Permit System, Use of PPE, Manual Handling, Excavation Safety, Safety in Handling Hazardous Substances, Ergonomics, General Safety and Hygiene for Office, Safety in Demolition, Slips and Trips, Safety in Material Handling, Safety in Coal Handling Plant.
- Language of Training modules are kept simple, personal and direct.
- Guidance slides for trainers and prerequisite for training are available in training modules itself.
- The identification of training needs (as per nature of work, potential exposure to hazards, working condition, personal capacity etc.) is to be done by EIC for each worker at the time of processing of gate pass. Thus, worker role competency matrix is to be prepared for all workers.
- Safety Department of the station are required to conduct training on Induction, Fire and PPE Modules mandatorily for all workers.
- Line managers (preferably trained trainers) are required to conduct training on other job specific safety training modules as identified during training need assessment.

- The progress of training in form of identified vis-a-vis trained is to be captured by EIC to keep a track and completion of all identified trainings.

7.13.8.4 Safety in Overhauling Activity:

Overhauling of power plants is an specialised activity and many agencies involving high number of agency workers perform different works simultaneously. Safety provisions mentioned in 'Maintenance Management- Unit Overhauls' and 'Electrical & Mechanical- Safety Rules Handbook' are followed during unit overhauls.

From all the agencies involved in overhauling activities, nominations of Safety Officers/ Supervisors and qualified & trained electricians are obtained from each Agency. Safety Review Meeting with Contractors & Agencies' Safety Supervisors in presence of EICs and head of O&M before start of overhaul works shall be organized. In the meeting safety measures which are to be followed during overhauling works are discussed. Detailed guideline for maintaining safety in over hauling has been prepared and followed.

7.13.8.5 Safe Practices at Work:

For safety Practices at work NTPC has developed various guidance notes and directives on several topics like Hazard Identification and Risk Assessment, Implementation of Safety Rules (Electrical and Mechanical), Job Safety Analysis and Method Statements, First Aid Control and Monitoring, Safety Objectives and Plans, Safety Monitoring, Measurement & Improvement, Safety Awareness, Communication & Promotion, System for Reporting arrangements and Investigation of Accidents, Dangerous Occurrences and Major Incidents in a Power Station, Appointment of Key Safety Roles, Emergency Response Planning, Mitigating Occupational Health Risks - Stressors, Hygiene & Facilities, Periodic Safety Assessments (Internal to Station), Written Safe Work Procedures, General Safety Competencies and Training, Compliance with legal and other requirements, System for action on investigation reports etc. Apart from above, various communications and circulars are issued from time to time by Corporate Safety regarding safe practices. Accident enquiry recommendations are also source of information regarding safe practice of work which circulated and made readily accessible.

7.13.8.6 Safety Audits:

Audits are conducted to asses whether any deviation is existing from laid out procedure. Every year, internal safety audits are conducted by inter station team of Safety Officers and External safety audits are carried out by reputed organizations as per statutory requirement for each Project/ Station. Every TC document as mentioned above has a section on procedures to conduct audit for that particular document. This also clearly specifies documents to be verified and site samples to be taken. This process is followed for all internal audit purpose.

Apart from that, special audits are conducted from time to time to asses adherence to laid out procedures and rules. NTPC has developed a pool of NOSA certified auditors, certified lead / internal auditors as per ISO 45001 for ensuring quality audit.

All audit observations are notified in SAP ERP system and compliance recorded along with evidence of compliance. Station safety department is required to monitor the progress of the closure of such notifications and present the status of the notifications to station management during review and other forums.

7.13.8.7 Incident Investigation:

There is a formal process for investigation of all accidents to examine each case in detail and in depth to find out the causes of accidents, the extent of losses caused, the circumstances / individuals responsible and to obtain considered recommendations for prevention of recurrences in similar or related nature of accidents.
There are specific guidelines and systems for handling the investigation report so that all recommendations of such investigations are taken up to a logical end and implemented. For all accident enquiry recommendations, action plan is prepared for compliance.

7.13.8.8 Safety' has unique features:

a) If no accident has happened so far probability of incident/accident occurring increases.

b) 'No accident' / good safety record develops complacency inertia/over confidence in the team. This attitude gives rise to gaps/soft spots in the system giving chances to incidents/accidents.

Safety requires novelty. Routine training practices get stale with no positive results. Look for novel scheme of training/ safety practices to build up fresh impetus in safety. Involvement of employees with refreshed outlook for safety is to be achieved.

7.14. Disaster Management Plan

MUNPL currently does not store hazardous chemicals in quantities exceeding the threshold limits as specified under the MSIHC Rules. However, MUNPL has an onsite Disaster Management Plan (DMP) that has been submitted to the State Pollution Control Board and other relevant state authorities for approval. Additionally, MUNPL has established "Mutual Aid agreements" with nearby industries to ensure cooperation in disaster response efforts. The existing DMP will be reviewed and revised to incorporate potential hazards associated with the proposed expansion project. Below are the key features and capabilities of the DMP:

7.14.1. Capabilities of DMP

The DMP is designed to handle a wide range of emergencies, including but not limited to:

7.14.1.1 *Hazardous Materials:*

The plan covers potential incidents involving hazardous chemicals such as chlorine, hydrogen, and light diesel oil (LDO). This includes toxic leaks, fires, gas releases, and major spills.

7.14.1.2 *Fire Management:*

The DMP outlines strategies for combating small and large fires, whether they originate from chemical storage areas or process streams. It also includes evacuation procedures to ensure the safety of personnel.

7.14.1.3 *Medical Response:*

The DMP ensures the availability of emergency medical aid for those affected by toxic exposures, heat radiation, or explosion shockwaves.

7.14.1.4 *Rapid Response:*

The plan emphasizes a swift response to developing emergencies to prevent incidents from escalating into major disasters.

7.14.2. Disaster Control Philosophy

The core strategy of the DMP is the **prevention** of major hazards through comprehensive hazard identification and risk assessment techniques, such as Hazard and Operability Studies (HAZOP) and accident consequence analysis. The following principles guide the disaster control strategy

7.14.2.1 *Total Quality Assurance:*

This objective applies to all stages of technology selection, project engineering, construction, commissioning, and operation.

7.14.2.2 *Preventive Measures:*

Emphasis is placed on preventing loss of containment, which could lead to catastrophic events.

7.14.2.3 *Continuous Improvement:*

Regular review and improvement of the DMP ensure that it remains effective and up-to-date with the latest safety standards.

7.14.3. Structure of the DMP

The DMP is organized into two main components:

7.14.3.1 *On-site Emergency Plan:*

This plan addresses emergencies that occur within the plant premises, including procedures for evacuation, fire-fighting, and containment of hazardous materials.

7.14.3.2 *Off-site Emergency Plan:*

This plan, developed in coordination with district authorities, outlines the response to emergencies that could impact the surrounding communities.

7.14.4. Additional Considerations for the Proposed Expansion

With the proposed expansion, the DMP will be reviewed to consider new hazards introduced by the increased scale of operations. The review will include:

7.14.4.1 *Updated Hazard Assessments:*

Identifying any new risks associated with additional hazardous materials or changes in process operations.

7.14.4.2 *Enhanced Safety Measures:*

Implementing additional safety systems and emergency procedures to mitigate these new risks.

7.14.4.3 *Community Awareness:*

Strengthening communication and coordination with local authorities and nearby communities to ensure they are aware of the updated emergency response procedures.

7.14.5. DMP implementation

7.14.5.1 *Emergency Identification and Analysis:*

The DMP identifies potential hazards, including chemical leaks, fires, explosions, and natural disasters like earthquakes and floods. Hazard analysis includes the identification of undesired events, their mechanisms, and the likelihood and severity of their impacts.

7.14.5.2 *On-Site and Off-Site Emergency Plans*

The on-site emergency plan addresses incidents that occur within the plant premises and focuses on immediate containment and response to protect workers and minimize damage. The off-site emergency plan, developed in coordination with district authorities, manages the broader impact of incidents that extend beyond the plant.

7.14.5.3 *Emergency Control Structures:*

The DMP outlines the roles of key personnel, including the Chief Incident Controller (CIC), Works Incident Controller (WIC), and Incident Controller (IC). These individuals are responsible for initiating and managing the emergency response.

7.14.5.4 *Communication and Coordination:*

Effective communication is critical in the DMP, with detailed procedures for internal and external communication during emergencies. The plan includes a communication network to alert emergency authorities, neighboring industries, and the public in the event of an off-site emergency.

7.14.5.5 *Emergency Response Teams:*

The DMP establishes various response teams, such as the Task Force, Maintenance Team, Fire Fighting Team, and Medical Team, each with specific responsibilities during an emergency. These teams are trained and equipped to handle different types of incidents.

7.14.5.6 *Mock Drills and Continuous Improvement:*

Regular mock drills are conducted to test the effectiveness of the DMP and ensure that all personnel are familiar with their roles during an emergency. The plan is periodically reviewed and updated based on the outcomes of these drills and any new hazards identified.

7.14.5.7 *Safety and Risk Management:*

The plan includes detailed safety policies and procedures, emphasizing the prevention of accidents through hazard identification, risk analysis, and strict adherence to safety standards. It also outlines the responsibilities of top management and departments in maintaining safety and implementing the DMP.

7.14.6. *Recommendations of DMP Regular Updates and Reviews:*

Continuously update the DMP to reflect new hazards introduced by changes in the plant's operations, technological advancements, and feedback from mock drills.

7.14.6.1 *Enhanced Training Programs:*

Expand and enhance training programs for all personnel, especially focusing on new hazards and emergency response techniques. Include scenario-based training to improve decision making under pressure.

7.14.6.2 *Strengthen Off-Site Coordination:*

Improve coordination with local authorities and nearby communities to ensure a seamless response during off-site emergencies. Regular joint drills with external agencies should be conducted to test the coordination and response capabilities.

7.14.6.3 *Public Awareness and Communication:*

Increase public awareness regarding the potential risks associated with the plant and the actions they should take during an off-site emergency. This includes clear communication channels for disseminating information quickly during an incident.

7.14.6.4 *Advanced Safety Systems:*

Invest in advanced safety and monitoring systems to detect and mitigate potential hazards before they escalate into major incidents. This could include automated shutdown systems, improved fire suppression systems, and enhanced chemical leak detection technologies.

7.15. Management Facilities to mitigate the Risk & Disaster at NTPC Meja

7.15.1. Medical Facilities and Health Infrastructure at Meja TPS

The existing Meja Thermal Power Station has already full-fledged hospital (Aarogyam Hospital) to cater the health needs of employees of NTPC, CISF, PAPs and other nearby villages and the same will be extended after the proposed expansion also.

Aarogyam hospital has been serving employees and neighboring community since last 06 years. It is a 30 bedded hospital that provides 24-hour emergency services with regular doctors, administrative staff and regular Para medical staff.

Aarogyam hospital of MUNPL is a full-fledged 30 bedded hospital with an adequate number of qualified medical staff which is serving MUNPL employees & their dependents, Contract workers, School and surrounding PAP affected villages. It also acts as an occupational primary health care center where contract workers also avail services. Hospital provides Emergency services, trauma management, first aid facilities, lifesaving medicines and ambulance to meet any emergency. A 24 x 7 first aid centre is also run by hospital at plant premises catering to employees & contract workers for immediate medical support. More than 25,000 people from surrounding villages have benefitted from doctor's consultation in hospital OPD, and more than 800 people have been treated in emergency since 2018 till date. Annual medical check-up had been conducted for more than 20,000 contract workers till date.

Annual medical check-up of all the employees is done at periodic intervals through empaneled hospitals. Medical checkup of contract workers is done at the hospital. Health records are maintained in HMS for each employee while for contract workers, they are uploaded in CLIMS. Regular health check-up is carried out as and when required at the hospital. Precautionary measures are taken to avoid any occupational health hazards.

Aarogyam hospital has an in-house laboratory which has performed lab tests for more than 21,000 contract workers from 2021 till date. It also has an in-house imaging section where more than 19,571 non-entitled beneficiaries have been screened.

7.15.2. Support during Pandemic

During Covid pandemic, Aarogyam Hospital had worked in co-ordination with nearby Government & District hospital to provide its best services to the needy. More than 15000 people were tested for COVID illness and, more than 5000 COVID vaccinations were done.

The work environment is monitored for occupational accidents, diseases and dangerous occurrences. Near miss events are timely recorded. The following aspects are adopted to ensure good health conditions of employees.

- Pre-employment check-up.
- Awareness programs
- Routine check-up; and
- Periodic vaccination program etc.
- Camps for health promotion

7.15.3. Occupational Health Monitoring for Workers

Engagement of contractual workers is done only after a proper induction health check-up and fitness certificate is by approved a medical practitioner.

Periodic Medical Examination (PME), as required under the Factories Act, is undertaken. However, the investigations performed under the PME are in relevance to the job exposures as communicated by EIC's while sharing the details. Since coal/ash handling workers are prone to dust exposure-related diseases, pulmonary function test is done. Similarly, an audiometry test is done during induction and in annual health checkups, especially in hazard-identified areas. In case of need, the frequency of PME is scheduled, based on observation of the health check-up information. Providing PPE and re-locating of jobs for those workers is also considered.

7.15.4. Health camps

Every year health camps are being conducted targeting both MUNPL residents and surrounding villages in line with government programs. A total of 23 camps were organized in year 20232024 where approx. 3500 beneficiaries could avail of the services. Similarly, in the year 2024 till date, 11 camps have been conducted covering more than 1100 people. Ayush camps and blood donation camps have also been conducted by the hospital.

Aarogyam Hospital has always been a frontier in various NTPC/Government practices. In 2023, more than 500 people including employees & contract workers were provided First Aid and CPR

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training by certified trainers to handle emergencies until emergency help arrives. More than 100 people were benefitted from the BMD camp organized at hospital and, more than 50 people could avail services during the Eye camp. Every year more than 300 school children have benefitted from school health camps conducted by Aarogyam hospital.

7.15.5. Medical support during GEM workshop

Many educational lectures on healthy food habits, good touch & bad touch, Menstrual hygiene were conducted for the girls enrolled in the GEM workshop. An anemia detection camp was also organised for those girls, followed by deworming and Iron supplementation to all of them as a part of Anemia eradication camp.

Under the spectrum of Anemia Mukt Bharat, Anemia camp was also organised in rural schools where approx. 100 children were identified and treated. The girls were also educated regarding dietary nutrition & personal hygiene. An awareness session was also conducted for the children and teachers emphasizing the importance of healthy food habits and intake of iron-rich foods for overall well-being.

7.15.6. Menstrual hygiene awareness & Sanitary napkin distribution

Mass health awareness programs were conducted for more than 300 village girls highlighting menstrual hygiene and safe practices to avoid infections. Sanitary napkins were also distributed to the girls.

Promoting the vision of government India “TB Harega Tabhi Desh Jeetega” more than 500 TB patients were supplied with nutritional food packets along with CSR Dept. Our hospital has also been a center for running DMC in association with UP state government.

Aarogyam Hospital, MUNPL was the first to conduct HPV vaccination camp among NTPC hospitals where MUNPL girls within age group of 09 – 25 years were vaccinated.

7.15.7. Food handlers fitness

An enteric infection detection camp was organised for food handlers at Aarogyam Hospital, where more than 50 ICH staff were tested for typhoid & anemia. Deworming was done for all of them and were taught about healthy & hygienic practices to follow during food preparation.

7.15.8. Propagation of AYUSH program

AYUSH camps such as Ayurvedic and homeopathic camps were also conducted in nearby villages where implementation of ayurveda in daily life was emphasized.

7.15.9. Awareness Programs & Training

Intending to spread awareness as the basic precaution against various ailments, Aarogyam hospital has been actively conducting awareness sessions for both MUNPL beneficiaries and nearby PAP beneficiaries.

7.15.10. Breast cancer awareness programs

More than 500 females were educated on breast cancer and were taught self-examination techniques to guide them in early detection of breast lump and in receiving proper care.

7.15.11. Cervical cancer prevention & HPV Vaccination program

More than 500 people were informed about precautionary HPV vaccination and its importance in preventing cervical and anal cancers in human population. Similarly, several awareness sessions such as AIDs prevention & precautions, Tobacco cessation, Safe food handling practices awareness have been conducted for ICH staff, MUNPL residents & CISF personals, plant workers etc.

7.15.12. Healthy Life-style promotion

Walk for health was done during Swachta Pakhwada, World Health Day etc. A public health talk over preventive cardiac health was taken by a renowned cardiologist from Fortis Hospital, New Delhi for more than 1000 people for following healthy lifestyle modifications.

7.15.13. Mental Health Awareness Program

Online webinar and offline sessions on mental health awareness had been conducted for more than 2000 people including NTPC employees & their dependents, CISF, AMS & contract workers. The online webinar was taken by hospital CMO, at pan NTPC level emphasizing work-life balance.

7.15.14. Endemic Diseases in the Area

Most communicable diseases found to be prevalent in surrounding villages are Enteric fever, Malaria, Dengue, chikungunya, Pneumonia, Measles, Tuberculosis etc. while Hypertension, Diabetes, Anemia are common non-communicable diseases. CSR village health camps and eye camps are organized annually to cater to the needs of the surrounding population. Aarogyam hospital in association with District hospital has established a DMC to identify tuberculosis patients from the surrounding villages. Project affected persons of existing plant have been receiving medical facilities at discounted rates or at free of cost depending on the services obtained.

Action Plan to Mitigate the Endemic Diseases

- Conducting regular awareness camps in the hospital and in nearby villages for the surrounding population.
- Conducting regular health camps in the hospital and in nearby villages for the surrounding population.
- Admission, investigations, treatment and follow up of non-entitled patients reporting at emergency needing treatment in Aarogyam hospital.
- DMC at the hospital catering to tuberculosis patients in surrounding areas free of cost.
- Awareness sessions in surrounding schools regarding personal hygiene and protection & precautions against infectious diseases.
- Periodic awareness programs regarding health and safety with active involvement of the workers are organized, covering everyone with a minimum annual average duration of 8 hours per worker.
- Regular community level awareness programs may be organized in the vicinity of the plant for the family members of the workers.

- First-aid training will be imparted to workers on a regular basis to provide immediate relief to accident victims.
- Detailed Onsite and Offsite DMP is enclosed as **Annexure-20.**

7.15.15. Health and Safety Monitoring Plan

Regular health checkups/ occupational health checkups are done for employees and contract labor in existing NTPC hospital. Regular medical checkups of contract work force is carried out to access the healthy work environment and detection of earliest change in their health. The patients with abnormal findings are tracked and called for regular follow-ups and counselling.
The health of all employees engaged in proposed Stage-II shall be monitored once in a year for early detection of any ailment due to exposure to heat and noise.

7.16. Watershed Study and Action Plan

7.16.1. *Watershed Study*

The watershed is the area of land that drains or sheds water into a specific receiving waterbody, such as a lake or a river. As rainwater or melted snow runs downhill in the watershed, it collects and transports sediment and other materials and deposits them into the receiving waterbody. Watershed management planning is a process that results in a plan or a blueprint of how to best protect and improve the water quality and other natural resources in a watershed. Runoff from rainwater can contribute significant amounts of pollution into the waterbodies of the study area. Pond rejuvenation and management involve several steps to restore and maintain the health of a pond, ensuring it supports aquatic life, maintains water quality, and provides aesthetic and environmental benefits. As apart of development of watershed, MUNPL has rejuvenated ponds in village-Salaiya Kala and Mai Khurd (Rs.8 Lakh/pond), constructed well and check dams in Esauta, Patai Dandi, Jhariyahi and Kohdar villages (Rs.55 Lakh).







Development of watershed by MUNPL

A detailed Watershed Study is conducted by MUNPL through National Institute of Hydrology, Ministry of Jal Shakti, Department of Water Resources River Development & Ganga Rejuvenation-Govt. of India, Roorkee. Detailed Watershed Study Report is attached as **Annexure-6.**

The proposed action plan to be followed in the next five years which may be updated following the updated land cover, land availability, other local conditions and consultation with district administration / other stake holders.

Table 7.8 : Watershed Development Action Plan for Next Five Years

Year	Watershed development types	Clusters/S. No.	Approx. Area
2025-2026	Plantation	Cluster 01	20-50 Ha
	Pond Development	Pond No. 01	
	Soil & Water conservation through trenches	Cluster 01, 02, 03	
2026-2027	Plantation	Cluster 01, 02, 03	30-50 Ha
	Pond Development	Pond No. 02	
	Soil & Water conservation through trenches	Cluster 04, 05, 06	
2027-2028	Plantation	Cluster 01, 04, 05	30-40 Ha
	Pond Development	Pond No. 03	
	Soil & Water conservation through trenches	Cluster 07, 08, 09	
2028-2029	Plantation	Cluster 06, 07	30-40 Ha
	Pond Development	Pond No. 04	
	Soil & Water conservation through trenches	Cluster 10, 11, 12	
2029-2030	Plantation	Cluster 08, 09	30-40 Ha
	Pond Development	Pond No. 05	
	Soil & Water conservation through trenches	Cluster 13, 14	

7.16.2. *Watershed Development (WSD) Budget:*

WSD aims to ensure the sustainable restoration and upkeep of the ponds, covering activities such as desilting, water quality improvement, vegetation management, and community engagement initiatives. Phase wise for plantation as per the updated land cover, land availability, other local

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conditions and consultation with district administration / other stake holders. It also presents a significant opportunity for restoration and reforestation efforts to enhance the overall health and sustainability of the watershed.

1. Cost for pond development / rejuvenation is Rs. 20 Lakh per pond. Tentative budget for developing 5 ponds is Rs. 100 Lakh.
2. The estimated cost for development of plantation as per DFO-Prayagraj in the study area covering an area 589 Ha of Rs. 57.49 Crores.

Chapter 8. PROJECT BENEFITS

Proposed project will need to offer statewide social, environmental, and economic benefits that are greater than the capital and operating costs of its implementation.

The proposed expansion of Meja Thermal Power Plant project will cause various short/ long term and primary/ secondary impacts on the environment of study Area. Any activity aimed at development will have repercussions on the environment, both positive and negative. Environmental Impact Assessment study is a management tool, which enables the proponent to identify the negative impacts and to mitigate the negative impacts through appropriate Environmental Management Plan.

Hence Meja Urja Nigam Pvt. Ltd (MUNPL) as a part of the compliance to the regulatory requirement i.e. to obtain Environment Clearance from MoEF &CC, has appointed a consultant to carry out the "Environmental Impact Assessment (EIA) Study for the Proposed Expansion of Coal Based Thermal Power Plant**.** There are however, mitigation measures and EMP proposed, non-conformance to which will lead to much higher costs in terms of social and environmental concerns than the cost of the proposed mitigation measures. In addition to that, overall infrastructure development due to this project and the facilities which will come up after commissioning of the project will substantially support the development of the whole area.

This section describes the direct and indirect benefits that the proposed power plant is expected to have at the local, regional and even national levels. It is anticipated that the proposed expansion of power plant will provide benefits for the locals in two phases i.e. during construction phase as well as during operational stage.

The project benefits due to the proposed project on the infrastructure in general and on the socio-economic status are described in the following sections:

8.1. Benefits to the Country

The proposed project would have the following operational advantages:

- The proposed expansion project would enable to meet part of the growing power demand in the state of Uttar Pradesh as well as in India for irrigation, domestic and commercial purposes.
- Further, the proposed expansion (3 x 800 MW) will result in improvement of infrastructure as well as upliftment of social structure in the area.
- Land is already acquired for the project, except 110 Ha land required for proposed Ash Dyke (89 Ha), greenbelt and other (21 Ha).
- Increase in revenue in terms of taxes at local, state, and national level.
- Opportunity to create direct and indirect employment to several other hundreds more through multiplier effect in terms of downstream socio-economic benefits and consequent improvement in the living conditions of local population in the study area and in region.
- Increased investment on CER; etc

8.2. Revenue to Govt.

The project will contribute to the financial kitty of State Government by means of several direct and indirect taxes. The produced electricity will be provided to meet the need of growing electricity demand of the state thus bringing financial benefits to the state. However, the power generated from this plant will benefit the Uttar Pradesh State and other states of northern region leading to agricultural and industrial development and also to the country.

8.3. Job Opportunity:

The proposed expansion power plant will require skilled, semi-skilled and unskilled personal during construction and operational phase. Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase. The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases.

Employment generation

Sl. No.	Phase	Existing		Proposed	
		Permanent	Temporary	Permanent	Temporary (Peak time)
1	Construction	--	--	60	4986
2	Operation	229	1603	210	5040

8.4 Improvement in livelihood of local people and local infrastructure:

Community development activities are very important aspects for any big organization because people of the villages surrounding the plant are the indirect stakeholders. Marginal positive impact on socio-economic environment is foreseen due to direct and indirect employment, opportunity of business and social welfare taken up by the company. The mostly rural population may see development of educational, medical and infrastructural facilities.

Meja Urja Nigam Pvt. Ltd. (MUNPL) will join hands with village panchayat, district administration, government agencies as well as non-profit & non-governmental organizations to undertake various social development programmes under the banner of Corporate Social &Environment Responsibility (CSER).

8.5 Better Road infra structure and Transportation facilities

MUNPL. has laid roads around the project area and all surrounding villages are availing better and faster connectivity between them. Road infrastructures are strengthened wherever required which facilitates smooth movement of villagers.

8.6 Improved Power Supply

Commissioning of proposed plant, Stage-II (3x800 MW) will improve the power supply position which is vital for economic growth as well as improving the quality of life. The improved power supply will reduce the dependence of general public and commercial establishments on DG sets thereby reducing the noise pollution as well as air pollution at local levels.

8.7 CER Activities/ Community Development Activities

As per the OM F. No. 22-65/2017-IA.III dated 30th September, 2020 on Corporate Environment Responsibility (CER) and subsequent amendments by Ministry of Environment, Forest and Climate Change Impact Assessment Division have stated that the Expert Appraisal Committee or State Level Expert Appraisal Committee shall deliberate on the commitments made by the project proponent to address the concerns raised during the public consultation and prescribe specific condition(s) in physical terms while recommending the proposal, for grant of prior environment clearance instead of allocation of funds under CER. Public hearing of the project held on 24.06.2024. MUNPL has proposed a budget of Rs. 40.1 Cr for Community Development (CD) under CER. CER plan has been prepared as per the need identified during the public hearing which is detailed and presented in Section 7.1 of Chapter7.

Chapter 9. ENVIRONMENT COST BENEFIT ANALYSIS

This chapter defines the benefits on Environment due to the proposed project.

9.1. Environmental Cost-Benefit Analysis

Environmental cost-benefit analysis, or CBA, refers to the economic appraisal of policies and projects that have the deliberate aim of improving the provision of environmental services or actions that might affect (sometimes adversely) the environment as an indirect consequence.

Cost-Benefit Analysis (CBA) originated in the area of research called welfare economics. It helps to answer questions about the benefit of one outcome over another, from a societal standpoint. Welfare economics uses criterion from the Utilitarian philosophy of the eighteenth century. These researchers tried to "compare outcomes on the basis of what gives the greatest benefit to the greatest number of people. Benefit here means utility: thus, welfare economics looks at ways of comparing outcomes in terms of their contribution to the utility of the population as a whole" (Hanley, 69). The environmental costs and benefits of a developmental project is most clearly understood when represented in qualitative and quantitative terms (monetary units), and then balanced against each another.

9.2. Stages of Cost-Benefit Analysis

- Defining the Project
- Identifying Impacts of the Project
- Valuing Impacts
- Valuing Benefits
- Cost Benefit analysis ratio
- Inference

The existing Meja Urja Nigam Power Station has an installed capacity of 2x660 MW. Both the units of Stage-I are under commercial operation.

The proposed expansion project of 3x800MW under Stage- II by Meja Urja Nigam Private Ltd. will enable to meet part of the growing power demand in the state of Uttar Pradesh as well as in India due to rapid industrialization and also due to large scale use of electricity for irrigation, domestic and commercial purposes. Further, the proposed expansion of power plant will result in improvement of infrastructure as well social upliftment in the area. The setting up of the proposed project will lead to direct and indirect benefits to the overall socio-economic status of the region. It is anticipated that the proposed expansion of power plant will provide benefits to the locals in two phases i.e. during construction phase as well as during operational stage.

9.3. Identifying Impacts of the Project

The impacts of construction and operational phases of the proposed expansion project comprise various activities each of which may have an impact on some or other environmental parameters. Various impacts during the construction and operation phase on the environment have been studied to estimate the impacts on the environmental attributes and are discussed in the subsequent sections. Impacts of the project activates are given in **Table: 9.1.**

Table 9.1 : Impacts of the Proposed Stage – II project during construction & operation phase

S. No	Sector	Probable Impact
1.	Air Environment	➢ Fugitive dust and Stack emissions (PM, SO_2 and NO_x).
2.	Water Environment	➢ Effluent generation from project site
3.	Noise Environment	➢ Generation of noise due to construction and operational activities of plant.
4.	Solid Waste Environment	➢ Generation of Solid waste from plant, labour colony and township.
5.	Ecology & Biodiversity Environment	➢ Tree cutiing ➢ Fragmentation of habitat ➢ Light Pollution
6.	Socio-economic Environment	➢ Resettlement of people due to proposed expansion project. ➢ Impact on people due water, noise and air pollution. ➢ traffic impacts.
7.	Land Environment	➢ Change in land use pattern and land degradation

9.4. Evaluation of Impacts

There is no approved methodology for Cost Benefit Analysis of thermal power projects. However, the same has been undertaken based on the parameters identified under the following two documents:

(a) The Methodology for Cost Benefit Analysis for Projects involving Forest Diversion as per Consolidated Guideline & Clarification issued under Van (Sanrakshan evam Samvardhan) Adhiniyam, 1980 and Van (Sanrakshan evam Samvardhan) Rule 2023. Although the project does not involve any forest land, the parameters specified in the analysis, as applicable have been considered.

(b) MoEF&CC OM dated 05.03.2020 on Draft Guidelines for Environmental Damage assessment Cost- Although the project does not involve any violation or damage, the parameters for emission & discharge have been considered as per Draft Guidelines.

Evaluation of the impact during construction and operation is showing in **Table 9.2.**

Table 9.2 : Evaluation of the impact during construction & operation phase of MUNPL Stage – II (3x800 MW)

S.No	Parameters	Remarks	Monetary Equivalent
1	Ecosystem services losses due to proposed forest diversion.	Economic value of loss of ecosystem service due to forest diversion of forest shall be the net-present value (NVP) of the forest land being diverted as prescribed by the Central Government (MoEF&CC) Note: In case of National parks the NVP shall be ten (10) times the normal NVP and in case of wildlife Sanctuary the NPV shall be five (5) times of normal NPV or otherwise prescribed by the ministry or any other competent authority.	Nil As forest land is not involved and the land is already in industrial use.
2	Loss of animal husbandry Productivity including loss of fodder	To be quantified and expressed in monetary terms or 10% of NVP applicable whichever is maximum.	Nil
3	Cost of human resettlement/ rehabilitation	To be quantified and expressed in monetary terms as per approved R&R Plan.	**Rs.26.24 Cr** is earmarked for R&R plan
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railway etc.) on forest land. Which would require forest land if these facilities were diverted due to the project.	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion.	Nil Human resettlement is not required since the land is already in possession and in Industrial use.
5	Possession value of forest land diverted	10% of environment costs (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a cost component as possession value of forest land whichever is maximum.	Nil
6	Cost of suffering to outees	The social cost of rehabilitation of outsees (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R&R Plan) be worked out as 1.5 times of what oustees should have earned in two years had he not been shifted.	Nil
7	Habitat Fragmentation	While the relationship fragmentation and forest goods and services is complex for the sake of	Nil

<table>
<tr><th>S.No</th><th>Parameters</th><th>Remarks</th><th>Monetary Equivalent</th></tr>
<tr><td></td><td>Cost</td><td>simplicity the cost due to fragmentation has been pegged at 50% NVP applicable as a thumb rule.</td><td></td></tr>
<tr><td>8</td><td>Compensatory afforestation and soil & moisture conservation cost.</td><td>The actual cost of compensatory afforestation and soil moisture conservation and its maintenances in future at present discounted value.</td><td>Nil</td></tr>
<tr><td>9</td><td>Cost of air emissions</td><td>Impact Cost; per kg of emission;
PM– Rs. 340/Kg Emission
SO_2 – Rs. 165/Kg Emission
NOx – Rs. 96/Kg Emission
(Source: As per MoEF&CC OM. No. 19-125/2019-IA.III dated 05.03.2020.
Although above parameters are mentioned for emission beyond the limits, the same rate has been considered for emission above the present levels.
Total Emission/ Year based on Air Quality Modeling considering 24 hrs. operation for 330 days for all units of Stage:II with FGD for 25 yrs of design life of plant
<table>
<tr><th>Pollutant</th><th>Emission rate (gm/sec)</th><th>Total emission/ year (Kg)</th><th>Impact cost in Rs (Lakh)/yr</th></tr>
<tr><td>PM</td><td>77.94</td><td>2222225.28</td><td>7555.57</td></tr>
<tr><td>SO_2</td><td>259.8</td><td>7407417.6</td><td>12222</td></tr>
<tr><td>NOx</td><td>259.8</td><td>7407417.6</td><td>7111</td></tr>
</table></td><td>Rs.6722.25 Cr</td></tr>
<tr><td>10</td><td>Water Environment</td><td>ZLD based ETP & STP shall be installed at project site, hence no impact on water environment envisaged.</td><td>Nil (Cost included at Environment Management Plan)</td></tr>
<tr><td>11</td><td>Noise Environment</td><td>Proper Equipment’s design, and PPE kit will be provided, no major impact envisages.</td><td>Nil</td></tr>
<tr><td>12</td><td>Solid Waste Environment</td><td>MUNPL has a facility for management and disposal of solid waste, no adverse impact due to solid waste is envisaged.</td><td>Nil</td></tr>
<tr><td>13</td><td rowspan="2">Cost of EMP</td><td>Environment Management Plan includes all the Pollution control equipment’s, Wildlife conservation plan, Rain water Harvesting, CER and Green Belt development cost</td><td>Rs 2960.33 Cr</td></tr>
<tr><td></td><td>Recurring cost of EMP (Rs. 58.45 Cr per year) for 25 yrs of design life of plant</td><td>Rs. 1461.25 Cr</td></tr>
<tr><td>15</td><td>Capital Investment</td><td>Total Project Cost</td><td>Rs. 25081.88 Cr</td></tr>
<tr><td></td><td colspan="2">Total Cost or Investment Amount</td><td>Rs. 36125.71 Cr</td></tr>
</table>

Total estimated cost as per Table: 9.2 = **Rs. 36125.71 Cr**

9.5. Evaluation of Benefits

Commissioning of proposed Meja Urja Nigam Pvt Ltd. Stage-II (3x800 MW) will improve the power supply position in states of India, which is vital for economic growth as well as improving the quality of life. The improved power supply will reduce the dependence of general public and commercial establishments on DG sets thereby reducing noise pollution as well as air pollution at local levels.

Under Corporate Social Responsibility, various activities will be started like welfare for poor/physically challenged persons. Capacity-building programs, sports events, assistance to government schools, and scholarships will be done. The major benefit due to the proposed expansion project will be in the sphere of generating temporary employment for a substantial number of personnel during construction and operation phase.

Community Development activities like education, health, water, sanitation, etc. will be carried out at project-affected nearby villages as per company policy in the areas. In addition, Meja Urja Nigam Private Ltd. shall develop necessary infrastructures like water supply, sewerage, medical facility, etc. Evaluation of benefits from the proposed Stage – II project is given in **Table 9.3.**

Table 9.3 : Evaluation of Benefits from the project

S. No	Parameters	Remarks	Monetary Equivalent
1	Increase in Productivity attribute to the specific project	To be quantified & expressed in monetary terms avoiding double counting	**Rs. 36241.05 Cr** (Profit after Tax over the design life of 25 yrs.)
2	Benefits to economy due to the specific project	The incremental economic benefit in monetary terms due the activities attributed to the specific project.	**Rs.53141 Cr** (Tota cash flow during construction and operation of the project)
3	No. of Population benefited due to specific project	As per the Detailed project report.	Based on average electrical consumption of 1331units/capita/year, Total 134.41 Lakh population shall be benefitted. It will help to improve socio- economic development of the area.
4	Economic benefits due to of direct and indirect employment due to the project	As per the Detail project report	**a) During construction (5 yrs)** No of temp. employment: 4986 nos. Man-days in 05 yrs=9099450 Considering Rs.600/man-day =9099450*600= **Rs 545.967 Cr** No of permanent employment=60 Mandys in 05 yrs=109500 Considering Rs.5000/per employee /day = **Rs.54.75 Cr** b) **During operation phase**:

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S. No	Parameters	Remarks	Monetary Equivalent
			No of temporary employment=5040 Man-days in 25yrs=45990000 Considering Rs.800/manday =45990000*800= **Rs 3679.20 Cr** No of permanent employee 210 Considering average value @Rs.6000 per employee/day = 210*25*365*6000 = **Rs.1149.75 Cr** Considering 05 yrs for construction period and 25 yr of plant life, the direct employment potential of the project proposal = Rs.546Cr + 54.75Cr + 3679.20Cr + Rs.1149.75Cr = **Rs.5429.6 Cr**
5	Economic Benefits due to Compensatory afforestation/ Afforestation	Benefits from such compensatory forestation accruing over next 50 years monetized and discounted to the present value should be included as benefits of compensatory. Afforestation * For benefits of CA the guideline of the ministry for NVP estimation may be consulted.	Considering an MPV of ₹8.04 lakh per Ha, the total benefit of afforestation program on 271 Ha of degraded forest + 318 Ha inside Plant land under Stage-II is calculated as rupees 8.04 lakh x 574 Ha = **Rs.47.355 Cr**

9.6. Cost Benefit Analysis Ratio

The cost benefit analysis ratio based on above calculations is as under: **Rs.94859.006 Cr**

- Impact Evaluation: Rs. 36125.71 Crores
- Benefits Evaluation: Rs 94859.006 Crores

Environmental Cost Benefit Analysis ratio = Value of Impact: Value of Benefits
Environmental Cost Benefit Analysis ratio = 1:2.625
Hence, the project benefits are 2.625 times higher than the impacts evaluated.

9.7. Inference

The cost benefit analysis for the proposed Meja TPP Stage–II (3x800 MW) indicates in favour of the project. The financial expenditure incurred in preventing, containing, mitigation or removing environmental contaminations occurring as a result of the proposed project activity will further add to the environmental benefit.

Chapter 10. ENVIRONMENT MANAGEMENT PLAN

This chapter provides mitigation and control measures to attenuate or eliminate environmental impacts, which are likely to be caused by the proposed project. An Environmental Management Plant (EMP) has been developed to mitigate the potential adverse impacts and to strengthen the beneficial environmental impacts during the construction and operation phases. In addition to that during the operation phase, the industry will have an additional responsibility to comply with the statutory requirements as per the guidelines of Central/ State Government.

10.1. Introduction

The Environmental Management Plan (EMP) is synthesis of all proposed mitigation and monitoring actions, set to a time frame with specific responsibility assigned and defined follow-up actions. EMP is a plan of actions for avoidance, mitigation and management of the impacts associated with construction and operation stages of the project. The EMP need to be integrated in overall project planning process covering all phases of project cycles i.e, location, design, construction and operation. Management by provision of necessary safeguard in planning of the project itself can lead to reduction of adverse environmental impacts due to project. This chapter spells out the set of measures to be undertaken during project construction and operation to reduce or mitigate or bring down the adverse environmental impacts to acceptable level based on the proposed Environmental Management Plan.

The most reliable way to ensure that the plan will be integrated into the overall project planning and implementation is to include the plan as an integral component of the project. This will ensure that it receives funding and supervision along with other investment components. For optimal integration of EMP into the project, there should be link for:

- Funding
- Management, Training and
- Monitoring

The purpose of the first link is to ensure that proposed actions are adequately financed. The second link helps in embedding training, technical assistance, staffing and other institutional strengthening items in the mitigation measures to implement the overall management plan. The third provides a critical path for implementation and enables sponsors and the funding agency to evaluate the success of mitigation measures, as part of project supervision and as a means to improve future projects. For every use discussed in the above sections, the implementing agency as well as staffing, equipment, phasing and budgeting have been presented as far as possible. All required funds will be channelled through the project authority.

10.2. Objective of Environmental Management Plan

The EMP consists of a set of mitigation, monitoring and institutional measures to be taken up during the design, construction and operation stages of the project. The EMP has been designed keeping in view of the regulatory and other requirements to ensure the following:

- Minimum disturbance to the environment and social components

- Compliance with the environmental acts, rules and guidelines of the GoI & maintaining the quality of air, water, soil and noise as per the prescribed norms by regulatory bodies.
- Compliance for the Policies and Guidelines
- Conservation of natural resources to the extent possible
- Enhancement of Project benefits for Society & Environment
- Sustainable development and operation of project
- Implementation of Environmental Management Plan

Major activities associated with the proposed project are construction and operation of the project. A detailed environmental management plan for each activity of construction and operation phases are prepared. EMP lists the activities involved along with environmental impacts associated with each activity, suggestive impact mitigation measures, and implementation plan covering monitoring and supervisory responsibilities.

The environmental management plan is included as **Table 10.1** and **Table 10.2**. In order to effectively manage the environmental management (including social management) of the project, CSR plan, SDG goal, greenbelt development plan, rainwater harvesting plan, Solid Waste Management Plan; Occupational Health Management Plan, R&R plan, budget for Environmental Management Plan has-been prepared separately and integrated with EMP. These shall be followed for effective implementation of the EMP. The monitoring and implementation of the Environmental Management Plan (EMP) will be to ensure the proper functioning of the Proposed Project. Which will include the following:

- Environmental Management Cell
- Personnel Training on Environmental Awareness Program and Safety Issues

Table 10.1 : Environment Management Plan during Construction Phase

S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
1.	Air pollution: due to site Clearance, levelling , vehicles and other construction activities.	Top soil and debris generation. Air emission and Fugitive dust emission.	Water sprinkling in vulnerable areas Proper maintenance of vehicles & construction equipment. Transportation of construction material in covered trucks, wherever possible.	Control of fugitive dust from construction areas. Control of NOx Emissions. Control of fugitive dust during transportation.	Contractor	MUNPL
2.	Noise generation: due to earth moving equipment, material handling traffic and other construction activities.	High noise exposure to workers and surrounding habitation.	Proper maintenance of vehicles, equipment and machinery Provision of acoustic covers/ enclosures on equipment and machinery, wherever possible. Provision of earmuffs/ earplugs to the workers in high noise areas and enforcement of its use.	Protection of workers and surrounding population.	Contractor	MUNPL
3	Water Pollution: due to sedimentation, wastewater generation, water logging and	Contamination of water.	Channelization and Construction of temporary sedimentation tanks for effluents from construction area through network of drains. Oil separator / interceptor will be provided	Control of water pollution.	Contractor	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
	accidental Leakage of lubricant or spill.		Wastewater will be collected and treated in the existing ETP. The treated water will be reused for gardening and horticulture purpose.			
4.	Solid Waste Management.	Generation of C&D waste Disposal of top soil and surplus earth generation of domestic work.	Topsoil is required to be preserved and re-used completely. Entire excavated soil will be re-used completely. Recyclable material will be sold to authorized recyclers and remaining will be disposed off at the designated locations by Municipal Authorities as per C & D Waste Management Rules, 2016.	Create a good visual environment. Aesthetics improvement.	Contractor	MUNPL
5.	Traffic Management.	Increased traffic congestion due to construction activities.	Traffic diversion signage shall be displayed. No construction or transportation vehicle or machinery shall be allowed to park on the road beyond the marked project area Comply speed limits of the specific road. All drivers shall carry the valid license and PUC.	Protection from accident and pollution	Contractor	MUNPL
6.	Socio-Economic Environment.	Generation of noise level and air emission. Direct & indirect,	All precaution shall be done to control air and noise pollution. Most of the workforce shall be engaged from the nearby villages/town.	Provision of environmentally and socially safe working space.	Contractor	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
		employment generation. Increased population density due to migrant labour	Increase in population density in core zone study area due to workforce involvement during construction phase is only for short term impact. MUNPL has earmarked a fund of Rs. 40.1 Cr. for CER activities to tackle the social issues.			

Table 10.2 : Environment Management Plan during Operation Phase

S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
1.	Air pollution: due to Project operation.	Air emission due to operation of Thermal Power plant and DG set.	High efficiency electrostatic precipitators (ESPs) to limit PM emission to 30 mg/ Nm^3. Stack of height 220 m for 2x800 MW common flue and 150 m single flue for 1x800 MW above plant grade level is envisaged Flue Gas De- sulphurisation (FGD) system. NOx emission reduction system	To reduce the emission levels of particulate matter PM to 30 mg/Nm^3 Wider dispersion of emitted air pollutions to reduce the SO_2 emission levels 100 mg/Nm^3 To reduce emission levels of NOx as per CPCB Norms	contractor	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
		Fugitive dust emission due to transportation of coal Vehicular emission.	Coal Dust Extraction/ Suppression Systems Sprinklers in ash pond dry areas Reclamation of ash pond after abandonment	Control of fugitive dust from coal handling plant, ash pond area		
2	Noise generation: due to plant operation	Operation of the plant machineries. Due to operation of DG set and vehicular movement Impact of noise on workers health.	Provision of acoustic enclosures/ shields to reduce noise. Design of equipment, provision of personal protective equipment-like ear plugs and ear muffs Greenbelt development.	Attenuation of noise in source receptor pathway To control noise levels to 90 dB(A) at 1 m distance Protection of sensitive receptor	Contractor	MUNPL
3	Impact on Water Quality	Impact due to water drawl Impact due to generation of	Use of Air-Cooled Condensers to reduce water withdrawal. Reuse of entire boiler blow down for CW make up	Cooling of hot water coming out of condenser and auxiliary cooling systems for recycle HCSD system Main effluent treatment plant for	Contractor	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
		industrial effluent through different source and domestic effluent.	water. Excess CW blow down through a Central Monitoring Basin. To reduce water consumption with semi dry mode ash disposal system, Reuse of entire blow down water in ash handling, coal handling and fire fighting. Recirculation of all major effluent streams after treatment. Recirculation of ash handling plant effluents and treatment and recirculation of entire quantity of service water effluents. The domestic wastewater generated from the toilets, washrooms and canteen of the plant shall be treated in STP. Storm water network	removal of suspended solids, oil and grease and neutralization of pH, to conform to regulatory standards and recycled water shall be utilized for various dust suppression system, housekeeping and ash disposal system. Plant is designed to achieve Zero Liquid Discharge. Treated STP effluent shall confirm the regulatory standards and shall be utilized for green belt development.		
4.	Impact due to solid waste generation	Generation of fly and bottom ash	The fly ash and bottom ash are handled separately. Fly ash is transported by the	Facilitate supply of dry ash to entrepreneurs	contractor	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
			positive pneumatic conveying system and delivered to the fly ash silos. Then it is carried to users by tank truck. Fly ash shall be utilized for cement & brick making.	Reduce land requirement for ash disposal and pollution from ash disposal site. Environmentally safe disposal of unused ash		
		Gypsum disposal system from FGD Impact due to Used oil, Empty/ contaminated drums and ETP Sludge etc	Gypsum shall be utilised for cement manufacturing and allied industries	Reuse within plant/ sale to other industries for reuse Environmentally safe disposal of Gypsum Environmentally safe disposal of municipal waste		
		Impact due to municipal and hazardous solid waste generation	Petroleum oil tank sludge shall be sent to TSDF. Sewage sludge generated from STP will be used as manure in greenbelt development plantation. Municipal Solid waste will be collected, segregated,	Safe disposal as per Norms		

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
			and disposed off scientifically in compliance of Solid Waste Management Rules, 2016.	Environmentally safe disposal as per norms.		
5	Impact on Biological environment	Gaseous and dust emission on surrounding. Flora and fauna impact due to noise generation on wild fauna . Impact of waste generation on aquatic environment	Pollution control systems for achieving 30 mg/Nm^3 dust emission level from all the stacks. Most of the fugitive dust emission generation points are also fitted with efficient air pollution control systems (Plant dedusting systems). Water sprinkling / dry fog type system will be used at material handling points to suppress the generation of fugitive dust. Provision of acoustic enclosures Provision of greenbelt	Improved vegetation cover at site	contractor	MUNPL
6	Impact on Socio-economic	Employment generation	Provision for various pollution control equipment's.	Improvement in quality of life of local people by providing benefits of the project	Contractor	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
		Development of various basic amenities Impact on local people due to air and noise, solid and liquid waste generation	Provision of ETP and STP for effluent treatment. Provision of Social welfare under CER. Development of Greenbelt Preference to local people in employment generation			
Other						
1	Afforestation/plantation (subject to space availability and feasibility)	-	MUNPL has already established a greenbelt covering 163 Ha within its current facility. Following consultations with the Divisional Forest Office, MUNPL plans to expand the additional greenbelt of 318 Ha area within the plant. Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land. Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be	Improvement in Eco system, attenuation of air pollutants and noise at source receptor	MUNPL	MUNPL

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S. No	Project Activity/Component	Environmental Issue/concern	Remedial Measure	Target	Institutional Responsibility	
					Implementation	Supervision
			developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary. A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores is earmarked by MUNPL.			
2	Control of fire and explosion hazard	Fire Hazard	Part of main plant package	Improvement in Risk control	MUNPL	MUNPL
3	Control of fire and explosion hazard	Fire Hazard	Part of main plant package/purchase from market	Improvement in Risk control	MUNPL	

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10.3. Implementation Schedule of Mitigation Measures

The mitigation measures suggested as above shall be implemented so as to reduce the impact on environment due to the operations of the proposed project. In order to facilitate easy implementation of mitigation measures, the priority of implementation is given in Table-10.3.

Table 10.3 : Implementation schedule

S. No	Recommendations	Time Requirement	Schedule
1	Air pollution control measures	Before commissioning of respective units	Immediate
2	Water pollution control measures	Before commissioning of the plant	Immediate
3	Noise control measures	Along with the commissioning of the plant	Immediate
4	Ecological preservation and up gradation	Stage wise implementation	Immediate & Progressive

10.4. Institutional Framework for Implementation of EMP

MUNPL is responsible for implementation of all the mitigation and management measures suggested in Environmental Monitoring Program. A separate department "Environmental Management Group" (EMG) is established to look after all environmental related matters of the plant. The EMG supervises the reported activity from time to time for smooth implementation of Environmental Mitigation and Management measures and will take necessary actions if required. The cell acts to ensure the suitability, adequacy and effectiveness of the Environment Management Program. It also ensures to meet all the Statutory Requirements.

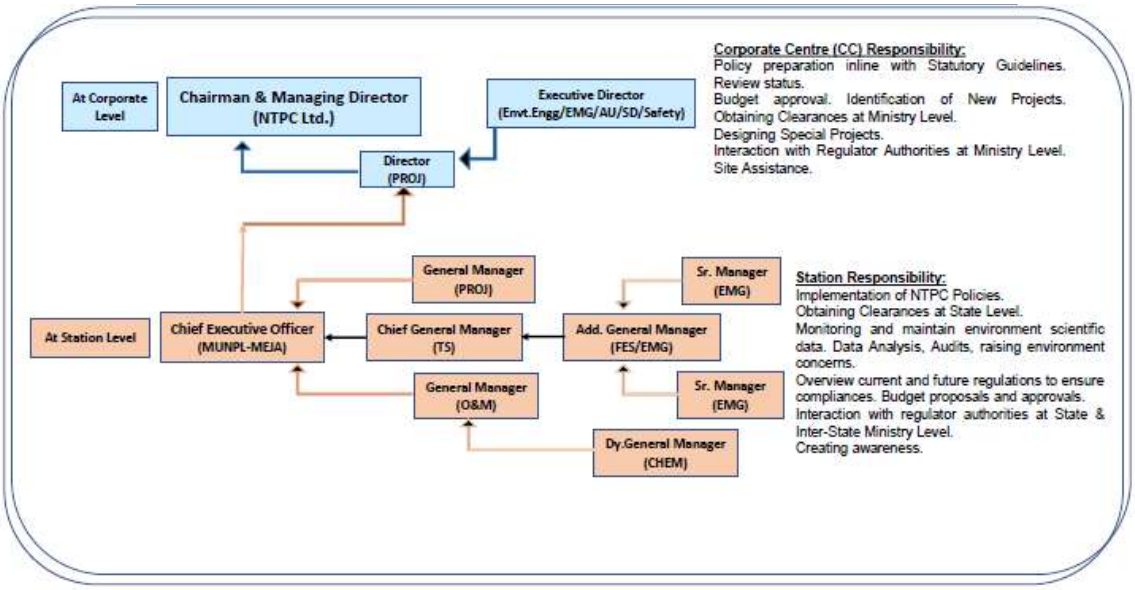


Figure 10.1 : Organization Structure of EMG with role & responsibility

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10.5. Roles & Responsibilities of the Environment Management Group (EMG)

Functions of Environment Management Group (EMG): In MUNPL Stage-I the existing EMG Dept shall also ensure compliances of Stage-II requirements. Existing EMG Dept is headed by AGM who reports directly to CEO. For Stage-II EMG Dept shall thoroughly study each activities and suggest additional mitigation measures (if required) for improvement of environmental performance. EMG co-ordinates all related activities for the protection of environment and its awareness. EMG Dept has well qualified trained executives and experienced supporting staff to ensure compliances. Responsibilities of EMG are as below:

- To implement the Mitigation measures.
- To ensure regulatory compliance with all relevant rules and regulations.
- To monitor and ensure regular operation & maintenance of pollution control Equipments.
- To initiate environmental monitoring as per approved schedule.
- Maintain documentation of good environmental practices and applicable environmental laws as ready reference.
- Coordination with regulatory agencies, external consultants, monitoring laboratories; Conducting Environmental Awareness Program for the employees on water management, air and noise pollution control and energy conservation.
- Regular training to employees on Environment Topics.
- Hazardous wastes management and handling.

10.5.1. Institutional Arrangement

MUNPL shall ensure following action items to be complied with throughout the life cycle of the project:

- Formulate/ implement Environmental Health & Safety Policy
- Document the organization structure, roles and responsibilities for implementation and for functioning of Environmental Management System (EMS) and Safety Management System (SMS) Procedures.
- Develop standard operating process and procedures to bring into focus any infringement / deviation / violation of the environment or forest norms/conditions.
- Carry out regular inspections, environment monitoring and auditing.
- Obtaining consent orders from SPCB and ensuring timely extension of validity periods
- Carry out periodical review and issuing amendments.
- Compliance of EC and other clearances and timely submission of compliances to concerned regulatory authorities.
- Interaction for evolving and implementation of modification programmes to improve the availability/efficiency of pollution control systems/devices
- Reporting and communication (including internal and external reporting);
- Coordination with regulatory agencies, external consultants, monitoring laboratories., functional groups of the station
- Conducting Environmental Awareness Program for the employees on, Water management, and Energy conservation.

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10.5.2. Quality, SDG's, Environment, Safety Policy of Meja Urja Nigam Pvt. Ltd.

Quality Policy: The Quality Policy Conceived to support the strategic intent and business plan is stated below:

- To construct and commission project and related facilities within the framework of prescribed time schedule, cost, consistent with high standards of quality and with safety.
- To effectively utilize the given resources including human, plant & machinery through complying with requirement set out in NTPC construction Management System, site Material Management System and Financial Management System
- Creating a performance-oriented culture by ensuring emotional, psychological, physical and environmental well-being of all team members of the project
- To contribute to organisation knowledge, resources through pro-active feedback and competency development of project team.

Sustainability Development Goals (SDG's):

The MUNPL-Stage-II project is committed to advancing multiple Sustainability Development Goals (SDGs) through a range of targeted initiatives designed to enhance social, environmental, and economic outcomes. The project plans significant investments across several SDGs, focusing on creating tangible benefits for local communities and contributing to broader global objectives.

S.No	Proposed Activities under MUNPL Stage-II (3x800MW)	SGD Coverage
1.	Adoption of Ultra Super Supercritical Technology - Higher Heat Rate Energy Efficient, Lesser Coal, Water consumption, Lesser GHG emissions.	7,8,9,12,13
2.	30,000 to 40,000 Plantation is carried out every year. Plantation not only improves the environment but also provide habitat to the birds/insects and other creatures.	15
3.	State of Art Technology. "Ultra Super Technology" for higher efficiency leading to lesser emission of CO_2 (12-13 % less). High efficient ESP to reduce PM emission to less than 30mg/Nm^3 Use of Low NOx burner will reduce NOx. Use of Wet FGD will reduce the SPM and SOx as well as low flue gas exit temperature, thus improve climatic conditions.	9, 13
4.	Reducing specific coal and water consumptions with adoption of state-of-the-art technologies. Provision of Closed Cycle Cooling System with COC 5 and Air Cooled Condenser System, Rain Water Harvesting System, .	12, 13, 14
5.	Treating ETP and STP waters, and compliance to Zero Liquid Discharge ensures reusing and reducing load on natural resources	6, 7
6.	Establishing and adopting Sustainable Waste Management Practices (Reduce, Reuse, Recycle, Re-process, etc)	7,9, 12, 13, 14, 15
7.	Plantation inside Plant premises and Afforestation in outside areas	3,13,15,17
8.	A Corporate with Environment and Social Responsibility (CER-CD/CSR) for development of community.	3,4,5,6,10,17

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9.	Employment Generation and Economic Activities (Direct and Indirect) Skill development and employment-oriented training to increase employability, creating dignity of labour and increasing the social stand of life in the vicinity	1, 5, 8, 10, 17

SD Goal with tentative budget allocation and timelines.

S.No	SDG detail	Proposed Works	Estimated Cost (Rs. Cr)	Estimated time from the award of the project.
1.	No Poverty and Decent Work and economic growth 	CER / CD: Rs.4.0 Cr Activities under CER: Training and Skill development: Skill development and employment-oriented training – to increase employability, creating dignity of labour and increasing the social stand of life in the vicinity. Recurring expenditure of Rs. 55 Lakh shall be allocated after commissioning of the MUNPL Stage-II. All the activities shall be planned after carrying Need basis assessment carried through stakeholder consultation on annual basis.	4.0	01-05Yrs
2.	Good Health and Well Being 	Provision of Rs. 3.25 Cr kept in capital budget of MUNPL Stage-II to be undertaken under CER/CD to address issues raised during Public Hearing: Development of health infrastructure, operation of medical camps etc. Activities under CER: Health: Developing health infrastructure, conduct of medical camps etc. Further an expenditure of Rs. 45 Lakh is proposed to be incurred every year after commissioning of the MUNPL Stage-II. The exact activities to be decided based on need assessment and stakeholder consultation on annual basis.	3.25	01-05Yrs
3.	Quality Education and Gender Equality  	Provision of Rs. 2.5 Cr kept in capital Budget of MUNPL Stage-II to be undertaken under CER/CD to address issues raised during Public Hearing: Smart classrooms, better infrastructure, renovation of school, playground, distribution of furniture, education to all, girl empowerment, etc. Activities under CER/CD: Education for all, Construction/ Renovation of school buildings, classrooms/smart class with internet and computers/labs/ parking shed, playground, furniture, rural sports, girl empowerment program, etc. in PAVs and vicinity areas. Further an expenditure of Rs. 45 Lakh is proposed to be	2.5	01-05Yrs

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S.No	SDG detail	Proposed Works	Estimated Cost (Rs. Cr)	Estimated time from the award of the project.
		incurred every year after commissioning of the MUNPL Stage-II. The exact activities shall be decided based on need assessment and stakeholder consultation on annual basis.		
4.	Clean Water and Sanitation 	Provision of Rs. 6.0 Cr kept in capital Budget of MUNPL Stage-II to be undertaken under CER/CD to address issues raised during Public Hearing: Repair of water tank and expansion of drinking water facilities, construction/repair of drains, latrines and related infrastructure etc. Activities under CER/CD: Sanitation: Construction/ Repair of drains, Toilets and related infrastructure. Water: Construction work for repair of water tank and expansion of drinking water facilities etc. Further, an expenditure of Rs.1.0 Cr is proposed to be incurred every year after commissioning of the MUNPL Stage-II. The exact activities shall be decided based on need assessment and stakeholder consultation on annual basis.	6.0	01-05Yrs
5.	Affordable and Clean Energy 	Provision of Rs. 14.55 Cr kept in capital Budget of MUNPL Stage-II to be undertake under CSR & CER/CD. Activities covered are: Construction work of solar high mast light, construction of roads in project affected villages with solar streetlight, community development in Pahari Mahadev along with beautification of market and others Activities under CER: Infrastructure Development: Solar streetlights along the roads along with Construction/renovation of community center buildings with solar lights, etc. in project affected villages. Roads: Cement Concretization of existing village roads with sola streetlights. Further, an expenditure of Rs. 250 Lakh is proposed to be incurred every year after commissioning of the MUNPL Stage-II. The exact activities to be finalized later.	14.55	01-05Yrs
6.	Responsible	Reducing specific coal and water consumptions with adoption of state-of-the-art technologies	-	6Yrs

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S.No	SDG detail	Proposed Works	Estimated Cost (Rs. Cr)	Estimated time from the award of the project.
	Consumption and Production 	Proposed MUNPL Stage-II is "Ultra Super Technology" for higher efficiency leading to lesser emission of CO_2 (12-13% less) Minimizing production of waste and recycling/ re-use of wastes: Ash utilization through new avenues like production of Bricks, Light weight aggregate and Geopolymer based concrete. Zero liquid discharge plant and all treated effluents are being recycled back in plant.		
7.	Climate Action 	Proposed MUNPL Stage-II is "Ultra Super Technology" for higher efficiency leading to lesser emission of CO_2 (12-13 % less). Use of Low NOx burner will reduce NOx. Use of Wet FGD will reduce the SPM and SOx as well as low flue gas exit temperature, thus improve climatic conditions.	-	6Yrs
8.	Life below Water 	Proposed MUNPL Stage-II is "Ultra Super Technology" for higher efficiency with reduced usage of water and coal. Less usage of water for power generation will enhance life below water. Rejuvenation of ponds will also enhance aquatic life.	1.0	01-05Yrs
9.	Life on Land 	Proposed MUNPL Stage-II is "Ultra Super Technology" for higher efficiency with reduced usage of water and coal. Clean Power with less pollutant and cost economics will improve life on land. Plantation not only improves the environment but also provide habitat to the birds/insects and other creatures.	57.49	01-05Yrs

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Environment Policy

Environment Policy-2022

I. Purpose:

NTPC being the country's largest power generator, with its presence across the energy value chain, recognizes that protection of environment is essential for sustainable business.

In the context of this Policy, the definition of Environment covers all the domains of environment - physical, chemical, biological and socio- economic aspect.

NTPC hereby adopts Environment Policy-2021, superseding its earlier policy document of 2017.

The intent of this policy is to meet environmental expectations and provide actionable guidance, as NTPC strives to foster a culture of excellence and challenges itself for continual improvement.

This document contains:

I. Purpose
II. Policy Statement
III. Applicability
IV. Principles
V. Institutional Framework
VI. Policy
- *Stewardship*
- *Compliance & Assurance*
- *Stakeholder Engagement*
- *Capacity Building*

VII. Review

II. Policy Statement:

"To provide cleaner energy by committing to the highest possible levels of performance in environmental compliance, practices and stewardship."

III. Applicability:

This policy shall apply to all establishments of NTPC and each employee shall be made a partner in implementing the policy.

IV. Principles:

This policy is based on the following principles:

1. Consideration of Environmental factors right from the stage of planning, design and operation of project/station to ensure that mandatory principles of conservation and sustainability are adhered to.

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2. Adopting the best possible environment management practices and state-of the-art technology to minimize impact of business on Environment.
3. Adopting the latest, relevant and feasible Environmental Management Systems (EMS) at all operating stations to improve our environmental performance through more efficient use of resources and reduction of waste.
4. To commit as a responsible corporate citizen by striving to achieve and sett benchmarks not limited to statutory compliances.
5. Innovation by carrying out Research & Developmental activities, coupled with enablers leading to continual improvement.
6. Accepting accountability for all operations and expeditiously respond to any aberration.
7. Continuous monitoring and sharing of environmental indicators with stakeholders.
8. Develop each employee as an Environmental Steward by improving his/her awareness levels while soliciting their commitment.

V. Institutional Framework:

Our three tier structure for environmental systems implementation is presented below:

1. Corporate Level Functions - Engineering, planning and monitoring
2. Regional Level Functions – Compliance monitoring, Facilitators to stations and Coordination between Stations & Corporate.
3. Stations: Functions - Execution and reporting



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Note: These charts do not reflect the organizational structure/reporting arrangement, but serve to identify responsible departments within NTPC.

VI. Policy:

NTPC shall achieve these objectives by:

1. Stewardship:

NTPC shall:

a. Adopt a pro-active approach and place environmental aspects as one of the prime consideration in decision-making process.

b. Identify and manage environmental impacts due to business activities by adopting the latest environment management technologies and practices.

c. Act to manage risks, as identified by the Risk Management Committee (RMC)*.

d. Evaluate performance of our environment protection equipment, programs and practices with respect to legal provisions and prepare action plans for concerned functional groups.

e. Ensure efficient and optimal use of resources such as land, water, fuel, construction materials, oils, and chemicals etc, especially the non-renewable ones.

f. Spearhead waste management by adopting the 3Rs principle (Reduce, Re-use and Recycle) and safe disposal.

g. Adopt more environment friendly and energy-efficient inputs.

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4. Capacity Building:

a. NTPC shall ensure all employees are made environmentally aware to enable them to integrate its principles into their activities and decisions by participating in suitable trainings/skill development programmes.

b. The Environment Management Group shall come up with focused requirements (including skill training and culture building), clearly bringing out the desired objectives, audience and responsibility.

VII. Review:

This policy shall be reviewed at opportune time, but not later than once in three years.



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Safety Policy

Safety Policy of NTPC

(First Release: 07th Nov'16; Last Reviewed: 1st March 2022)

Applicable to all employees of NTPC and are required to comply.

Chairman and Managing Director is responsible to issue and review the Safety Policy periodically describing intent, responsibility and broad frame work.

A. Statement of Intent:

Safety is part of our core values; therefore, safety shall be at the forefront of all our activities.

We recognize all accidents are preventable.

The objective is to provide safe working environment and strive for zero incidents at work. This policy, supported by safety rules and procedures, is applicable for all business activities carried out by NTPC.

Safety policy is built around following principles:

1. Our activities carry various hazards; however, all such hazards can be identified.
2. Every job shall be done safely, no matter how important or urgent it is.
3. Putting people to work carries a specific responsibility and accountability for safety which shall be visibly demonstrated.
4. Right procedures and actions can bring the risks under control.
5. Trained and committed team can ensure incident free operations.
6. We shall comply with all applicable safety regulations and other legal requirements. We shall strive to improve and make it better than the minimum standard(s).

B. Organization's Responsibility:

We have a three tier approach to make work place incident-free:

1. Top Management responsibility:
   a. Directors and REDs are accountable for:
      i. Ensuring that all work activities under their control are carried out in adherence with this policy;
      ii. Ensuring that Heads of Projects / Stations are individually accountable for implementation of this policy and ensuring they have the necessary skills in safety management;
      iii. Setting appropriate standards for safety in their work area;
      iv. Putting Safety as a part of appraisal system, both for self and their teams;
      v. Ensuring that safety audit is conducted periodically through third party at all sites
2. Head of the Project/Stations are accountable for:
   a. Implementing this policy by introduction of local management systems with high standards of safety;
   b. Ensuring identification and display of all hazards;
   c. Establishing rotating cross-functional team for internal audits.
   d. Making employees accountable for working safely by creating a safer work environment and ensuring that their actions do not harm either themselves or

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10.5.3. Training Requirement of Staff:

Training systems, covering the following items, shall be in place for all staff of Environment Management Cell and other staff of various departments, which cover the following:

- Awareness of the regulatory implications of the Environmental standards the activity and their work activities.
- Awareness of all potential environmental effects from operation under normal and abnormal circumstances.
- Awareness of the need to report deviation from the standards.
- Awareness on prevention of accidental emissions and action to be taken when accidental emissions occur.

The staff of the EMG will be trained every year by arranging in house training programs by inviting experts or faculty members from reputed institutes.

Periodical Review Annually review of the EMP and identified management action plans to address any changes in the organization, process or regulatory requirements.

Documentation and Record Keeping: The EMG will maintain following documents for effective implementation of the EMP:

- Master management system document.
- Legal Register.
- Operation control procedures.
- Work instructions.
- Incident reports.
- Emergency preparedness and response procedures.
- Training records.
- Monitoring reports.
- Auditing reports; and
- Complaints register and issues attended/closed.

10.6. Management of Construction Site

About 4986 workers (contractual) will be engaged under EPC Engineering, Procurement and Construction contractor during the site preparation work. Most of workers will be taken from nearby villages. Experts and engineers will stay at colony/guest house. For the workers at plant site, desired facilities as porta cabins; toilets, kitchens, adequate supply of electricity and water and other things of daily needs including the facility of first aid shall be provided. A drainage system shall be constructed to drain off all runoff water from the work site into suitable drain outlet. Temporary drainage shall be maintain, removed and reinstated as required. Wastewater arising from toilets of site offices shall be treated in STP. Truck loading, unloading and hauling operations so as to minimize noise impact near surrounding villages to be properly scheduled. Vehicular movement on the village roads will be avoided. Machinery that emits noise in one specific direction would, where

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possible be oriented in a direction away from noise sensitive receptor (human habitation). Silencers and mufflers on construction equipment, wherever required, to be properly fitted and maintained. The foundation of every machinery shall be so designed that vibrations are minimized and isolate the every machine from each other so as to travel of vibrations from one machine to another machine. Vibrations curtailing material shall be used in the foundations. Litter disposal and collection points will be established around all work sites. Biodegradable garbage from kitchen and tree litters will be composted and used as manure. A road roller shall also be deployed to compact the loose surface of the haul road. A water sprinkling tanker shall also be deployed to maintain the haul road surface moist at all time.

Labour Look after Plan: A brief of the measures that have been suggested for the labour under the labour management action plan (Labour including contract workers and drivers) include the following:

- Provision of common toilets and bathing facilities duly segregated for male and female labour;
- Supply of kerosene, coal/fuel wood by the contractors for their labour to prevent deforestation
- Collection of domestic waste and disposal in the onsite incinerator.
- Monthly inspection of labour camps to focus on the following:
  General observations on cleanliness.
- Drinking water availability with respect to source, cleanliness of storage tanks and quality fit to be consumed.
- Provision of sanitation facilities to water availability in toilets their cleanliness and drainage.
- Provision of garbage collection, segregation and disposal facilities.

10.7. Road Traffic Management

About 100% of the coal (raw materials) shall be transported by rail rack. While expansion could contribute to a marginal increase in public transport due to the engagement of more people, there are concerns about the potential negative impacts on existing road traffic, local residents, and an increased risk of road accidents. The traffic management plan includes the following elements:

- Transport management planning.
- Driver training.
- Access road maintenance.
- Vehicle management and maintenance, and
- Community liaison and safety.

The traffic management action plan covers the following aspects:

- Sourcing or recruitment of drivers and number of qualified drivers needed,
- Drivers' training and approval,

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- Hours of driving and rest periods,
- Driver, vehicle and load security arrangements,
- Driver communication with control point and vehicle equipment,
- Language/communication,
- Source of suitable vehicles,
- Vehicle quality and specification,
- Vehicle management and preventative maintenance programme,
- Vehicle routes, route planning and alternative routes,
- Overall vehicle movements – access route selection and management,
- Strategic vehicle parking locations – to minimize impact of vehicles on local community, villages, roads, and Inspection and audit of the project traffic.

10.8. Corporate Environment Responsibility (CER)

M/s Meja Urja Nigam Private Limited (MUNPL) is amongst India's leading power producing company that believes in the efficient utilization of all available resources. From managing operations, enhancing social and economic benefits, minimizing environmental impacts and employing cutting-edge innovation, MUNPL has grown steadily and strongly through the years. M/s Meja Urja Nigam Private Limited (MUNPL) is fully conscious of its Corporate Social and Environment Responsibility towards the community as well as environment. MUNPL is already doing many social activities under the CSR. MUNPL has already planned to play a leading and meaningful role in bringing qualitative improvement in the life of the community and the surrounding environment. Our vision is governed by the ideology that every life is important and must be given fair opportunities to make the best out of it.

10.8.1. CSR Objectives of MUNPL

Meja Urja Nigam Private Limited (MUNPL) is a Joint Venture between NTPC Limited (A Maharatna CPSE under the aegis of Ministry of Power, Government of India) and Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited was registered under the Companies' Act, 1956 on 2nd April, 2008. The CER/CD activities of MUNPL are aligned with the **UNSDGs** and as per the provisions of **Schedule-VII** of the Companies Act 2013.

The CSR objectives of MUNPL are:

- To deliver business and environmental values through the Company and its Project(s) that is aligned towards economic growth and holistic development of the larger ecosystem.
- To ensure sustainable power generation by ensuring minimal wastage across operations.
- To actively contribute towards socio-economic development of the communities in the vicinity of Company.
- To be a leader in the areas of resettlement and rehabilitation and environment protection including effective ash-utilization, peripheral development, and energy conservation practices.

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- MUNPL has adopted the following policies of NTPC (Promoter company of MUNPL) to actualize its community development (CD) & social welfare objectives:

  1. Resettlement and Rehabilitation Policy (R&R) – 2005

  2. Revised NTPC Policy for CSR – 2022

The Meja Urja Nigam Pvt. Limited (MUNPL) has its maiden project of 1320 MW (2x660 MW) capacity located at Village Kohdar, P.O. NTPC-Kohdar, Tehsil Meja, Prayagraj (U.P.), at around 50 kms from the District Headquarter. The proposed expansion in Stage-II (3x800 MW) is at the same location. The community around the project was socio-economically backward and deficient in the basic civic amenities.

MUNPL, as a responsible corporate citizen has taken various initiatives in the focused areas like Education, Water, Health & Sanitation, Infrastructure Development, Capacity Development etc, to address the issues of community development in the nearby community of its station, which had been impacted due to the establishment of project (Stage-I). Some of the major community development initiatives undertaken by MUNPL at Meja are as follows:

A. Education:

Education is a vital component of Corporate Social Responsibility (CSR) because it fosters long-term social and economic development. By investing in education, MUNPL is contributing to building a skilled and knowledgeable workforce, which is essential for sustainable growth and empowers individuals to improve their quality of life. It is also aligned with **UNSDGs** such as Quality Education (**Goal-04**), Reducing Inequality (**Goal-05**) and promoting Inclusive Development (**Goal-10**).

Hence, recognizing the importance of education, MUNPL is actively involved in supporting education to build a skilled and knowledgeable workforce. The broad activities being undertaken are:

- Provided education under GEM (Girl Empowerment Mission) to girl child from the nearby community. As on date, 157 girl students have been covered from 07 affected villages participated in the GEM program.
- Sponsoring education of 13 GEM girls in the St. Joseph's School, MUNPL from class 6th to 10th.
- Distribution of bicycles to 81 GEM / local girls.
- Improving the existing infrastructure such as distribution of 500 School Benches
- Providing study materials such as stationery items, umbrella, and books for library in the nearby Govt. Schools.
- Bala Painting in the Govt. Schools' premises to engage and enhance the learning environment for children
- Installation of Smart Classes in 02 Govt. Schools.
- Construction of boundary walls in 02 Govt. Schools.
- Construction of 09 Mini Water RO Scheme in Govt. Schools.
- Construction of 05 Rooms & Workshops along with the provision of 02 DG Sets, Furniture, Tools/Equipment in ITI, Naini.

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B. Health & Sanitation:

Health is a crucial area of focus for Corporate Social Responsibility (CSR) to address the country's diverse and widespread health challenges. Health-focused CSR activities not only improve public health outcomes but also contribute to economic development by ensuring a healthier workforce and reducing healthcare-related financial burdens on individuals and communities. It is also connected to broader **UNSDGs** such as Good Health and Well-being (**Goal-03**) and Sanitation (**Goal-06**).

Considering the above, MUNPL is committed to provide quality services not only to its employees and their dependents but also to the local community at large living in the surrounding villages. The following are the MUNPL's initiatives in the area of health:

- Organizing free general health check-up camps in the nearby affected villages. Apart from this, special camps (esp. anaemia detection, screening of NCDs etc.) and health awareness camps (common diseases, prevention of anaemia etc.) are organized in nearby villages.
- Organizing free surgery camp camps.
- Donation of 01 Health ATM to PHC-Meja.
- 24X7 extension of medical facilities to locals in the township hospital.
- MUNPL has also been associated with government sponsored programmes like on TB eradication, Pulse Polio Campaign and Cervical Cancer.
- Organizing anaemia detection and iron distribution camps, menstrual hygiene awareness and sanitary kit distribution are carried out
- Financial support to Red Cross Society, Prayagraj.
- Provided equipment to the Dist. Authority, Prayagraj during Covid.
- Installation of sanitary napkin machines in all Govt. Schools of neighbouring community.
- Distribution of 3000 sanitary pads to girls in all Govt. Schools and Colleges of the nearby area.

C. Water:

Water is also a critical area of focus for Corporate Social Responsibility (CSR) in India, given the local challenges related to water scarcity and inadequate access to clean drinking water. By focusing on water, MUNPL ensures that nearby communities have access to clean and safe drinking water, which is vital for health, hygiene, and overall well-being. This community development initiatives aligned with **UNSDGs** such as Clean Water (**Goal-06**) and Sustainable Water Management (**Goal-11**).

MUNPL as a responsible corporate citizen has taken various concrete measures for ensuring access to clean and safe water in the neighbouring communities thus reducing the risks of waterborne diseases and improving the overall public health outcomes. The details are as follows:

- Installation of 18 Solar Powered mini water schemes in the affected villages.
- Construction of 04 Check dams in Esauta, Patai Dandi, Jhariyahi and Kohdar.
- Rejuvenation of ponds in village-Salaiya Kala and Mai Khurd

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- Installation of 130 Handpumps in the neighbouring villages.
- Construction of 02 Overhead Tanks in Resettlement Colonies.
- Construction of 01 Blast Well in Village-Salaiya Kala.
- Construction of 09 Mini Water RO Scheme in Govt. Schools.
- Distribution of water filters to villagers incl. Home Stead Oustees.
- Installation of 02 Water Coolers with RO in Atal Awasiye Vidyalaya.
- Installation of 23 Water Coolers with RO in the neighbouring villages.
- Installation of 01 Water Cooler with RO in Govt. Polytechnic, Meja.

D. Infrastructure Development:

Road construction is an important aspect of Corporate Social Responsibility (CSR), particularly in rural areas surrounding MUNPL. MUNPL has invested in building roads to improve connectivity, facilitate access to essential services, and promote economic development. Apart from this, MUNPL has invested other important infrastructure such as Community Centres, Solar Street Lights, Solar High Masts, Fencing of Gaushalas etc. as per the demand of Gram Sabha and local villagers at large. Infrastructure development is also linked to UNSDGs such as Economic Growth (**Goal-08**), Developing Essential Infrastructure (**Goal-09**) and Better Roads (**Goal-11**). Meja Urja Nigam has carried out the following Infrastructure Development works:

- Construction of approx. 15 km of approach roads and drains in villages- Kohdar, Mai Kala, Mai Khurd, Bijaura, Jhariyahi, Saliaya Khurd, Salaiya Kala, Esauta and Patai Dandi.
- Construction of 05 Community Centers in villages Salaiya Kala, Salaiya Khurd, Kohdar, Jhariyahi and Bijaura.
- Construction of 06 Rain Sheds in the nearby villages.
- Installation of 200 Solar Lights in the neighbouring villages.
- Installation of 20 Solar High Masts in the neighbouring villages.
- Installation of Roof top Solar in Women's Degree College.

E. Capacity Building:

Under CER/CD, skill development is a key focus area for MUNPL especially given its surrounding rural areas and its youthful population. MUNPL has conducted various skill development programmes that enhanced the employability of individuals, particularly those from underprivileged backgrounds and affected villages. Further, need based skill and vocational development programmes suited to both genders, as women can become a source of additional income for the family, have been conducted helping individuals to gain the required competencies. This initiative is aligned with sustainable global efforts of UN such as No Poverty (**Goal-01**), Quality Education (**Goal-04**), Decent Work & Economic Growth (**Goal-08**) and Reduced Inequalities (**Goal-10**). The following skill development courses have been carried out under this head:

- Provided ITI training to 350 local youth as per Rehabilitation Plan of Stage-I. Organization of skill development programmes such as mobile repairing, CFL/LED Light Assembling, Plumbing and Two Wheelers Servicing to 150 local youth.

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- Provided Plastic Processing and Injection Moulding Training to 60 local youth through CIPET, Lucknow and linked with 100% placement.
- Provided Plastic Machine Operator Training to 22 local youth through CIPET, Lucknow and linked with 100% placement.
- Provided Basic Beauty & Hair Cutting Training to 15 local women.
- Provided Jute Bag Making Training to 20 local women.
- Provided Cutting & Tailoring Training to 15 local women.

F. Special Initiatives:

As a part of our CER/CD programs, MUNPL has also taken various special initiatives as per the demand of locals and their representatives. The following special welfare initiatives have been undertaken:

- Distribution tri-cycles and additive aids to differently-abled persons.
- Distribution of woollen blankets to the needy in peak winters.
- Organization of Rural Sports Meet for promotion of sports.
- Distribution of relief materials to the locals during Covid.
- Contribution to Sansad Khel Pratiyogita, Prayagraj.
- Distribution of 900 mosquito nets to locals in the project affected villages.
- Distribution of sweet packets in the nearby Govt. Schools on Republic Day and Independence Day.
- Organization of Animal Health Veterinary Camps in the project affected villages.

PICTORIAL REPRESENTATION OF CSR THEMATIC AREAS

EDUCATION:

S.No	Head	Picture
1.	Distribution of 500 Nos. Desk in Govt. Schools.	

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2.	Boundary wall Constructed at Primary School, Mai Kala, Salaiya Khurd and Jhariyahi.	
3.	Distribution of stationery kits and umbrella in Govt. Schools.	
	 	
4.	09 Solar powered RO Water Scheme in Govt. Schools.	

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5.	Construction 05 Rooms and Workshops in Govt. ITI, Naini	
6	02 DG Sets, Furniture and Tools for Govt. ITI, Naini	







7. Girl Empowerment Mission (GEM) residential program for 04 weeks for 40 girls (Every Year)

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8.	Distribution of bicycles to Girl Empowerment Mission (GEM) girls







Meja Urja Nigam (P) Limited
(A joint venture of NTPC &UPRVUNL)

बेटियों के हौसलों को पंख दे रहा मेजा ऊर्जा निगम

मेजा-प्रयागराज (एसएनबी)। मेजा ऊर्जा निगम द्वारा समीप के एक दर्जन गांव की बेटियों के जीवन स्तर को सुधारने के लिए निरन्तर प्रयासरत है। संस्थान की जेम कार्यशाला से प्रशिक्षित बेटियां फर्श से अर्श का सफर तय करते हुए खुद के साथ परिवार का सहारा बन रही हैं। बालिका सशक्तिकरण कार्यशाला में चयनित इड़ियाही की अंशु कुमारी का सपना साकार हो गया, जो मां की गोद में सिर रख कई बार सवाल कर चुकी थी। पिछले कुछ वर्षों में यह देखा गया है कि जैसे ही यहां गर्मियों का आगमन होता

- संस्थान की जेम कार्यशाला ने सैकड़ों बालिकाओं को दी ऊंचाई
- इड़ियाही की अंशु कुमारी के वचन से उसका सपना हुआ सच

मां के साथ इड़ियाही की अंशु कुमारी। फोटो : एसएनबी

जेम कार्यशाला की प्रवेश परीक्षा के लिए कड़ी मेहनत शुरू कर देती हैं। मां-बाप भी अपनी बेटियों को लगातार प्रेरित कर उन्हें पढ़ाते हैं ताकि उनका चयन बालिका सशक्तिकरण कार्यशाला में हो सके और वह अपने साथ-साथ परिवार का भी भविष्य सुधार सके।

मां से सवाल कर चुकी थी कि मां मुझे भी स्कूल जाना है, मुझे भी एसटीपीसी में डाक्टर बनना है। उसके बाद हमारे घर के सभी कष्ट दूर हो जाएंगे। यह 13 वर्षीय छोटी बालिका अंशु अपनी मां की गोद में सिर रखते हुए बड़ी आशा के साथ कहती रही है। अंशु को जब पता चला कि वह अब एसटीपीसी के स्कूल में एक महीने तक पढ़ेगी तो वह खुशी से झूम उठी, लेकिन उसके बाल मन ने मां से भी सवाल पूछ कर मन को शांत किया। अंशु की ही तरह अन्य बालिकाओं में भी इस तरह के सवाल उठते हैं।

अंशु डाक्टर बन कर मुफ्त इलाज के साथ सेवा करना चाहती है। कोहड़ार का क्षेत्र पहाड़ी है, गरीबी और अशिक्षा से लोग जूझ रहे हैं। यहां की परम्पराएं भी बेटियों की शिक्षा और विकास के आड़े

Rashtriya Sahara

	Health & Sanitation:	

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1.	**Free general health check-up camps in nearby villages**





2.	Free cataract checking camp in the township hospital and operation thereof.





3.	Distribution of Artificial Limbs to the 08 nos. specially-abled Individuals in the associated villages of MUNPL. Distribution of Aids and assistive devices like hearing aids, walking sticks, crutches to 18 nos. needy individuals of the associated villages.





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4.	Distribution of woollen blankets to the needy in peak winters	
5.	Breast cancer awareness campaign at Govt. Polytechnic College	

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6.	Session on personal hygiene at Women's Inter College, Kohdar	
	Safe Drinking Water:	
1.	18 Solar Power Mini Water Scheme	
2.	Installation of 130 Hand Pumps in the nearby villages	
3.	Construction of 02 Overhead Tanks in Salaiya Kala and Jhariyahi	

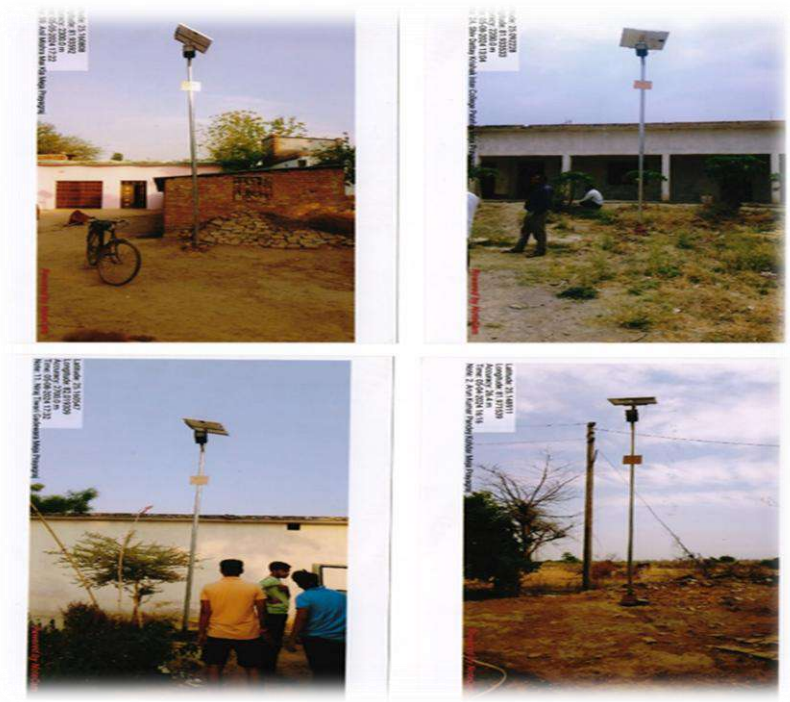
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4.	Construction of Blast Well in Salaiya Kala	
5	Restoration of Ponds in Salaiya Kala and Mai Khurd	
6.	Construction of check dams in affected villages	
7.	Distribution of water filters to project affected villgers	

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	Infrastructure:	
1.	Construction of community centers	
	 	
2.	Construction of rain sheds in the nearby villages	
3.	Construction of 15 KM interlocking roads/ CC roads in the nearby villages	 

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4.	Consecution of fencing of gaushalas	
5.	Installation of solar lights in the nearby villages	
	Capacity Building:	
1.	Jute bag making training	

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2.	Basic beauty & hair dressing training	
3.	Plastic machine operator training	
		 
4.	Mobile phone repair training	
5.	Cutting & tailoring programme	

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Special Initiatives:

1.	Veterinary camp in the affected village	
2.	Rural Sports Meet	
3.	Support to Women Self Help Group during Culture Fest	
4.	Interaction of Top Management with school children of Govt. School	

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5.	Support to Sansad Khel Pratoyogita	

10.8.2 CSR Budget & Expenditure Stage – I

Sanctioned CD Budget for Stage-I is Rs. 3672 Lakh. CSR Budget for different financial budget is given in following tables.

Table 10.4 CSR Expenditure For The Financial Year 2023-24

S. No	PROPOSED RECURRING WORKS UNDER CSR /CER	2023-24 (in Lakh)
1	Improvement in educational standards, development of educational facilities, etc.	57.00
2	Free general health check-up camps, eye camp etc.	11.00
3	Expansion of drinking water facilities, improvement in water supply infrastructure, etc.	60.56
4	Development of basic and essential infrastructure facilities.	70.00
5	Promotion of sports and cultural activities.	5.00
6	Skill development and vocational training programs to enhance employability.	20.00
7	Essential aids to differently abled people	3.00
8	Various other activities aimed at community development as per demand of locals and their representatives.	62.00
	Total (Lakh)	**288.56**

Table 10.5 CSR Activities Planned For The Financial Year 2024-25

S. No	PROPOSED RECURRING WORKS UNDER CSR	2024-25 (Budget in Lakh)
1	Improvement in educational standards, development of educational facilities, etc.	85.00
2	Free general health check-up camps, eye camp etc.	9.00
3	Expansion of drinking water facilities, improvement in water supply infrastructure, etc.	50.00

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4	Development of basic and essential infrastructure facilities.	90.00
5	Promotion of sports and cultural activities.	5.00
6	Skill development and vocational training programs to enhance employability.	150.00
7	Essential aids to differently-abled people	3.00
8	Conducting surveys to assess needs and evaluate social impact.	7.50
9	Various other activities aimed at community development as per demand of locals and their representatives.	63.50
	Total (Lakh)	**463.00**

Table 10.6 CD (Community Development) Stage-I Expenditure (till Sept'24)

CD expenditure Stage-I		
S. No	**Heads**	**Amount (Rs in Lakhs)**
1	Construction of Roads	1309.78
2	Development of Basic Infrastructure and Sanitation	886.40
3	Drinking Water	647.50
4	Other Social Welfare Activities	194.88
5	Restoration of Infrastructure	88.93
6	Skill Development/Vocational Trainings	54.03
7	Other strategic community development activities	348.92
	Total	**3530.44**

For CSR activities, MUNPL has incurred an expenditure of Rs. 2.88 Cr for the 2023-24 and Rs 4.63 Cr is planned for the FY 2024-25. This will continue during construction phase of Stage-II, in line with Section 135 of the Companies Act, 2013. The details CSR activities are given in Table-10.7 & Budget for Community Development works is given in Table-10.8.

Table 10.7 : CSR Activities Planned For FY 2024-25

S. No	PROPOSED RECURRING WORKS UNDER CSR	2024-25 (Budget in Lakh)
1	Improvement in educational standards, development of educational facilities, etc.	90.00
2	Free general health check-up camps, eye camp etc.	10.00
3	Expansion of drinking water facilities, improvement in water supply infrastructure, etc.	50.00
4	Development of basic and essential infrastructure facilities.	100.00
5	Promotion of sports and cultural activities.	5.00
6	Skill development and vocational training programs to enhance employability.	135.00
7	Essential aids to differently-abled people	5.00
8	Conducting surveys to assess needs and evaluate social impact.	7.50
9	Various other activities aimed at community development as per demand of locals and their representatives.	58.00
	Total (Lakh)	**460.50**

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The activities proposed are tentative and shall be decided in consultation with District Administration and other local stakeholders based on need and requirement under the ambit of CER (Corporate Environment responsibility).

Table 10.8 Budget for CER/CD works at MUNPL Stage- II

S. No.	Proposed works to address the issues raised during Public Hearing and written demands given by Gram Pradhans & individuals	Estimated Cost (Rs Crore)	Estimated time
1	Infrastructure Development - Construction of roads in project affected villages, community development works, solar high mast light, solar streetlights, beautification of market, interlocking in Gaushala, Anganwadi Centre etc.	16.55	01-05 Year
2	Cleanliness - Construction/Repair of drains, toilets and related infrastructure etc.	4.00	01-05 Year
3	Water – Repair of overhead tanks and construction of related infrastructure facilities etc.	3.00	01-05 Year
4	Health - Development of health infrastructure, conducting medical camps etc.	3.50	01-05 Year
5	Education - Renovation of schools, provision of playgrounds, smart classes, furniture, and renovation of infrastructure etc.	3.50	01-05 Year
6	Skill Development and Job Oriented Trainings - to increase employability	4.00	01-05 Year
7	Environment related works (Dust suppression, Alternate route for ash transport, Environment lab and rejuvenation pond)	5.55	01 -05 Year
	Total	**40.10***	

**Additional budget of Rs.57.49 Cr is earmarked for development of green belt and plantation for carbon sink and incorporated in EMP budget.*

10.9. Human Health and Safety Plan

The objective is to ensure that the health and safety of on site personnel is proactively managed during the construction stage of the project. Below given are the proposed project related human health and safety environmental concerns and its management.

The primary concern on potential health risks for the construction workers and other employees on site during construction are associated with drinking water quality. The project would ensure safe potable water supply to the workers on site.

- Construction site will be provided with a readily available first aid kit including an adequate supply of sterilized dressing materials and appliances. Suitable transport to take injured or sick person to the nearest hospital will be immediately provided.

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- The project will ensure the safe working of all workers. Workers will be provided with safety gadgets and enforce to wear it during the construction work. This will include protective footwear, helmets and gloves to all workers employed for the work on mixing, engaged in welding works; earplugs to workers exposed to loud noise; safety belt to the labors working at higher platforms and face masks to avoid dust.
- The project will strictly follow the statutory child labor act. The project will also ensure that no paint containing lead or lead products is used except in the form of paste or readymade paint. Facemasks will be provided for use to the workers when paint is applied in the form of spray. Adequate safety measures will be ensured for workers during handling of materials at site.
- The project will comply with all regulation regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations and safe means of entry and exit.
- The project will take adequate precautions to prevent danger from electrical equipment's. No material will be so stacked or placed to cause danger or inconvenience to any person or the public.
- All machines to be used in the construction will conform to the relevant Indian Standard Code, it will be free from patent defect and will be kept in good working condition, will be regularly inspected and properly maintained as per IS provision
- To maintain hygienic conditions in the site during construction phase, suitable toilet facilities will be provided for workers separately. Also, sewage generated during construction phase will be treated in septic tank and soak pit to avoid impact on ground water.
- Work spots will be maintained clean and provided with optimum lighting.

10.10. Greenbelt Development Plan

Green vegetation cover is beneficial in many ways leading to conservation of biodiversity, retention of soil moisture, recharge of ground water and maintaining pleasant microclimate of the region. In addition, vegetation cover can also absorb pollutants from the environment and helps in effective pollution control. Green vegetation is not only for the purpose of creating a green view for soothing the eyes but has an important role in conserving the ecological and biological diversity of flora and fauna in soil, water and air. The green belts around the plant site also capture the fugitive emissions emanating from Plant operations, attenuate the noise generated, improve the aesthetics and acting as a carbon sink. Development of planation with green belt has been considered as an important domain as certain species of plants can even absorb the pollutants while others can thrive in polluted atmosphere.
The main objective of the green belt is to provide a barrier between the plant and the surrounding areas. The green belt helps to capture the fugitive emissions and to attenuate the noise generated in the plant apart from improving the aesthetics of the plant site.

Trees and plants are an essential component of healthy environment. In addition to maintaining the oxygen-carbon dioxide balance in the atmosphere through photosynthesis, trees and plants control air and noise pollution, control soil erosion, provide food and shelter to domestic and wild animals including birds and insects, and improve the aesthetic value of the environment. The utility of the green belt predominantly lies in its capacity to attenuate the

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fugitive emissions and spillage. Thus, the objectives of the proposed green belt program are as follows:

- To control air pollution due to fugitive emissions and spillage.
- To attenuate noise generated by various machines.
- To attenuate the effect of accidental release of toxic gases.
- To reduce the effect of fire and explosion.
- To improve the general appearance and aesthetics of the area.
- To provide food and habitat for wildlife.
- To control soil erosion.
- To obscure the proposed facilities from general view.

10.10.1. Greenbelt in Existing Stage-I

MUNPL Meja Stage-I was developed on Plateau. Plantation and its survival in such land profile is a challenging. At present about 163 Ha with survival percentage of 81.7% is carried. The geology of the study area and MUNPL area (Main Plant, Township, Ash Dyke and others) is located in the Plateau part of Vindhya Region. MUNPL Stage-I was developed on Plateau. Plantation and its survival in such land profile is a challenging. MUNPL MEJA has approached domain expert the Divisional Forest Officer-Prayagraj for plantation in the Study Area.

As per ToR issued by MoEF&CC, certificate is obtained from Divisional Forest Officer-Prayagraj for the existing plantation carried by MUNPL Meja in Stage-I. Copy of the certificate is attached as **Annexure-22**. As per DFO-Prayagraj the total planation carried is 3,68,160 and existing survival rate is 81.7%.

Table 10.9 Plantation carried out in existing Stage-I

Planation Year	Plantation	Survived	Survival %
2011-12	94000	70500	75
2012-13	12000	10200	85
2013-14	10000	8500	85
2014-15	14000	11900	85
2015-16	100000	78000	78
2016-17	15000	12750	85
2017-18	15000	12750	85
2018-19	12000	10200	85
2019-20	14160	11611	82
2020-21	40000	34000	85
2021-22	12000	10200	85
2023-24	30000	30000	100
Total	**368160**	**300611**	**81.7**

Source: DFO-Prayagraj

As availability of suitable land for plantation is a constrain. MUNPL has adopted new method of plantation – Miyawaki method of plantation in 2023-24. Existing total land covered under greenbelt is about 163.0 Ha. In addition to the above plantation, every year more than 2,000

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fruit bearing plants are distributed to villages through gram panchayaths to PAP villages, schools, institutions, etc.

Details of tree species planted is provided in below **Table 10.10**. Photographs of existing greenbelt is given after the table.

Table 10.10 : Details of Tree Species Planted in Existing Stage-I

S.No	Common Name	Botanical Name		S. No	Common Name	Botanical Name
1	Ganga Omli	*Pithecellobium dulce*		22	Pakar	*Ficus urens*
2	Siris	*Albizia labbeck*		23	Kaintha	*Limonia sps.*
3	Mango	*Mangifera indica*		24	Jungle jalebi	*Acacia Auriculiformis*
4	Neem	*Azadiracta indica*		25	Kasod	*Casseia seamia*
5	Jamun	*Syzygium cumini*		26	Baiken	*Melia azidarch*
6	Karanj	*Pongamia pinnata*		27	Bel	*Aegle marmelos*
7	Amla	*Phyllanthus emblica*		28	Amrood	*Psidium guajava*
8	Shisham	*Delbergia sisoo*		29	Chilbil	*Holoptelea integrifolia*
9	Guava	*Pisidium guajava*		30	Sahtut	*Morus alba*
10	Saptaparni	*Alstonia Scholaris*		31	Kachnar	*Bauhinia variegata*
11	Gulmohar	*Delonix regia*		32	Amaltas	*Cassia fistula*
12	Teak	*Tectona grandis*		33	Kathal	*Atrocarpus hitrophillus*
13	Bahera	*Teminalia belarica*		34	Chitwn	*Alstonia scholaris*
14	Pipal	*Ficus religiosa*		35	Tecoma	*Tecoma stans*
15	Arjun	*Terminalia arjuna*		36	Ber	*Ziziphus mauritiana*
16	Imli	*Tamarindus indica*		37	Botte brush	*Callistemon sps.*
17	Mahua	*Madhuca longifolia*		38	Peltophorum	*Peltophorum pterocarpum*
18	Lisoda	*Cordia myxa*		39	Gamhaar	*Gmelina arborea*
19	Kadam	*Neolamarckia cadamba*		40	Harsingaar	*Nyctanthes arbor-tristis*
20	Semal	*Bombax ceiba*		41	Kaner	*Narium indicum*
21	Bargad	*Ficus bengalensis*		42	Karipatta	*Murraya koenigii*



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Birds Eye View



Plantation along Railway Line





Plantation along Railway Line

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Neem Path in Main Plant towards Service Building

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Plantation towards Administrative Building



Existing Greenbelt



Water Reservoir : Plantation Before and After

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New Administrative Building Area: Plantation before and after





Anversary Park : Plantation before and after



Plantation along DFA Road

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Miyawaki Method of Planation





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Mass Planation Drives

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Mass Planation Drives

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10.10.2. Proposed Greenbelt Development Plan

Plantation inside MUNPL Project Premises

MUNPL has already developed a dense greenbelt covering 163 Ha within its existing facility. For the proposed expansion, MUNPL plans to establish an additional 318 Ha of dense greenbelt within the premises, bringing the total greenbelt area to 481 Ha.

As part of the proposed MEJA-Stage-II project, in line with the ToR guidelines, an effective greenbelt will be developed around the plant. A diverse mix of native tree species will be planted in close proximity to minimize gaps. The greenbelt will be designed with at least three tiers of trees around the plant boundary, ensuring a minimum tree density of 2,000 trees per hectare with a survival rate exceeding 80%. Additionally, grasses, bushes, and hedges will be planted along the roads as part of avenue plantation.

Greenbelt Budget: Greenbelt with a budget of Rs. 33.24 Crore, Carbon sink through plantation in nearby forest land will be done with a budget of Rs. 24.25 Crore. Total Budget for Green Belt development and Carbon Sink plantation shall be Rs. 57.49 Crore.

Plantation outside MUNPL Project Premises

Beside that Over and above the greenbelt, as carbon sink, additional planation shall be done in 271 Ha of degraded forest area in consultation with DFO Prayagraj. Native species of trees shall be planted in consultation with DFO, Social forestry department. MUNPL consulted Divisional Forest Officer-Prayagraj for assistance in plantation within MUNPL premises and in the surrounding degraded forest land under DFO-Prayagraj. MUNPL has proposed planting in degraded forest areas, A total of 271 Ha of plantation has been identified by MUNPL in consultation with the Forestry Division Prayagraj. A comprehensive action plan for this external plantation has been developed and approved by the Forestry Division Prayagraj. Under greenbelt plantation Neem (*Azadiracta Indica*), Karanj (*Pongamia pinnata*), Kadamb (Neolamarckia cadamba), Jungle Jalebi (*Pithecellobium dulce*),, Mahua (*Madhuca longifolia*), Imli (*Tamarindus indica*), Sagon (*Tectona grandis*), Amaltas (*Casia fistula*) , Chilbil (*Holoptelea integrifolia*), Bargad (*Ficus benghalensis*), Pakad (*Ficus virens*), Peepal (*Ficus religiosa*), Khair (*Acacia catechu*), Bans (*Dendrocalamus sps*.), Cassia (*Cassia afrofistula*) and semia (*Senna siamea*) and Arru tree species shall be planted.

As per MoEF&CC guidelines for tree development of around 2000 no. of trees/Ha, shall be planted. Thus total approx. 11,78,000 no. of trees shall be planted within the plant as well as in degraded forest land. A comprehensive budget for Green Belt development and Carbon Sink plantation shall be Rs. 57.49 Crore.

Rs. 57.49 Crores has been allocated for greenbelt development inside the plant as well as outside of plant in degraded forest areas. The proposed greenbelt development action plan from DFO-Prayagraj is attached as **Annexure-23.** The updated action plan for plantation to be carried out in a phase manner from 2025-26 to 2034-35. Details of the area and cost of

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plantation is summarised in Table 10.10 and action plan of tree plantation is given in Table 10.11.

Table 10.11 : Action Plan for Greenbelt

S. No.	Description	Area (Ha)	Time Period	Budget	Remarks
1	Area of the land already developed as green belt	163	Already done	Already done	
2	Area of future plantation planned on MUNPL acquired land	261	From FY 2025-26 to FY 2029-30	Rs. 26.78 Crore	Plantation in MUNPL land of 261 Ha (**80.55%** of planned green belt area of 324 Ha) shall be carried out **in first 5 years.**
3	Area of future plantation planned on MUNPL acquired land	63	From FY 2030-31 to FY 2032-33	Rs. 6.46 Crore	Plantation in MUNPL land of 63 Ha (**19.45 %** of planned green belt area of 324 Ha), planned to be used as Laydown/Pre-assembly area, shall be carried out in next 3 years after completion of plant erection.
Total Green belt (Existing & Proposed) within MUNPL Land		**487**	**2025 to 2033**	**Rs. 33.24 Crore**	**487 Ha is 34.66% of total land of 1405 Ha**
Note: In addition to the development of Greenbelt with a budget of Rs. 33.24 Crore, Carbon sink through plantation in nearby forest land will be done with a budget of Rs. 24.25 Crore. Total Budget for Green Belt development and Carbon Sink plantation shall be Rs. 57.49 Crore.					

Beside this, plantation shall be carried out in nearby areas and surrounding villages of project, Panchayat lands, along the roads, in surrounding schools/colleges, near water bodies and others. Copy of letters received from neighbouring schools is attached as **Annexure-24**. Year wise Plan for tree plantation is given in table 10.12.

Table 10.12 Year Wise Plan of Tree Plantation Project by Meja Urja Nigam Private Limited

S. No	Year	Within MUNPL Land	
		Area (Ha)	Earmarked Budget (Rs. Cr.)
1	**2025-2026**	*50*	***5.13***
2	**2026-2027**	*55*	***5.64***

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S. No	Year	Within MUNPL Land	
		Area (Ha)	Earmarked Budget (Rs. Cr.)
3	**2027-2028**	*50*	***5.13***
4	**2028-2029**	*50*	***5.13***
5	**2029-2030**	*56*	***5.75***
6	**2030-2031**	*25*	***2.57***
7	**2031-2032**	*25*	***2.57***
8	**2032-2033**	*13*	**1.325**
Total		**324**	**33.24**

10.11. Carbon sequestration through Greenbelt

The rate of carbon sequestering depends on growth parameters of the plants. Density of wood of plants plays a major role. Trees act as sinks for carbon dioxide by fixing carbon during photosynthesis and storing carbon as biomass (Carbon sequestration). The net long-term carbon dioxide source/sink dynamics of green belt area change through time as trees grow, get pruned, die and decay. Trees in green belt areas sequester and store carbon as they grow. Thus, green belt influence local climate, carbon cycles, energy use and climate change. There are few methods, which will be adopted by project for capturing/minimising carbon emission:

- Green belt development in and around the plant premises.
- Reduction of CO_2 emissions by Installation and operation of Ultra Super Critical Units as compared to Sub Critical units.

ANTICIPATED AMOUNT OF CARBON SEQUESTRATION THROUGH GREENBELT

The rate of carbon sequestration depends on the growth characteristics of the tree species, the density of its wood, the location's conditions for growth, and the plant stage of the tree. It is greatest in the younger stages of tree growth, between 20 to 50 years.

Calculation of amount of carbon sequestered through trees by following methodology given below:

1. Determine the total (green) weight of the tree.
2. Determine the dry weight of the tree.
3. Determine the weight of carbon in the tree.
4. Determine the weight of carbon dioxide sequestered in the tree
5. Determine the weight of CO_2 sequestered in the tree per year.

1. Determine the total (green) weight of the tree.

Based on tree species, the algorithm to calculate the weight of a tree is:

W = Above-ground weight of the tree in pounds

D = Diameter of the trunk in inches

H = Height of the tree in feet

For trees with D < 11:

W = 0.25D2H

For trees with D >= 11:

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W = 0.15D2H

Depending on the species, the coefficient (e.g. 0.25) could change, and the variables D2 and H could be raised to exponents just above or below 1. However, these two equations could be seen as an "average" of all the species' equations.

The root system weighs about 20% as much as the above-ground weight of the tree. Therefore, to determine the total green weight of the tree, multiply the above-ground weight of the tree by 120%.

2. **Determine the dry weight of the tree.**

This is based on an extension publication from the University of Nebraska. This publication has a table with average weights for one cord of wood for different temperate tree species. Taking all species in the table into account, the average tree is 72.5% dry matter and 27.5% moisture.

W (dry weight) = 0.725 * W (total green weight)

3. **Determine the weight of carbon in the tree.** The average carbon content is generally 50% of the tree's dry weight total volume. Therefore, in determining the weight of carbon in the tree, multiply the dry weight of the tree by 50%.

W (carbon) = 0.5 * W (dry weight)

4. **Determine the weight of carbon dioxide sequestered in the tree**

CO_2 is composed of one molecule of Carbon and 2 molecules of Oxygen.
The atomic weight of Carbon = 12.00
The atomic weight of Oxygen = 15.99
The weight of CO_2 is C+2*O = 43.99
The ratio of CO_2 to C is 43.99/12.00 = 3.67
Therefore, to determine the weight of carbon dioxide sequestered in the tree, multiply the weight of carbon in the tree by 3.67.

W (carbon-dioxide) = 3.67 * W (carbon)

Carbon sequestration for the existing, proposed greenbelt of MUNPL has been estimated on following heads.

Carbon sequestered per year by Existing Greenbelt/ Plantation (within the plant premises):

MUNPL Meja Stage-I was developed on Plateau land. At present, 3,68,160 nos. of plantation in about 163 Ha land with survival percentage of 81.7% has been done under green belt development. The existing greenbelt is under different age group of the plantation hence average diameter and height has been considered for the calculation. The existing greenbelt is its initial stage of the development. The total carbon sequestered annually by the existing greenbelt at current stage is estimated to be approximately 17655.17 MT/ Year. The details of the calculation are provided in **Table 10.11**.

Carbon sequestered per year by proposed Plantation (within the plant premises):

MUNPL has proposed establishing a dense greenbelt covering 318 Ha within its existing premises. The plan includes planting an average of 2,000 trees per hectare, resulting in an estimated 6,36,000 trees to be planted within the project area as part of the greenbelt development initiative. Assuming a 10-year-old greenbelt with 6,36,000 trees and based on the standard diameter and tree height for trees of this age, the total carbon sequestered annually by the proposed greenbelt at its initial age is estimated to be approximately 46240.39 MT/Year. The details of the calculation are provided in **Table 10.12**.

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Carbon sequestered per year by proposed Plantation (in degraded forest Areas outside the Plant):

As carbon sink, MUNPL has proposed an additional planation in approx. 271 Ha of degraded forest area. MUNPL has a details consultation with DFO Prayagraj for plantation in degraded forest areas close the project boundary. Native species of trees shall be planted in consultation with DFO, Social forestry department. On average, MUNPL has planned to plant 2,000 trees per hectare. Accordingly, approximately 5,42,000 trees will be planted in designated area as a part of carbon sink. Considering a 10-year-old plantation of 5,42,000 nos. of trees and assuming the diameter and tree height at the age of 10 year as per the standards, the total Carbon sequestered per year by the proposed plantation in degraded forest area is estimated to be approx. 38,365 MT/Year. Details of the calculation is given in **Table 10.13**.

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Table 10.13 Carbon sequestration through Existing Greenbelt (within the plant premises)

S.No	Species	Green Weight of Tree above ground level (lbs)	Green weight (including root) (lbs)	Dry Weight of tree (lbs)	Weight of carbon in the tree (lbs)	Weight of CO_2 (lbs)	Weight of CO_2 Sequestered in tree per year (lbs)	No of tree proposed	lbs/year	MT/Year
1	*Pithecellobium dulce*	360.00	432.00	313.20	156.60	574.14	57.41	8760	502948.90	224.53
2	*Albizia labbeck*	490.00	588.00	426.30	213.15	781.47	78.15	12340	964336.26	430.51
3	*Mangifera indica*	392.00	470.40	341.04	170.52	625.18	62.52	7600	475134.88	212.11
4	*Azadiracta indica*	588.00	705.60	511.56	255.78	937.77	93.78	12400	1162830.11	519.12
5	*Syzygium cumini*	490.00	588.00	426.30	213.15	781.47	78.15	8000	625177.48	279.10
6	*Pongamia pinnata*	380.25	456.30	330.82	165.41	606.44	60.64	9800	594309.34	265.32
7	*Phyllanthus emblica*	422.50	507.00	367.58	183.79	673.82	67.38	8200	552532.49	246.67
8	*Delbergia sisoo*	506.25	607.50	440.44	220.22	807.39	80.74	9600	775092.48	346.02
9	*Pisidium guajava*	61.25	73.50	53.29	26.64	97.68	9.77	6500	63494.59	28.35
10	*Alstonia Scholaris*	252.00	302.40	219.24	109.62	401.90	40.19	6780	272488.07	121.65
11	*Delonix regia*	704.00	844.80	612.48	306.24	1122.77	112.28	10200	1145223.07	511.26
12	*Tectona grandis*	588.00	705.60	511.56	255.78	937.77	93.78	13200	1237851.40	552.61
13	*Teminalia belarica*	618.75	742.50	538.31	269.16	986.81	98.68	8700	858522.58	383.27
14	*Ficus religiosa*	1011.50	1213.80	880.01	440.00	1613.18	161.32	14300	2306849.07	1029.85
15	*Terminalia arjuna*	588.00	705.60	511.56	255.78	937.77	93.78	12300	1153452.44	514.94
16	*Tamarindus indica*	731.25	877.50	636.19	318.09	1166.23	116.62	10230	1193050.34	532.61
17	*Madhuca longifolia*	618.75	742.50	538.31	269.16	986.81	98.68	12000	1184169.07	528.65
18	*Cordia myxa*	338.00	405.60	294.06	147.03	539.06	53.91	9800	528274.97	235.84
19	*Neolamarckia cadamba*	562.50	675.00	489.38	244.69	897.10	89.71	8450	758047.63	338.42

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20	*Bombax ceiba*	588.00	705.60	511.56	255.78	937.77	93.78	4500	421994.80	188.39
21	*Ficus bengalensis*	1573.00	1887.60	1368.51	684.26	2508.68	250.87	9800	2458510.42	1097.55
22	*Ficus urens*	1400.00	1680.00	1218.00	609.00	2232.78	223.28	8970	2002800.70	894.11
23	*Limonia sps.*	588.00	705.60	511.56	255.78	937.77	93.78	9000	843989.59	376.78
24	*Acacia Auriculiformis*	450.56	540.67	391.99	195.99	718.57	71.86	9800	704199.91	314.38
25	*Casseia seamia*	444.31	533.17	386.55	193.28	708.61	70.86	10200	722778.91	322.67
26	*Melia azidarch*	395.03	474.04	343.68	171.84	630.01	63.00	10200	642613.29	286.88
27	*Aegle marmelos*	384.40	461.28	334.43	167.21	613.06	61.31	8700	533359.32	238.11
29	*Holoptelea integrifolia*	588.00	705.60	511.56	255.78	937.77	93.78	9000	843989.59	376.78
30	*Morus alba*	329.55	395.46	286.71	143.35	525.58	52.56	8860	465663.60	207.89
31	*Bauhinia variegata*	514.50	617.40	447.62	223.81	820.55	82.05	12000	984654.52	439.58
32	*Cassia fistula*	397.15	476.58	345.52	172.76	633.39	63.34	9800	620723.09	277.11
33	*Atrocarpus hitrophillus*	618.75	742.50	538.31	269.16	986.81	98.68	5660	558533.08	249.35
35	*Tecoma stans*	630.00	756.00	548.10	274.05	1004.75	100.47	9800	984654.52	439.58
36	*Ziziphus mauritiana*	2.04	2.45	1.77	0.89	3.25	0.33	8700	2830.52	1.26
37	*Callistemon sps.*	280.80	336.96	244.30	122.15	447.83	44.78	4630	207345.85	92.57
38	*Peltophorum pterocarpum*	450.80	336.96	244.30	122.15	447.83	44.78	9670	433052.78	193.33
39	*Gmelina arborea*	675.00	540.96	392.20	196.10	718.95	71.90	8790	631960.65	282.13
40	*Nyctanthes arbor-tristis*	1.38	810.00	649.15	470.64	235.32	862.74	7600	6556861.37	2927.18
41	*Narium indicum*	0.84	1.66	972.00	778.98	564.76	282.38	6520	1841124.90	821.93
42	*Murraya koenigii*	0.32	810.00	587.25	293.63	1076.52	107.65	6800	732031.79	326.80
Total								**3,68,160**	39547458.37	**17,655.17**

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Table 10.14 : Carbon sequestration through Proposed Greenbelt (within the plant premises)

S.No	Species	Green Weight of Tree above ground level (lbs)	Green weight (including root) (lbs)	Dry Weight of tree (lbs)	Weight of carbon in the tree (lbs)	Weight of CO_2 (lbs)	Weight of CO_2 Sequestered in tree per year (lbs)	No of tree proposed	lbs/year	MT/Year
1	*Senna siamea*	562.5	675	489.38	244.69	897.1	89.71	25500	2287605	1021.25
2	*Azadirachta indica*	441	529.2	383.67	191.84	703.32	70.33	36000	2531880	1130.30
3	*Cassia fistula*	392	470.4	341.04	170.52	625.18	62.52	28500	1781820	795.46
4	*Dalbergia latifolia*	588	705.6	511.56	255.78	937.77	93.78	30200	2832156	1264.36
5	*Delonix regia*	832	998.4	723.84	361.92	1326.91	132.69	32000	4246080	1895.57
6	*Ficus bengalensis*	1872	2246.4	1628.64	814.32	2985.54	298.55	38000	11344900	5064.69
7	*Ficus Religiosa*	1452	1742.4	1263.24	631.62	2315.71	231.57	38000	8799660	3928.42
8	*Ficus virens*	1300	1560	1131	565.5	2073.29	207.33	32100	6655293	2971.11
9	*Pongamia pinnata*	490	588	426.3	213.15	781.47	78.15	35000	2735250	1221.09
10	*Neolamarckia cadamba*	360	432	313.2	156.6	574.14	57.41	22400	1285984	574.10
11	*Pithecellobium dulce*	275	330	239.25	119.63	438.58	43.86	28400	1245624	556.08
12	*Madhuca longifolia*	1200	1440	1044	522	1913.81	191.38	30000	5741400	2563.13
13	*Holoptelea integrifolia*	891	1069.2	775.17	387.59	1421	142.1	27600	3921960	1750.88
14	*Tectona grandis*	1053	1263.6	916.11	458.06	1679.37	167.94	24500	4114530	1836.84
15	*Syzygium cumini*	867	1040.4	754.29	377.15	1382.73	138.27	27600	3816252	1703.68
16	*Acacia catechu*	338	1040.4	754.29	377.15	1382.73	138.27	28400	3926868	1753.07
17	*Tamarindus indica*	722.5	405.6	294.06	147.03	539.06	53.91	26360	1421068	634.41
18	*Acacia catechu*	288	867	486.72	352.87	176.44	646.87	32500	21023275	9385.39
19	*Butea monosperma*	392	345.6	1040.4	584.06	423.45	211.72	38400	8130048	3629.49
20	*Syzygium cumini*	588	867	628.58	314.29	1152.27	115.23	29000	3341670	1491.82
21	*Casia fistula*	200	705.6	511.56	255.78	937.77	93.78	25540	2395141	1069.26

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Total	**6,36,000**	103578464	**46,240.39**

Table 10.15 : Carbon sequestration through proposed plantation (in degraded forest Areas outside the Plant)

S.No	Species	Green Weight of Tree above ground level (lbs)	Green weight (including root) (lbs)	Dry Weight of tree (lbs)	Weight of carbon in the tree (lbs)	Weight of CO_2 (lbs)	Weight of CO_2 Sequestered in tree per year (lbs)	No of tree proposed	lbs/year	MT/Year
1	*Senna siamea*	562.50	675	489.38	244.69	897.10	89.71	22300	2000528.05	893.10
2	*Azadirachta indica*	441	529.20	383.67	191.84	703.32	70.33	23400	1645779.71	734.73
3	*Cassia fistula*	392	470.40	341.04	170.52	625.18	62.52	26500	1656720.31	739.61
4	*Dalbergia latifolia*	588	705.60	511.56	255.78	937.77	93.78	28500	2672633.71	1193.14
5	*Delonix regia*	832	998.40	723.84	361.92	1326.91	132.69	29400	3901107.45	1741.57
6	*Ficus bengalensis*	1872	2246.40	1628.64	814.32	2985.54	298.55	32000	9553732.53	4265.07
7	*Ficus Religiosa*	1452	1742.40	1263.24	631.62	2315.71	231.57	31500	7294481.48	3256.48
8	*Ficus virens*	1300	1560	1131	565.50	2073.29	207.33	29800	6178412.10	2758.23
9	*Pongamia pinnata*	490	588	426.30	213.15	781.47	78.15	23400	1828644.12	816.36
10	Neolamarckia cadamba	360	432	313.20	156.60	574.14	57.41	24300	1395166.47	622.84
11	*Pithecellobium dulce*	275	330	239.25	119.63	438.58	43.86	26700	1171011.64	522.77
12	*Madhuca longifolia*	1200	1440	1044	522	1913.81	191.38	22300	4267793.18	1905.27
13	*Holoptelea integrifolia*	891	1069.20	775.17	387.59	1421	142.10	26700	3794077.70	1693.79
14	*Tectona grandis*	1053	1263.60	916.11	458.06	1679.37	167.94	28200	4735815.07	2114.21
15	*Syzygium cumini*	867	1040.40	754.29	377.15	1382.73	138.27	25400	3512125.85	1567.92
16	*Acacia catechu*	338	1040.40	754.29	377.15	1382.73	138.27	23400	3235580.51	1444.46
17	*Tamarindus indica*	722.50	405.60	294.06	147.03	539.06	53.91	23400	1261391.25	563.12
18	*Dendrocalamus sps*	87.50	867	486.72	352.87	176.44	646.87	24500	15848249.02	7075.13
19	*Butea monosperma*	200	105	1040.40	584.06	423.45	211.72	24500	5187218.40	2315.73
20	*Syzygium cumini*	588	867	628.58	314.29	1152.27	115.23	23400	2696317.09	1203.72
21	*Casia fistula*	200	705.60	511.56	255.78	937.77	93.78	22400	2100596.32	937.77
Total								**5,42,000**	85937381.95	**38,365.03**

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10.12. People/Public Health Management

The existing Meja Thermal Power Station has already full-fledged hospital (Aarogyam hospital) to cater the health needs of employees of NTPC, CISF, PAPs and other nearby villages and the same will be extended after the proposed expansion also.

Aarogyam hospital has been serving employees and neighbouring community since last 06 years. It is a 30 bedded hospital that provides 24-hour emergency services with regular doctors, administrative staff and regular Para medical staff.

Aarogyam hospital of MUNPL is a full-fledged 30 bedded hospital with an adequate number of qualified medical staff which is serving MUNPL employees & their dependents, Contract workers, School and surrounding PAP affected villages. It also acts as an occupational primary health care center where contract workers also avail services. Hospital provides Emergency services, trauma management, first aid facilities, lifesaving medicines and ambulance to meet any emergency. A 24 x 7 first aid centre is also run by hospital at plant premises catering to employees & contract workers for immediate medical support. More than 25,000 people from surrounding villages have benefitted from doctor's consultation in hospital OPD, and more than 800 people have been treated in emergency since 2018 till date. Annual medical check-up had been conducted for more than 20,000 contract workers till date.

Annual medical check-up of all the employees is done at periodic intervals through empanelled hospitals. Medical checkup of contract workers is done at the hospital. Health records are maintained in HMS for each employee while for contract workers, they are uploaded in CLIMS. Regular health check-up is carried out as and when required at the hospital. Precautionary measures are taken to avoid any occupational health hazards.

Aarogyam hospital has an in-house laboratory which has performed lab tests for more than 21,000 contract workers from 2021 till date. It also has an in-house imaging section where more than 19,571 non-entitled beneficiaries have been screened.

Details of the existing medical facilities is provided below:

Existing Medical Facility:

- OPD services
- Telemedicine services
- Physiotherapy services
- Laboratory services
- PFT, Audiometry services
- Imaging services - X-Ray services
- Rural Health Camps
- Workers CLIMS Medical check Up
- Emergency Services
- IPD services (15 Beds+1 Burn Unit)
- First Aid Centre (FAC) in plant premises

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- Ambulances – 01 BLS and 01 ACLS Ambulance at Hospital
- 01 BLS Ambulance at FAC

10.13. Management of Construction Site

Contractual workers will be engaged during the site preparation and plant construction work. For the workers at plant site, desired facilities at porta cabins; toilets, kitchens, adequate supply of electricity and water and other things of daily needs including the facility of first aid shall be provided.

A drainage system shall be constructed to drain off all runoff water from the work site into suitable drain outlet attached to STP. Temporary drainage shall maintain, removed and reinstated as required. Wastewater arising from toilets of site offices shall be treated in STP. Truck loading, unloading and hauling operations so as to minimize noise impact near surrounding villages to be properly scheduled. Machinery that emits noise in one specific direction would, where possible be oriented in a direction away from noise sensitive receptor (human habitation). Silencers and mufflers on construction equipment, wherever required, to be properly fitted and maintained. The foundation of every machinery shall be so designed that vibrations are minimized and isolate the every machine from each other so as to travel of vibrations from one machine to another machine. Vibrations curtailing material shall be used in the foundations. Litter disposal and collection points will be established around the all work sites. Biodegradable garbage from kitchen and tree litters will be composted and used as manure. A road roller shall also be deployed to compact the loose surface of the haul road. A water sprinkling tanker shall also be deployed to maintain the haul road surface moist at all time.

Labour Look after Plan: A brief of the measures that have been suggested for the labour under the labour management action plan (Labour including contract workers and drivers) include the following:

- Provision of common toilets and bathing facilities duly segregated for male and female labour;
- Supply of kerosene, coal/fuel wood by the contractors for their labour to prevent deforestation
- Collection of domestic waste and proper disposal.
- Monthly inspection of labour camps to focus on the following:

General observations on cleanliness.

- Drinking water availability with respect to source, cleanliness of storage tanks and quality fit to be consumed.
- Provision of sanitation facilities to water availability in toilets their cleanliness and drainage.
- Provision of garbage collection, segregation and disposal facilities.

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10.14. Roof Top Solar Plant

Solar power shall be harnessed by installing rooftop Solar Photo Voltaic (PV) systems on various buildings of the Power Plant. In Stage-I, 3.5 MW rooftop solar work is in progress. Installation of 1.5 MW rooftop solar is included in Stage-II EPC package.

The Solar Photo Voltaic (PV) installation on Rooftop of various buildings of the Power Plant shall be carried out preferably on shadow free area in such a way that the generation is maximized on each building suitable for installation of Solar PV power plants. Solar PV rooftop system will be installed on the buildings under proposed plant on the basis of 15 square metre area (shadow free) per kwp. Estimated capacity for roof top solar is 1500kWp.
Technical Requirements for Rooftop Solar Power Plant shall be as below:

- Shadow free flat roof top area having proper drainage
- Total distributed load of the roof top PV due to panels, supporting structures, equipment's and concrete blocks etc. and imposed load will not be more than 100 kg/m^2
- Proper approach to the roof top through lift / staircase.
- Availability of water for panel washing

Implementation Schedule

- Implementation schedule for "Roof Top Solar PV Plant" will be approximately 6 months from the Award of solar package by EPC contractor subject to availability of roofs identified in the tender documents. It will be commissioned before commercial operation of the last unit of the thermal project.

In addition to the above, MUNPL has pinpointed rooftop locations within the existing township and plant area for harnessing solar energy and It is planned to be installed by 2025-2026. The specific locations for solar rooftops on various buildings are detailed in Table 10.16.

Table 10.16 Solar Rooftop potential of various buildings Under Stage#1

S. No	Building	Location	Approx. Area (in sq m)	Potential KW
1	Club building	Township	400	40
2	Guest House	Township	1200	120
3	Auditorium	Township	1200	120
4	Shopping Complex	Township	870	87
5	Hospital Building	Township	3000	300
6	Main plant house Unit-1	Plant	5000	500
7	Service building	Plant	1200	120
8	Canteen	Plant	1000	100
9	Main plant house Unit-2	Plant	5000	500
10	Admin building	Outside plant	1000	100

Other Energy Saving Measures: Besides above the other power savings methods are adopted for energy conservation:

- Temperature sensors with visible temperature indicators in the switch boards

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- Check metering at various locations to check the power consumption and power loss if any.
- Suitable rating and size cables selection to limit the total power distribution losses less than 1%
- Solar water heater for pre – heating water required for bathing and cooking.
- Solar streetlights to be provided in plant area, nearby villages and other public roads.

10.15. Rainwater harvesting plan

MUNPL as an environmentally responsible company is working as a specific "Rainwater Harvesting Policy" of company. MUNPL has already constructed two no. of rain harvesting pits and two rainwater recharge pits are already existing in the plant. Beside that MUNPL has restored many ponds in the study area. The photographs of the existing pits are given below:



Rainwater Harvesting Pits in Colony area



Renovation of pond in village Salaiya kala

Rainwater Harvesting in Proposed Stage-II

MUNPL/NTPC as an environmentally responsible company is working as a specific "Rain Water Harvesting Policy" of company. The rainwater harvesting will be planned as per said policy.

The Rainwater Harvesting (RWH) study undertaken for Meja, Uttar Pradesh, by the National Institute of Hydrology (NIH), Roorkee, focuses on optimizing water resources in the region through the collection and storage of rainwater. Given the region's climatic conditions and the sporadic availability of groundwater, RWH presents an opportunity to enhance water

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availability for agricultural, domestic, and industrial purposes. The rainwater harvesting study conducted by National Institute of Hydrology (NIH), Roorkee is attached as **Annexure-25.**

A. Groundwater Conditions in Project Area

In the study area wells and tube wells are the main ground water abstraction structures. Ground water is being developed in the area by medium to deep tube wells, dug wells, dug-cum bored wells. Based on 3 exploratory wells data in the area CGWB observed yield at Pipraon village was about 770 lpm (good to excellent on groundwater prospective) whereas yield of 107 lpm encountered at Saliya Khurd village belongs to very poor prospective area. Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period in September 2023. In Monsoon 2024, it was observed that water levels are higher which are going down by about 5-10 m down in the pre-monsoon period. The stage of ground water development in Meja block is 51.25% and is in safe category.

B. Rainwater Harvesting in Proposed Meja TPP

Objectives: The key objective of the project was to develop a comprehensive RWH system that can:

- Capture and store excess rainwater during the monsoon season.
- Recharge groundwater levels.
- Provide water for irrigation, reducing dependency on bore wells.
- Reduce soil erosion and runoff, preventing degradation of land.

The water demand in the MEJA campus is fully met from the Ganga River water supply and supply from groundwater in the campus is nil. As the ground water conditions of area are good and levels of groundwater are satisfactory. However, considering the groundwater status, water supply and water demand in the MEJA campus, rainwater harvesting in the campus has been planned. Depending upon the location, size of sub-catchments in the MEJA plant and existing settlements, plant buildings, ash pond and open area in the MEJA, four possible sites has been identified by NIH Roorkee for Rainwater Water Harvesting structures. Looking into the increasing water demand due to expansion of residential facility and development of gardens around the residential area it was planned to install Rainwater Harvesting Systems (RWHS) in residential areas to recharge the groundwater. The total runoff potential from the study area comes out to be 1935648 m^3 i.e. 1.94 MCM. This is the total estimated rainwater harvesting potential of the whole area of MUNPL area.

Present ground water level around the site is less than 5 m below groundwater level during post-monsoon. Therefore, artificial ground recharge is not recommended in the project area either in Township or Plant area as per CGWB norms. However, it is recommended to prefer surface storage with existing or by constructing suitable storage structures (e.g., Dugout Ponds or storage tank) and proper surface storage can be preferred to avoid water logging issues in the future. However, the depth of the dugout pond needs to be restricted and it is not recommended more than 1.8 m due to shallow water table in the project area.

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C. Conclusion:

By considering the limitations of the groundwater levels and space availability, it is recommended to utilize the presently available four ponds in study area for rainwater harvesting with its existing water storage capacity.

The suggested plan is also in tune with the existing rainwater harvesting policy of NTPC also, which prefers surface storage structures over ground water recharge.

While in plant area it is not recommended to design any surface storage structures due to water logging issue may be generated in the future.

Proposed Rainwater Harvesting in MUNPL

Based on the outcome of the NIH, Roorkee study at present MUNPL has identified three ponds within the township and an pond outside plant premises where rooftop runoff will be directed for rainwater harvesting. Additionally, MUNPL has selected one pond outside the plant premises for rainwater storage. The total volume for rainwater to be harvested in these ponds is estimated to be 41,120.64 cubic meters. MUNPL will develop the necessary drainage network for this purpose. The layout of the rainwater harvesting pond located within the township and outside the plant premise is presented in Figure 10.2 and Figure 10.3, respectively. Detailed area and volume of these ponds are provided below:

Table 10.17 Volume and Area of the Ponds

Sl. No.	Location Identified	Unit	No.	Area m^2	Depth (m)*	Vol. m^3
1	**Inside Pond -1**	m^3	1	1570.8	1.80	2827.44
2	**Inside Pond -2**	m^3	1	4505.8	1.80	8109.00
3	**Inside Pond -3**	m^3	1	13346.0	1.80	24022.80
4	**Plant outside**	m^3	1	3423.0	1.80	6161.40
Total Pond details		m3		**22844.8**		**41120.64**

Source: MUNPL Note: (*The depth of ground water table is more than 8 m at these pond sites)

MUNPL has allocated a budget of around Rs. 4.0 crore for rainwater harvesting through dugout ponds.

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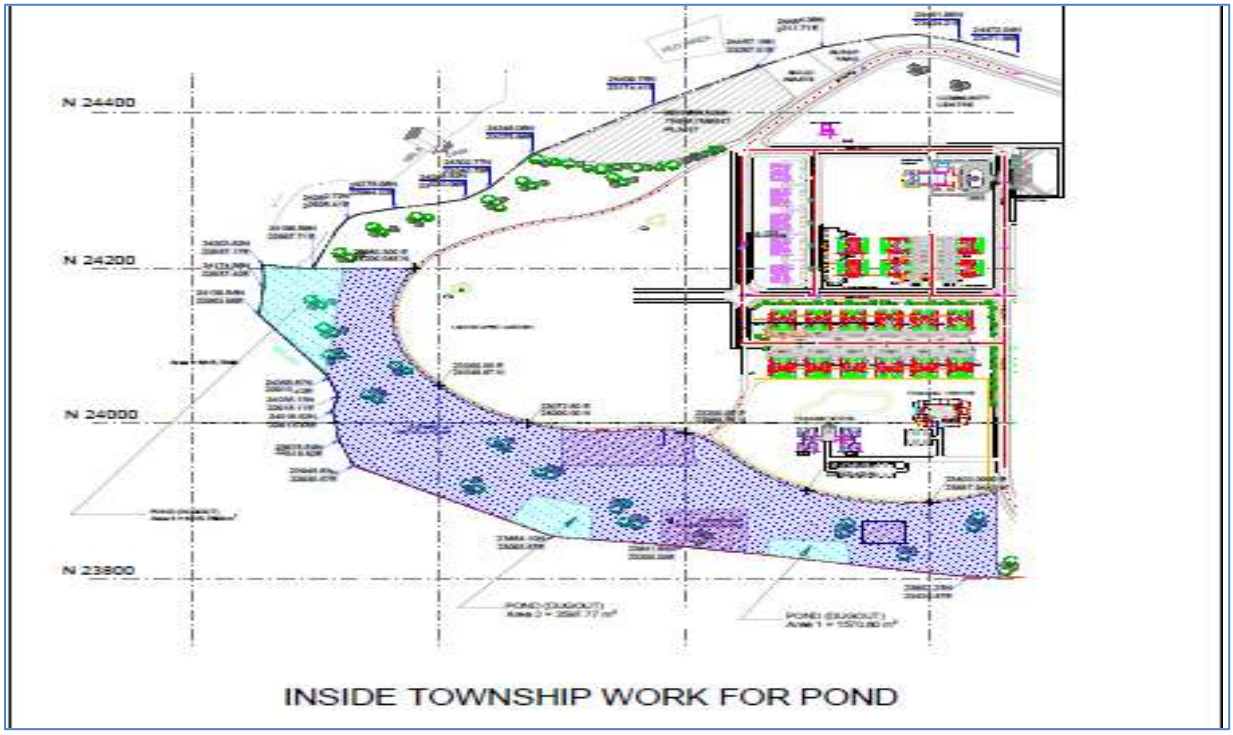


Figure 10.2 Rainwater Harvesting Pond inside Township area

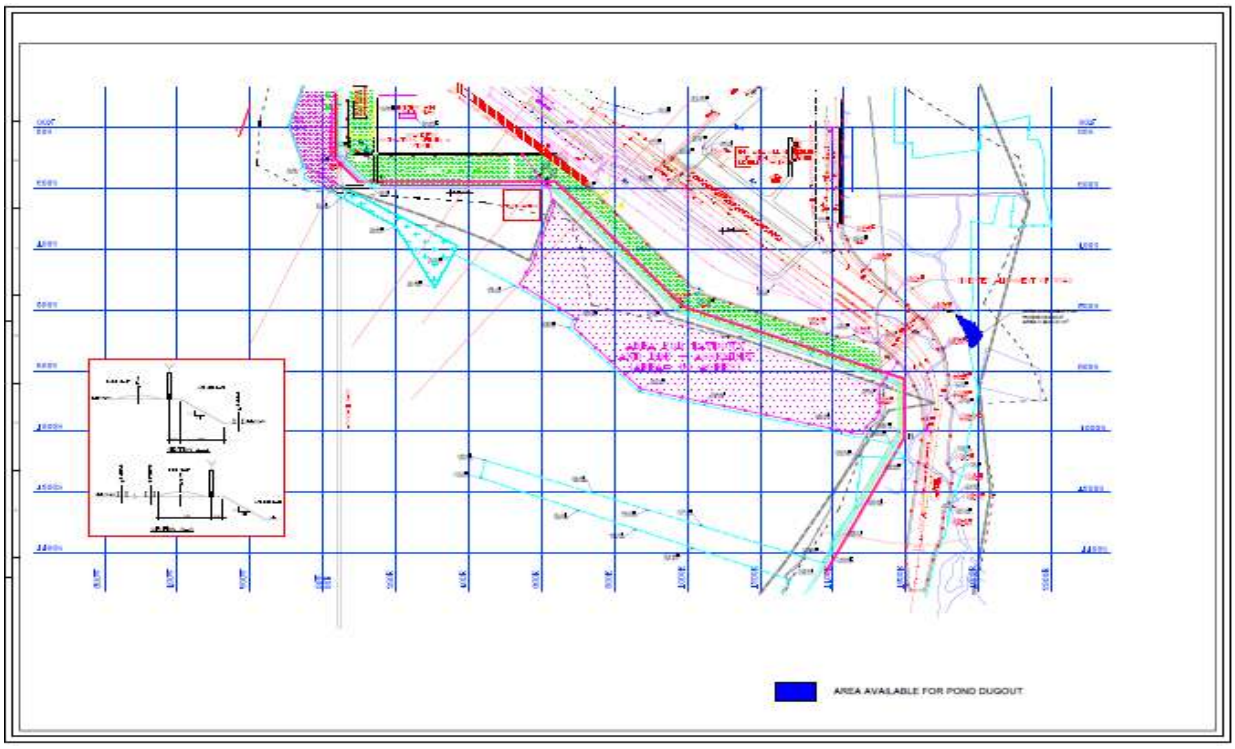


Figure 10.3 Rainwater Harvesting Pond outside Plant Premises

10.16. Rehabilitation & Resettlement Plan

The project site is situated near the villages of Kohdar, Mai Khurd, and Patai Dandi, within the Tehsil of Meja, Prayagraj, Uttar Pradesh. MUNPL already owns the land where the proposed

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expansion will take place, and this expansion will occur within the current premises, so no resettlement and rehabilitation (R&R) is needed for the existing land. However, an additional 110 Hectares of land will be acquired for the project: 110 Hectares of government land for the ash dyke (89 Ha) and Greenbelt and other (21 Ha). There are about 50 families in the proposed land to be acquired for Ash Dyke . The land acquisition for Ash Dyke is in advanced Stage and detailed R&R plan shall be made in consultation with the Dist. Authorities. For the implementation of the R&R issues a tentative cost of Rs. 26.24 Cr. has been earmarked by MUNPL. Details of the cost is given in following **Table 10.18**.

Table 10.18 Detailing of the R&R Budget

S. No	R & R Entitlement (Tentative Estimate)	No. of PAPs	Entitlement as per LARR Act'13 as on 01.01.2014 (₹ In Lakh)	Tentative cost of R&R (₹ In Lakh)-W/o Indexation
1	Cost of Home-stead land for Resettlement Colony & Development of Infrastructure (if applicable)	150	-	398.21
2	Assets Cost on Land for Resettlement Colony	0	0	0.00
3	Cost of Infrastructure (Resettlement Colony)	150	-	1050.00
4	House Building Assistance - as per IAY	150	1.65	247.50
5	Subsistence Grant	150	0.36	54.00
6	In addition to this SC/ST will also get Rs. 0.5 lakh (Considering 25% HHs as SC/ST)	50	0.5	25.00
7	Transportation Allowance	150	0.5	75.00
8	Cattle shed / petty shops cost	150	0.25	37.50
9	One time grant to artisans, small traders & certain others (Considering 25% Families)	50	0.25	12.50
10	One-time resettlement allowance	450	0.5	225.00
11	Other R & R Benefits			500.00
12	Cost of CPR (if exists in to be acquired land)			
13	Total R&R Cost			2624.00
14	CER Works		LS	4010.00
15	Total (Rs. in Lakhs) (13+14)			6634.00

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10.17. Cost provision for Environment Management Plan (EMP Budget)

EMP for effective management of environmental impacts due to the proposed project and ensuring overall protection of the surrounding environment through appropriate management procedures has been prepared.

The capital cost for environmental management of the proposed project is estimated to be Rs 2960.33 Crores. This amount shall be used for constructing pollution control equipment & structures operation phase, Occupational Health & Safety of workers, Water Supply & Drainage system, Storm water management, Solar streetlight within project area, wastewater management, environmental monitoring, CSR/CER and greenbelt development. Recurring cost per annum is estimated to be Rs. **58.47** Cr.

10.18. Pollution Control Equipment Maintenance schedule

MUNPL will ensure that all air pollution control devices, wastewater treatment and water re-circulating systems function effectively. Contractor under the supervision of the company will do implementation of pollution control measures during construction phase. MUNPL shall also ensure the regular maintenance of the pollution control equipment. Yearly/Half yearly maintenance shall be done through the contractor. Air pollution control equipment (ESP, FGD, NOx Control and Dust equipment/Suppression system) are integral part of main plant equipment and the same are being/shall be maintained as per operation and maintenance philosophy of NTPC. the contractor. MUNPL will also ensure cleanliness and industrial hygiene in the plant. All records shall be submitted to the regulatory authorities (State Pollution Control Board), displayed at company gate and website. Pollution Control Equipment Maintenance schedule is provided in **Table 10.16**.

Table 10.19 Pollution Control Equipment Maintenance schedule

S. No	Description/ Pollution Control Equipment	Remarks	Check/Maintenance Schedule
1	ESP, FGD, NOx controller Preventive maintenance check for ESP.	ESP is checked for daily, weekly, monthly, quarterly and yearly for different parameters and if any irregularity noted schedule maintenance done accordingly	**Daily Check for:** Record Electrical Readings and transmission meter data **Weekly Check for** Check the rapping system operating condition **Quarterly Check for** Check control panels (clean & operating condition) **Yearly Check for:** Clean insulator rooms and all insulator surfaces. Examine and clean all contactors and inspect tightness of all electrical connections and Clean and inspect all gasket connections check and

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S. No	Description/ Pollution Control Equipment	Remarks	Check/Maintenance Schedule
			adjust operation of switchgear check and tighten rapper insulator connections
2	02 DFDS (Dry Fog Dust Suppression) pumps and 02 Air compressors	Sprays mix of water and air in every coffin box near coal chute	DFDS Pump: 4W PM schedule DFDS Comp: 4W PM schedule
3	02 DSWT (Dust suppression Wagon Tippler	Sprays service water at WT area above and in hopper	DSWT Pump: 4W PM schedule
4	02 DSPF (Dust suppression Paddle Feeder) pumps	Fills the tank of water in each Paddle feeder for water spraying purpose when PF in use	DSPF Pump: 4W PM schedule
5	02 DSTH (Dust Suppression Track Hopper) pumps are available	In BOBR unloading area i.e. TH - dust suppression system PR initiated	DSTH Pump: 4W PM schedule
6	02 Sprinkler pumps for stockpile dust suppression	Sprays water for dust suppression in all 04 Coal yard through 88 spray Nozzles.	Sprinkler Pump: 4W PM schedule
7	New Modified pre wetting system has also been installed which takes water from service water pumps	Sprays water at following conveyors: Conv 02 A/B, 05A/B, 10A/B - Tail end Conv 01 A/B - near penthouse Conv-11 A/B - Head end at TP-11	Service Water Pump: 4W PM schedule

10.18.1. *EMP Budget*

A cost provision of Rs. 2960.33 Crores have been kept towards providing environmental measures and details are presented in **Table-10.17.**

Table 10.20 : Proposed EMP Budget for Stage – II (3 x 800 MW)

S. No	Item Description	Cost Rs. Crores	Recurring Cost Rs. Crores
1	Electrostatic Precipitator	519.14	10.4
2	Chimney	164.84	3.3

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3	Cooling Towers incl. Civil Works	29.24	0.6
4	Ash Handling	946.03	18.9
5	Ash Disposal Area	373.72	7.5
6	Ash Water Recirculation Incl. ETP	2.1	0
7	Dust extraction & suppression System	7.5	0.2
8	DM plant waste treatment systems	31.25	0.6
9	Sewerage collection, treatment & disposal	8	0.2
10	Green Belt, Afforestation & Landscaping	57.49	0.56
11	FGD	770.42	15.4
12	CER	40.1	0.4
13	Environmental Lab with monitoring Equipments	2	0.3
14	Wildlife Conservation Plan	3.5	0
15	Water Shed Development Plan	1	0.02
16	Rainwater Harvesting	4	0.08
Total		***2960.33***	***58.47***

Source: MUNPL

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Chapter 11. SUMMARY AND CONCLUSION

11.1. Introduction

Meja Urja Nigam Private Limited (MUNPL), a 50:50 Joint Venture Agreement of NTPC Ltd & UPRVUNL and was registered as a company on 02.04.2008, with an intent to establish Meja Thermal Power Project. Meja Urja Nigam Private Limited (MUNPL) has an installed capacity of 1320 MW with both units (2X660 MW) under commercial operation since 30.04.2019 and 31.01.2021 respectively. The power plant is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, District-Prayagraj, Uttar Pradesh. Both the units of the power plant have been commissioned. The power generated by the plant is supplied mainly to Uttar Pradesh along with the states of Uttarakhand, Chandigarh, Rajasthan, Punjab, J&K, Delhi, Madhya Pradesh and Haryana.

MUNPL is planning to install a 3X800 MW Coal based thermal power plant near Villages- Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, Prayagraj, Uttar Pradesh in line with MoU with govt. of Uttar Pradesh. MoM dated 27.12.2022, Ministry of Power and CEA identified Meja Stage-II Project (2X660 MW) for capacity addition by the year 2030, decided during the meeting held on 09.12.2022 under the Chairmanship of Secretary (Power).

Ministry of Power vide Office MEMO dated 25.10.2023 reviewed the capacity addition upto year 2031-32 with upgradation of capacity of Meja Project for Stage-II from 2X660 MW to 3X800 MW. Recently, a supplementary JV Agreement has been signed between NTPC and UPRVUNL (Uttar Pradesh Rajya Vidyut Urja Nigam Limited)/ Govt. of Uttar Pradesh on 13.09.2023 for the joint development of Meja-II with Anpara-E and Obra-D projects.

As per Environmental Impact Assessment (EIA) Notification dated 14.09.2006 and subsequent amendments of Ministry of Environment and Forests and Climate Change (MoEF&CC), the proposed project falls under Category A of Schedule 1(d) and requires prior Environmental Clearance from MoEF&CC. Further, Category A projects also attract the provisions of Public Consultation as per EIA Notification dated 14.09.2006. An application for accord of ToR (Terms of Reference) for the project was submitted to MoEF&CC on 20.10.2023. ToR has been accorded for the project by MoEF&CC vide F.No. J-13012/03/2008- IA.II (T) dated 14th December 2023.

The EIA/EMP (Environmental Impact Assessment/Environmental Management Plan) report has been prepared by M/s EQMS India Pvt. Ltd., Delhi (Formerly known as EQMS India Pvt. Ltd.) in accordance with the Terms of Reference (TOR) provided by the Ministry of Environment, Forest and Climate Change (MOEF&CC). The public hearing for the project was conducted on 24 June 2024. The Final EIA report has been prepared after incorporating the comments/ suggestion raised by the public during public hearing and are incorporated in Chapter-7.

11.2. Project Description

Location: Proposed 3x800 MW Super Thermal Power Plant of **M/s Meja Urja Nigam Private Limited (MUNPL),** is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja,

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Prayagraj, Uttar Pradesh. The latitude and longitude of centre of the site are 25^0 09' 10'' North and 81^0 56'50'' East, respectively.

Nature of Project: MUNPL Stage-II project will be a coal fired thermal power project. The proposal involves construction and operation of 3x800 MW. Salient features of the project is given in Table 11.1.

Table 11.1 : Salient features of Proposed Project

S. No	Features	Description	
		Existing Stage-I (2X660MW)	Proposed Expansion Stage-II (3X800MW)
1	Capacity/Configuration	2x660 MW	3x800 MW
2	Technology	Super-Critical Technology	Ultra Super-Critical Technology
3	Construction Power	-	4MW construction power for the Meja Stage II would be met from existing 2 No. power sources (Each having capacity to handle 4MW) installed for Meja Stage-I, from Purvanchal Vidyut Vitran Nigam Limited.
4	Source of Coal	NCL & CCL	BCCL. Coal allotment letter is attached as **Annexure-16**
5	Coal requirement	7.34 MTPA	9.94 MTPA
6	Mode of Transportation	Through Rail	Through Rail
7	Moisture (%)	13-14	13-14
8	Sulphur content	0.3 to 0.5 %	0.3 to 0.5 %
9	Average gross Calorific value (kCal/kg)	3000 (NCL) 3900 (CCL)	3900
10	Capacity of Installed Boiler	2120 TPH	2580 TPH
11	Ash Content in Coal	34-43%	40%
12	Total Ash Generation	2.79 MTPA	3.78 MTPA
13	Fly ash	2.232 MMTPA	3.024 MTPA
14	Bottom ash	0.558 MTPA	0.756 MTPA
15	ESP efficiency (%)	>99.9	>99.9
16	Stack height (Meters)	One twin flue chimney of 275M height	One twin flue chimney of 220M height & one single flue chimney of 150M height
17	Water requirement	Allocated: 44 Cusecs Current usage: 39 Cusec Surplus: 5 Cusec	Requirement: 30 Cusec Surplus available: 5 Cusec from Stage-I
18	Water source	River Ganga	River Ganga

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S. No	Features	Description	
		Existing Stage-I (2X660MW)	Proposed Expansion Stage-II (3X800MW)
		(29 Km, pipeline)	(29 Km, pipeline)
19	Land requirement (Ha)	1295 Ha	Within existing land. Additionally, proposed acquisition - 110 Ha (Ashpond 89 Ha, Greenbelt and other 21 Ha).
20	Project cost	Rs.13,093 Crores	Rs. 25,081.88 Crores

Source: MUNPL

Land Requirement: The project site is located near Villages-Kohdar, Mai Khurd and Patai Dandi, Tehsil: Meja, Prayagraj, Uttar Pradesh. The land is already in possession of MUNPL. The plant facilities for this proposed expansion Stage-II would be accommodated within the land available in the existing power station of MUNPL Stage-I. For Stage-II, the acquisition of an additional 110 Ha (Govt. land) comprising of Ash Dyke (89 Ha), Greenbelt and other (21 Ha) is currently under process. The land breakup of the project site is shown in Table 11.2.

Table 11.2 : Land Requirement

Description	Existing Land Area		Proposed Additional Land requirement for Stage-II (Ha)	Remark
	Land area for Stage-I as per EC/EIA (Ha)	Land area for Stage-II already taken with Stage-I (Ha)		
Main Plant	144.2	183.8	0	
Ash Pond	262	Shared with Stage-I	89	Additional ash pond area reduced from 110 Ha to 89 Ha
Township	85	Shared with Stage-I	0	-
Railway Siding	171	Shared with Stage-I	0	-
Reservoir	75	Shared with Stage-I	0	-
Makeup water	5.22	Shared with Stage-I	0	-
Existing Green belt (other area within Project Land)	87	0	0	Please see ***Footnote no. 1***

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Description	Existing Land Area		Proposed Additional Land requirement for Stage-II (Ha)	Remark
	Land area for Stage-I as per EC/EIA (Ha)	Land area for Stage-II already taken with Stage-I (Ha)		
Proposed Greenbelt (other area within Project Land)	0	186.42	21	*Additional 21 Ha land proposed for green belt and other*
Miscellaneous	95.36	Shared with Stage-I	0	Please see ***Footnote no. 2***
Sub-Total (Ha)	924.78	370.22	110	-
Total (Ha): Existing and Proposed	1295		110	-
Grand Total (Ha)	**1405**			-
Footnote no. 1. *In addition to the 87 Ha of existing greenbelt as mentioned above, an additional 76 Ha. greenbelt has been already developed within main plant, township & railway siding area thus total greenbelt in existing plant is 163 Ha.*				
Footnote no. 2*. Includes public roads, vegetable market, parking, administrative building, undulating land, drains, dry fly ash silo, outside area, open areas etc.*				

Source: MUNPL

Table 11.2.1: Existing and proposed Greenbelt details within the MUNPL Premises

Sl. No.	Description (A)	Existing Greenbelt area in Ha (B)	Proposed Greenbelt area in Ha (C)
1	Plant area	10	21.15
2	Ash Pond area	0	14.41
3	Township area	22	5.05
4	Railway Siding area	44	76
5	Existing Green belt (other area within Project Land)	87	0
6	Proposed Greenbelt (other area within Project Land)	0	207.42 (186.42+21)
7	**Total (Sum of Sl. No. 1 to 6)**	**163**	**324**
Grand Total (B7+ C7)		**487 Ha**	

Source: MUNPL

Total Project Land: 1405 Ha

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Percentage of Green Belt area w.r.t. Total Project Land (487x100/1405) is 34.66%.

Coal Requirement: Main Raw material required for Power plant is Coal. Approx. 9.94 MTPA corresponding to 85% PLF considering GCV of 3900 Kcal/Kg shall be required for the project. Coal linkage source is allocated from BCCL for Meja STPP Stage-II vide CIL letter dated 20.06.2024. Copy of the Coal linkage is attached as **Annexure-16.**

Water Requirement:

Construction Stage: Approx. 400 KLD of water shall be required during the construction phase. Source of water requirement will be from the surplus water from the existing plant.

Operational Phase: Water requirement for existing Stage-I is 39 Cusec and is presently being drawn from Ganga River. Govt. of UP (GoUP) has allocated 44 Cusec of water for Stage-I. The water requirement for Stage-I is 39 Cusec and Surplus water available is 5 Cusec. For meeting the requirement of Stage-II, an additional water allocation of 25 Cusec shall be obtained from GoUP from Ganga River.

The make-up water requirement for this project would be about 3000 m^3/Hr., (30 Cusecs) with bottom ash as lean slurry and fly ash as HCSD system for ash handling. Air Cooled Condensers (ACC) is envisaged for Stage-II (3x800 MW) units.





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Proposed site photograph

Manpower Requirement

The proposed expansion power plant will require skilled, semi-skilled and unskilled personal during construction and operational phase. Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase. The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment) and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases.

11.3. Description of environment

As per the ToR prescribed by MoEF&CC for the proposed project, the study area is 10 km radius from the project site. The baseline environmental data generation has been done for the period of 1st October 2023 to 31st December 2023 based upon which the EIA report has been prepared. The micro-meteorological data like wind speed, wind direction, temperature, relative humidity and atmospheric pressure were collected using the weather stationed cloud cover was recorded for

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the study period. The Power Plant site falls under Seismic Zone-III (Moderate Risk Zone). The meteorological parameters have been recorded and are presented in **Table 11.3**.

Table 11.3 : Summary of the Meteorological Data of Site (Oct 2023 - Dec 2023)

Parameter		Oct- 2023	Nov-2023	Dec-2023
Temperature (°C)	**Max**	37	32	31
	Min	22	14	11
	Avg	29.84	24.86	21.07
Relative Humidity (%)	**Max**	80	71	70
	Min	18	15	19
	Avg	44.80	31.44	35.94
Rainfall (mm)	**Avg.**	18.7	2.3	4.3
Wind Speed (m/s)	**Avg**	1.21 m/s		
Predominant Wind Direction	**(from)**	W, SW		
Calm Period	**%**	30.34%		

Particulate Matter (PM_{10}): The maximum PM_{10} level were found at Project Site (Meja TPP Main Entry Gate) (94 µg/m^3) and lowest PM_{10} level (42 µg/m^3) were observed at Sonbarsi, Piprau and Rithaiya Village, while the mean conc. of all location ranges between 65-75 µg/m^3. The PM_{10} level in all the monitoring locations is within the standard i.e. NAAQMS level 100 µg/m^3.

Particulate Matter ($PM_{2.5}$): The maximum $PM_{2.5}$ level were found at Project Site (54 µg/m^3) and lowest $PM_{2.5}$ level were observed at Sonbarsi, Piprau and Rithaiya Village (17 µg/m^3) while the mean conc. of all location ranges between 34-42 µg/m^3. The $PM_{2.5}$ level in all the monitoring locations is within the standard i.e. NAAQMS level 60 µg/m^3.

Sulphur Dioxide (SO_2): The maximum SO_2 level were found at Project Site (13.9 µg/m^3) and lowest SO_2 level were observed at Piprau Village, (5.4 µg/m^3) while the mean conc. of all location ranges between 7.8 to 11.0 µg/m^3. The SO_2 level in all the monitoring locations is found quite below the standard i.e. NAAQMS level 80 µg/m^3.

Oxides of Nitrogen (NO_2): The maximum NO_2 level were found at Project Site (17.3 µg/m^3) and lowest NO_2 level were observed Son Barsi and Rithaiya Village (9.0 µg/m^3) while the mean conc. of all location ranges between 10.9 – 14.5 µg/m^3. The NO_2 level in all monitoring location are quite below the standard i.e. NAAQMS level 80µg/m^3.

Other Parameters: NH_3 were found <20 µg/m^3 which is found far below the standard i.e. NAAQMS level 400µg/m^3. CO conc. was found between 0.12 to 0.29 mg/m^3 which is found within the standard i.e. NAAQMS level 2 mg/m^3, Ozone conc. was found between 11.2 to 19.6 mg/m^3

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which is found within the standard i.e. NAAQMS level 100 mg/m^{3,} Metals were also not detected from the study area.

The noise monitoring has been conducted for determination of noise levels at 10 locations in the study area. The noise level is within the prescribed limit in all the monitoring stations. Baseline ambient daytime and nighttime Noise levels recorded in the study area during day time is ranging between 51.4 to 60.4 dB(A). and Night time noise levels is ranging between 40.3 to 53.9 dB(A) respectively. The noise level was found slightly higher compared to other location at identified commercial/mixed used area due to its proximity to road leading to vehicular traffic noise and commercial activities in the area. The major source of the noise in the study area is the community noise and vehicular movement.

12 ground water and 6 surface water samples were collected from the study area. Surface water samples were collected from Tons River & Ganga River. Bacterial contamination were observed in the surface water sample. However, the surface water was found to meet the Best Designated Use – 'C' Criteria of CPCB (i.e., Drinking water source after conventional treatment and disinfection)**.**

Ground water sample were collected from nearby villages, hotspots like school, around ash pond etc. pH value of the sample varies from 6.89 to 7.78 in all locations, which is well within the specified standard of 6.5 to 8.5. Electric Conductivity levels vary from 385 to 1305 µmhos/cm. Total dissolved solids range from 258 to 874 mg/l which is found within the permissible limit as per IS:10500. The total hardness values in ground water of the study area ranges between 148 to 544 mg/l which is found well within the permissible limit at all locations. The Calcium and Magnesium values in ground water of the study area are well within the specified permissible limit. The Chloride values in ground water of the study area ranges between 40 to 311 mg/l which is also well within the permissible limit. No biological and metallic contamination have been found in any of the ground water sample of the study area. Overall, the parameters in ground water sample were well within the permissible limit of Indian Standard IS: 10500-2012 at all locations.

10 Soil sample were collected from the study area. Locations for soil sampling were selected based on various land use conditions & agricultural practices for Soil monitoring and determination of Soil quality in the study area. Based on Nutrient Index Value for N, P & K, the soils of study area fall into low (for nitrogen) and medium (for phosphorous & potassium) fertility status. Soils have medium to high organic carbon and are capable of moderately supporting for agriculture. The soils of study area are alkaline to slightly alkaline in nature as pH value of sampled soils observed less than 8.5 and simultaneously the value of EC is less than 1 dS/m (1000 µmhos/cm) and Exchangeable Sodium Percentage (ESP) values are observed less than 15% in all ten sampled soil during the study season. Based on above interpretation of study area, soil analysis report reveals that the soils are "**Low to Moderately fertile"** in the study area.

There is no national park, wildlife sanctuary, biosphere reserve present in the study area. There are few patches of forests are present within the study area. There is no forest land involved in

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the project. The forest of the study area is crooked and stunted. During primary and secondary study carried out under present project, 53 tree species, 26 shrub species, 21 herbs and 26 grasses, climber and weeds were recorded from the study area. Recorded floral species from the study area were assessed for their conservation status by cross-checking with red data book of Indian plants (Nayar & Sastri, 1987-90). There is only one “Near Threatened” species i.e. *Aegle marmelos* (*Common name: Bael*) present in the study area.

Faunal survey was carried out for the species of Mammals, Birds and Herpetofauna. 14 species of mammals, 2 species of amphibians, 4 species of snakes, 4 species of lizards recorded/confirmed, and 48 avifaunal species were recorded from the study area. The listed animals were also cross checked with WPA/IUCN red data book and found that out of the reported species, Hyena, Jangle cat, Porcupine, Blackbuck, Russell’s Viper, Rat snake, and Peafowl are Schedule-I species reported. As per IUCN criteria (2010), the study area harbours one “Near Threatened” species (Hyena).

As per the census records 2011, the total population of 10-km radius study area was recorded as 176658 persons of 122 revenue villages of Prayagraj District in Uttar Pradesh state. All the villages falls under Tehsil Karchhana (59) & Meja (63), Prayagraj District in Uttar Pradesh. Total number of ‘Households’ was observed as 27055 in the study area. Male-female wise total population was recorded as 92717 males and 83941 females respectively.

11.4. Anticipated impacts and Mitigation during Operation Phase.

Impact on Air Quality

Air quality modelling was carried for the cumulative impact assessment for Stage-I and Stage-II. The maximum resultant Ground Level Concentrations (GLC’s) for parameters PM and SO_2 are observed to be are observed to be 96.42 µg/m^3 and 21.96 µg/m^3. And for NOx, it is predicted to be 25.36 µg/m^3 and 52.73 µg/m^3 respectively for the norms of 100 mg/Nm^3 and 350 mg/Nm^3. The incremental GLC’s when super imposed over the baseline concentrations, the resultant concentrations were observed to be well within the stipulated limits of NAAQMS 2009.

Mitigation Measures: Air pollution control systems proposed are given below:

- In the proposed project, coal handling plant will be properly operated with control measures such as dust extraction and dust suppression system.
- HCSD system of ash disposal will be practiced and hence, no dust emissions are envisaged from ash dump areas.
- Coal will be received through rail line and the solid waste will be sent to dyke areas in slurry form through pipeline. Hence, very minimal amount dust emissions from transportation are envisaged.
- Internal roads are to be asphalted to reduce fugitive dust emissions.
- Regular water sprinkling shall be done dust generating areas.

Noise Impact Prediction:

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The major noise generating sources are turbine, generator, ACC boiler pumps and coal handling plant. The predicted noise level at 500 m distance from source is 29.6 dB(A). Baseline ambient daytime and nighttime Noise levels recorded at nearest village (Kohdar) outside the project area (0.9 km, northeast from project boundary) was found to be 52.0 and 41.7 dB(A) respectively which was found within the standard i.e. 55 dB(A) during daytime and less than 45 dB(A) during night time. Therefore, there will not be any significant impact on the ambient noise quality in the surrounding villages due to operation of the power plant.

Mitigation Measure

- Acoustic enclosures shall be provided wherever required to control the noise level below 85 dB(A).
- Wherever it is not possible technically to meet the required noise levels, the personnel protection shall be provided.
- Provision of plantation in available spaces, wherever feasible, will further help in reducing the noise levels.
- To protect the workers within plant area, adequate protective measures in the form of ear-muffs/ ear plugs/ masks shall be provided, which will minimize/eliminate adverse impacts

Noise Impacts due to Transportation: The major noise generating sources that should be given high priority are those which annoys such as wheel squeal, brake squeal, and the noise from track joints and turnouts as they generally evoke a community reaction. The noise mitigation that reduces these annoying characteristics shall be followed to provide a noise free environment to the local community, even where there may be no measurable changes in measured noise levels.

Mitigation Measure: The noise mitigation strategy will be as follows:

- **Track Measures:** rail grinding, welding to smooth discontinuities, lubrication, use of soft rail pads, and relocation of signals or turnouts
- **Rolling Stock Measures**: effective muffling of diesel locomotive exhaust noise, wheel truing, on-board wheel lubrication, use of disc brakes, dampening of wheels, and use of resilient wheels, wheel vibration absorbers and low-squeal brake blocks.
- In applying mitigate on measures the principles of 'Best Management Practice' (BMP) and 'Best Available Technology Economically Achievable' (BATEA) will be followed.

Impact on Water Quality

No ground water shall be used for the project during the operation phase. The entire water demand for the project is proposed to be sourced from the Ganga River. Hence, no adverse impact on ground water sources is envisaged. Operation of the proposed thermal power project will not have any long-term impact on water quality as it is proposed to be almost ZLD from plant.

The make-up water requirement for this project would be about 3000 m^3/Hr., (30 Cusecs) with bottom ash as lean slurry and fly ash as HCSD system for ash handling. Air Cooled Condensers

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(ACC) is envisaged for Stage-II (3x800 MW) units. The consumptive water requirement for Stage-II includes make up water, evaporation losses and effluent. Existing water pipeline infrastructure shall be used.

Mitigation Measures

- The filter backwash water of Pre-Treatment Plant shall be collected and recycled back to the DM system clarifier.
- The sludge from clarifiers of Water PT plants shall be taken to a sump/pit and pumped to ash slurry sump for disposal to ash dyke.
- The waste effluents from neutralization pits of DM plant and Condensate Polishing Plant shall be collected in the respective neutralization pits and neutralized before pumping to ash slurry sump or for final disposal.
- CW system blow down would be used for coal dust suppression system, FGD system and Ash handling Plant. Excess Aux.CW blow down, if any, shall bleed to Central Monitoring Basin. Blow down (if required) shall also be led to Central Monitoring Basin.
- A coal settling pond shall be provided to remove coal particles from coal handling plant waste. Decanted water shall be pumped back to the coal dust suppression system for use. To receive & treat excess storm water (considering rainstorm condition), Clarifier feed pumps, reactor clarifier, belt filter press, clarified water transfer pumps and required chemical storage & dosing system shall also be provided.
- Service water effluent drains from various areas shall be separately routed to a sump. From the sump, the waste service water shall be pumped up to lamella clarifier / tube settler for treatment. Treated service water shall be sent back to service water tank for possible reuse.
- The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant.
- Arrangements shall be made that plant effluents and storm water do not get mixed.

Impact due to Solid Waste generation

Fly ash, Bottom ash, Gypsum, Used oil, Empty/ contaminated drums, ETP Sludge etc. will be generated from the proposed project operation. The waste generated shall be disposed-off as the Hazardous & Other Waste (Management and Transboundary Movement) Amendment Rules, 2022.

Mitigation Measures

- The fly ash and bottom ash are handled separately. Fly ash is transported by the positive pneumatic conveying system and delivered to the fly ash silos. Then it is carried to users by tank truck.
- MUNPL has proposed total area of ash pond 89 Ha, near the project boundary.
- The proposed ash pond is for emergency disposal only.

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- Dry Fly ash shall be given to Cement Industries and brick manufacturer for 100% utilization.
- Bottom ash shall be given to road construction projects and filling of low laying areas.
- Petroleum oil tank sludge shall be sent to TSDF.
- Sewage sludge generated from STP will be used as manure in greenbelt development plantation.
- MUNPL/ NTPC has an approved policy for management and sale of gypsum generated from its power projects. The policy includes the following options for 100% utilisation of gypsum
- Installation of POP/Gypsum Plaster Plant at NTPC/MUNPL Stations
- Sodic soil reclamation: as an initiative for community development
- Sale of Raw Gypsum on as where basis
- Used oil or Spent oil will be generated will be generated as per Schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, which will be sold to CPCB authorized recycler.
- Municipal Solid waste generated from plant canteen & colony will be collected, segregated, and disposed off scientifically in compliance of Solid Waste Management Rules, 2016.
- Used Lead acid batteries will be stored in the designated storage area and will be sold to registered vendors as per Battery waste.
- Plastic waste generated will be disposed through authorized recycler.
- E-Waste generated will be disposed to authorised recyclers.

Impacts due to Transportation

Since coal will be transported using rail, no significant road traffic movement due to this is envisaged in the proposed project on existing public road network. The various material like fuel oil, chemicals, spares etc. will be brought periodically by road network due to which vehicular traffic will increase intermittently. Project is well connected to the nearby National Highway-135 C which is adequate to cater to the additional traffic.

Effective implementation of the pollution emission compliance prescribed under Motor Vehicles Act by the transport authorities will minimize the vehicular pollution impact.

Mitigation Measures

- Provide adequate traffic signs and signages to notify residents.
- Install safety mirrors to aid visibility in conflict points.
- Prevent on street parking.
- Provide speed humps to regulate speed of vehicles on local streets.
- Provide pedestrian crossings and dedicated footpath to cater to the walking population.
- Assign traffic wardens to regulate flow of project traffic during peak hours

//True Copy//

- Vehicle movement will be regulated inside the site with adequate roads and parking lots shall be provided.

Impacts on Ecology Environment

During the operation phase, activities that might impact on terrestrial flora include, operation of boiler, turbine and generator, coal conveying, disposal of gypsum, fly ash and bottom ash, hazardous and domestic waste disposal. The major pollutants from the operation of coal based thermal power plants are PM, SO_2 and NOx. Accidental dispersion of flue gas, fly ash and bottom ash might create impacts of terrestrial flora.

Mitigation Measures

a) The incremental emission of air pollutants will not be likely to induce any significant changes in the ecology because the national ambient air quality standards will remain within the limits.
b) The project is therefore planned with most efficient air pollution control systems for achieving 30 mg/Nm^3 dust emission level from all the stacks.
c) Further the modelling study proves that the incremental maximum GLC of PM, SO_2 and NOx generated from the proposed plant is well within the limits and overall incremental GLC will remains within the NAAQS 2009, and it will not harm the ecology of the study area.
d) Most of the fugitive dust emission generation points are also fitted with efficient air pollution control systems (Plant dedusting systems).
e) Water sprinkling / dry fog type system will be used at material handling points to suppress the generation of fugitive dust.
f) Have a standard operating procedure on how to deal with spills;
g) Intake Screens: Install intake screens or mesh at the entry point of the water supply pipeline. These screens can help prevent larger aquatic organisms (e.g., fish, frogs, and toads) and debris from entering the pipeline while allowing water to pass through.
h) Wildlife Conservation plan for the schedule -I species has been prepared to conserve the Schedule-I species. A conservation budget of Rs. 3.51 Crores has been earmarked by MUNPL for conservation of Schedule-I species.
i) All the process wastewater generated from the plant shall be treated and reused in process.
j) The domestic wastewater generated from the toilets, washrooms and canteen of the plant shall be treated in STP.
k) Acoustic enclosures shall be provided wherever required to control the noise level below 85 dB(A).
l) The equipment like turbine, Compressors, blowers, fans, various drums etc will be provided with Acoustic pad insulation / Acoustic enclosures to limit the noise level as per the standard.
m) Dense greenbelt shall be provided all around the project.

//True Copy//

Impacts on Socioeconomics

Due to proposed project operation and emission of dust, wastewater and solid waste generation. Improper management of waste material (Solid waste or liquid effluents) from the proposed activities may affect the aesthetic of the area. There will be air emissions in the operation phase of the plant. These impacts can be minimized by implementing the proposed mitigation measures. The plant will create indirect job opportunities for the local people. MUNPL will undertake various social development programmes under the banner of Corporate Social & Environment Responsibility (CSER) which will be ultimately improve the infrastructure of surrounding villages.

Mitigation Measures

- All possible air pollutants will be scrubbed properly by various pollution control equipment's before emitting into atmosphere. The norms will be maintained through regular monitoring and analysis of gases.
- All the wastewater generated from the plant shall be treated and reused in process and greenbelt development. Domestic sewage is treated in Sewage Treatment Plant.
- Many of the people from neighbouring villages, as found suitable will get opportunity for indirect employment through contractors during construction and operational phase.
- The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment) and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases. .
- Detail R&R plan shall be prepared after acquisition of complete land.
- Most of the land shall be acquired from landowner through on one-to-one negotiation/through district administration.
- R&R of project affected families shall be applicable as per the R&R Policy of the UP Govt.
- MUNPL has earmarked a fund of Rs. 26.24 Cr. for addressing the R&R issues involved for acquisition of additional land.
- MUNPL has earmarked a budget of Rs. 40.1 Cr for undertaking CER/CSR activities based on need-based analysis. This budget is for upcoming 5 years. This money will be spent for different CER/CSR activities like agro based livelihood, women empowerment, health and community welfare in surrounding villages.
- With the implementation of the CER/CSR budget, the living conditions will be improved due to the improvement in socio-economic conditions, employment, education, health care and physical infrastructures like roads and other facilities.
- MUNPL Meja Stage-I was developed on Plateau. Plantation and its survival in such land profile is a challenging. At present about 163 Ha with survival percentage of 81.7% is carried.
- Following consultations with the Divisional Forest Office, MUNPL plans to expand the additional greenbelt of 318 Ha area within the plant.
- Total greenbelt inside the plant (existing 163 Ha and proposed 318 Ha) comes to 481 Ha which is approx. 34% of the total project land.

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- Further as carbon sink, in approx. 271 Ha of degraded forest area is planned to be developed by MUNPL in consultation with DFO Prayagraj, which is close to the project boundary.
- A Comprehensive Action Plan for greenbelt development with a budget of Rs. 57.49 Crores

11.5. Environmental Monitoring Plan

The environmental monitoring program encompasses the location, duration, frequency of the parameters that must be monitored. Monitoring of environmental components during the construction and operation phase is a part and parcel of the environmental mitigation measures. Only frequent monitoring can assess the functioning and efficiency of all pollution control equipment. Regular monitoring will be carried out for air quality, water quality, soil quality and noise levels. A cost provision of Rs. 2.0 Crores has been kept towards routine monitoring works.

11.6. Additional Studies

Risk Mitigation Measures: Necessary risk mitigation measures, including firefighting measures will be implemented. Hazards due to mechanical injury will be reduced by use of standard design and operating procedures. Oil storage tanks will be located and designed as per the guidelines. Firefighting system with fire extinguishers, hydrant system, sprinkler system, pumps and pipeline network shall be provided. Disaster Management Plan shall be implemented in consultation with the District Administration.

Occupational Health and Safety Management: The workers will be routinely checked for any clinical complaints and abnormal symptoms by the medical department. Workers will be given safety helmet, nose mask, ear plugs, clean drinking water and toilet facility. Regular safety training and awareness programs will be conducted.

11.7. Project Benefits

The proposed Expansion of Coal Based Thermal Power Plant project will cause various short/ long term and primary/ secondary impacts on the environment of study area. The proposed project would have the following operational advantages:

- The proposed expansion project would enable to meet part of the growing power demand in the state of Uttar Pradesh as well as in India for irrigation, domestic and commercial purposes
- Further, the proposed expansion (3 x 800 MW) will result in improvement of infrastructure as well as upliftment of social structure in the area.
- The total manpower from various agencies during construction of Stage-II would be about 5046 (60 permanent and 4986 temporary) during peak deployment) and during operation period is estimated to be about 5250 (210 permanent and 5040 temporary). However, the exact numbers may vary during construction and operation phases.
- MUNPL has earmarked a budget of Rs.40.10 Cr for undertaking CER/CSR activities based on need-based analysis. This budget is for upcoming 5 years. This money will be spent for different CER/CSR activities like agro based livelihood, women empowerment, health and community welfare in surrounding villages.

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- Overall, with the implementation of the CER/CSR budget, the living conditions will be improved due to the improvement in socio-economic conditions, employment, education, health care and physical infrastructures like roads and other facilities.

11.8. Environmental Management Plan

EMP for effective management of environmental impacts due to the proposed project and ensuring overall protection of the surrounding environment through appropriate management procedures has been prepared.

The capital cost for environmental management of the proposed project is estimated to be Rs 2960.33 Cr. This amount shall be used for pollution control measures during construction phase, Occupational Health & Safety of workers during construction phase, Water Supply & Drainage system, Storm water management, Solar streetlight within project area, wastewater management, environmental monitoring, CSR/CER and greenbelt development. The recurring expenditure will be Rs.58.47 Cr per annum.

EMG and concerned HOD's will ensure that all air pollution control devices, wastewater treatment and water re-circulating systems function effectively. The EMG & Safety Dept's will also ensure cleanliness and industrial hygiene in the plant. All records shall be submitted to the regulatory authorities, displayed at company gate and website.

11.9. Conclusion

The proposed expansion project would add significant value to Indian economy. The project will not only help ensure our country by becoming self-sufficient in terms of power generation but also drive macro-economic growth by generating employment, enhancing socio-economic infrastructure, revenue generation etc.

The proposed expansion project would have minimal impacts on the environment. However, with proper and judicious implementation of the mitigation and environment management measures, the impacts can be further minimized and can be maintained well within the permissible limits specified by the regulatory authorities.

Thus, it can be concluded that with the strict implementation of the pollution control and mitigation measures, with proper environment management system in place, the proposed expansion project will be beneficial to the society and will contribute to the economic development of the state in particular and the country in general.

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CHAPTER 12. DISCLOSURE OF CONSULTANT

EQMS is a leading ISO 9001: 2008 complying consulting company constantly striving towards newer heights since its inception in 1998. Our company is dedicated to providing strategic services in the areas of Environmental Impact study, Social Impact Assessment Study, Preparation of EMP, Preparation of RAP, Risk Assessment study, Environmental & Social Audits, Due Diligence Assessments, Policy Trainings, Quality, Occupational Health & Safety, Social Accountability Management Systems; Enterprise level Behavioural Based Safety (BBS) Management; EHS Performance Benchmarking and Post Project Management.

EQMS has over two-decade experience of successfully conducting various Impact Assessment, studies/Audits for various sectors including infrastructure, industries, energy, transportation, mining, and telecommunications across India and Outside India. We are also offering our services in Sri Lanka, Nepal, Bangladesh, Bhutan, Saudi Arabia and Abu Dhabi.
With our head office in New Delhi, our Business is spread across all over India and abroad. All EQMS activities are effectively managed with the co-ordination of the diverse specialization of its two wings viz: ESIA & Policy and Systems Divisions. Our projects are funded by well-known organizations like World Bank, ADB, USAID, UNDP, MoEF, AFD, KFW amongst others. Our client includes leading Industries of India, multinational companies (including amongst fortune 500 companies).

EQMS is a NABET (QCI) & MOEF Accredited consultancy for carrying out Environmental Impact Assessment study for 18 sectors.

Table 12.1 : Details of EQMS Global Pvt. Ltd.

S.No	Particulars	Details
1.	Corporate Office	EQMS Global Pvt. Ltd. Office No. 305, 3rd Floor, Rishabh Corporate Tower, Plot No.#16, Community Centre, Karkardooma Delhi - 110092
2.	URL	www.eqmsglobal.com
3.	Landline	011 - 42270087, 43062757
4.	Cell No.	+91 9810297612 (MD S.K. Jain)
5.	Branch Offices	Gujarat (Vadodara), Maharashtra (Mumbai)

We provide remarkably simple, straightforward and cost-effective services that help our clients to meet their diverse needs. We always maintain to have synergistic associations with our clients to facilitate them and utilize an adaptable and effective technique to support our clients.

a) **Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP)** Preparation Services for Industrial, Mining, power and Infrastructural sectors as defined by MOEF&CC and Approved by NABET.
b) **Social Impact Assessment (SIA) and Rehabilitation Action Plan (RAP)** preparation services

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c) **Permitting Services** like, clearances, consents and NOCs for Environmental, Forests, **Wildlife and CRZ** from centre and state Governments.
d) **Auditing Services** related to regulatory compliance, System compliance, environmental performance, safety audits.
e) **Due Diligence Assessments** as per ASTM Standards for acquisition and other purposes
f) **Post Project Management and Monitoring Services** like, EMP, RAP implementation monitoring, mitigation measures effectiveness assessment.
g) **Laboratory Services** for Baseline and industrial monitoring (air, water, soil, hazardous substances, noise) and have Network of self and associated laboratories all over India.
h) **Safety and Risk Assessment Services** like, Qualitative and quantitative
i) risk assessment, safety management, and behaviours-based safety management
j) **System Services** like, Design and implementation of EMS, OHASA, IMS systems development and implementation.
k) **Design and commissioning Services** for Liquid, Gaseous and hazardous waste treatment.
l) **Training and Awareness Services** like, EMS, OHSAS, Systems, Internal audit, and environmental training and awareness for institutional strengthening.
m) **3 D Risk Assessment and Modelling**.

EQMS have been providing consulting services in almost all states of India and countries like Sri–Lanka, Nepal, Bangladesh, Bhutan, Saudi Arabia and Abu Dhabi. EQMS has a team of highly talented and experienced professionals including all required NABET approved Environmental Coordinators and Functional Area experts who work in sync with each other & clients. We also have experience of working on various projects which are funded by bilateral and multilateral funding agencies like World Bank, ADB and IFC etc.

EQMS is continually arriving at new statures since its origin in 1998 considering various Industries and Organisations for Environmental, social and Occupational Health & Safety. Our master workforce follows very much conceived approaches that empower us to conduct various services and training programs proficiently and on time like environment assessment services, environment safety audits, risk assessment services, audit services. We assess and survey the method of working of various associations and give them significant proposals to roll out essential improvements in their tasks.

We have a group of profoundly skilled and experienced experts including all required NABET affirmed Environmental Coordinators and Functional Area Experts who work in sync with each other and clients ensuring that the defined assessment, survey or reporting is executed with a high level of efficiency.

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- The management principal of EQMS enable conduct the procedures such as audit, certification & public training & third – party inspection services with expediency & competence.
- We consider the different prerequisites of environmental management through our value.
- added services and training programs.
- The versatile range of services that we deliver is strict as per the requirements of project applications, which are directed to the safety of the environment, society, and occupation.

Our experts are Environmental Engineers, Environment Experts, Socio-Economic Experts, Ecologist, Economists, Hydrogeologists, Geologists, Civil Engineers, Chemical Engineers and Risk & Hazard managers and they are highly competent to carry out Environment Impact Assessment, Social Impact Assessment, Framing Environment & Social Management Plans, Land Acquisition and Preparing Rehabilitation & Resettlement Plans. Our experts are involved in the project undertaken from design to implementation stage depending on the nature of the assignment and having diverse experience of working on the sectors namely: transportation, urban management, rural development, environment management, environment impact assessment, socio-economy, Power Generation & Industries with National (Both Private & Government) & International Clients.

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QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

EQMS Global Pvt. Ltd. *formerly known as EQMS India Pvt. Ltd.*, New Delhi

305, 3rd Floor, Plot No. 16, Rishabh Towers, Community Centre, Karkardooma, Delhi – 110 092

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast and underground both	1	1 (a) (i)	A
2.	River Valley projects	3	1 (c)	A
3.	Thermal power plants	4	1 (d)	A
4.	Metallurgical industries (ferrous only)	8	3 (a)	B
5.	Cement plants	9	3 (b)	B
6.	Petroleum refining industry	10	4 (a)	A
7.	Chemical fertilizers	16	5 (a)	A
8.	Pesticides industry and pesticide specific intermediates	17	5 (b)	A
9.	Petro-chemical complexes	18	5 (c)	A
10.	Synthetic organic chemicals industry	21	5 (f)	A
11.	Pulp & paper industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	24	5 (i)	A
12.	Isolated storage & handling of Hazardous chemicals	28	-	B
13.	Air ports	29	7 (a)	A
14.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones(SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
15.	Bio-medical waste facilities	32A	7 (d a)	A
16.	Ports, harbours, break waters and dredging	33	7 (e)	A
17.	Highways,	34	7 (f)	A
18.	Common Effluent Treatment Plants (CETPs)	36	7 (h)	B
19.	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
20.	Building and construction projects	38	8 (a)	B
21.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Aug 22, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2878 dated Sept 18, 2023. The accreditation needs to be renewed before the expiry date by EQMS Global Pvt. Ltd, New Delhi following due process of assessment.

Sr. Director, NABET
Dated: Sep 18, 2023

Certificate No.
NABET/EIA/2225/RA 0303

Valid up to
Nov 23, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website

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National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

ADVANCED ENVIRONMENTAL TESTING AND RESEARCH LAB PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

63/1, KAILASH VIHAR, GWALIOR, MADHYA PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-12780

Issue Date: 19/12/2023 **Valid Until:** 18/12/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: ADVANCED ENVIRONMENTAL TESTING AND RESEARCH LAB PRIVATE LIMITED

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

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LIST OF ANNEXURES

A-1	ToR Letter Issued by MoEF&CC for -Stage-II-MUNPL
A-2	Power Consent Letter's of Uttar Pradesh and Uttarakhand
A-3	PCCF Letter : Regarding No wildlife corridor and location of any National Park, Sanctuary, Elephant, Tiger Reserve within 10 km radius
A-4	Wildlife Conservation Plan - DFO-2024
A-5	Coal analysis test reports and Light Diesel Oil (LDO)
A-6	NIH Roorkee Watershed Study August 2024
A-7	IRO's certified compliance report of previous EC and MUNPL's reply to IRO Compliance Report
A-8	List of Legal / Court cases
A-9	Test reports from the Lab and Baseline October to Decemeber 2023, monitoring station photographs with Coordinates and Baseline data January 2024 to June 2024
A-10	Vision document
A-11	Social Audit-2013, 2015 and 2017
A-12	EC dt 10.01.2011 and EC Amendments
A-13	Consent to Establishment (CTE-NOC) for Stage-I
A-14	Consent to Operate (CTO) STG-I
A-15	HW authorisation
A-16	CIL Coal Allotment letter 20.06.2024
A-17	NIH-Roorkee Hydrogeological Study
A-18	MoP OM dt 10th January 2023 has exempted from linking and use of Naini STP Sewage Treated Water by Meja Thermal Power Plant
A-19	PH MoM and MUNPL Action Plan for PH MoM 26.04.2024
A-20	DMP - Onsite and Offsite
A-21	CSR Policy of MUNPL
A-22	DFO Certification of Existing plantation carried by MUNPL, Meja Stage-I
A-23	DFO Certified Action Plan for Greenbelt Development for MUNPL
A-24	Plantation Plan in Neighbouring Schools
A-25	NIH Roorkee – Rain Water Harvesting Study September 2024
A-26	Irrigation and Water Resources Department, Govt of UP, regarding HFL level of River Tons dt.10.01.2025

ANNEXURE-1: ToR Letter issued by MOEF&CC for Stage-II-MUNPL

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File No: -13012/03/2008- IA.II (T)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **14/12/2023**

To,

Shri Prateek Gupta
M/s Meja Urja Nigam Private Limited
MUNPL, 5th Floor, Sangam Place, Civil Lines, Allahabad, PRAYAGRAJ, UTTAR PRADESH, , 212301
env.meja@gmail.com

Subject: **Expansion of Meja Coal Based Thermal Power Project from 1320 MW (2x660) to 3720 MW (with 3x800 MW- Stage II) at Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited - Terms of Reference (ToR)- reg**

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project MEJA THERMAL POWER PROJECT STAGE II - COAL BASED 3 X 800 MW submitted to Ministry vide proposal number IA/UP/THE/449702/2023 dated
20/10/2023.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO23A0601UP5598291N
(ii) File No.	-13012/03/2008- IA.II (T)
(iii) Clearance Type	TOR
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(d) Thermal Power Plants
(vi) Sector	Thermal Projects
(vii) Name of Project	MEJA THERMAL POWER PROJECT STAGE II - COAL BASED 3 X 800 MW
(viii) Name of Company/Organization	MEJA URJA NIGAM PRIVATE LIMITED
(ix) Location of Project (District, State)	PRAYAGRAJ, UTTAR PRADESH
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

Address: IA Division, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh, New Delhi - 110003
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1. In view of the particulars given in the Para 2 above, the project proposal interalia including Form-1(Part A and B) were submitted to the Ministry for an appraisal by the Expert Appraisal Committee (EAC) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.

2. The above-mentioned proposal has been considered by Expert Appraisal Committee of EAC in the meeting held on 31/10/2023. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B, Part C EIA, EMP)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

3. The brief about configuration of plant/equipment, products and byproducts and salient features of the project along with environment settings, as submitted by the Project proponent in Form-1 (Part A, B and C)/EIA & EMP Reports/presented during EAC are annexed to this EC as Annexure (1).

4. The EAC, in its meeting held on 31/10/2023, based on information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to stipulation of specific and general conditions as detailed in Annexure (2).

5. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee hereby decided to grant Terms of Reference for instant proposal of expansion of Meja Coal Based Thermal Power Project from 1320 MW (2x660) to 3720 MW (with 3x800 MW- Stage II) at Tehsil Meja, District Prayagraj, Uttar Pradesh under the provisions of EIA Notification, 2006 and as amended thereof.

6. The Ministry reserves the right to stipulate additional conditions, if found necessary.

7. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

8. This issues with the approval of the Competent Authority.

Copy To

(i) The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi - 110 001.
(ii) The Chairman, Central Electricity Authority, Sewa Bhawan, R. K. Puram, New Delhi - 110 066.
(iii) Deputy Director General of Forests (C), MoEF&CC, Regional Office (CZ) Kendriya Bhavan, 5th Floor, Sector H, Aliganj, Lucknow – 226020
(iv)The Principal Secretary, Department of Environment, Government of Uttar Pradesh, Sachivalaya,
(v) Bapu Bhawan, Adjacent to Vidhan Sabha, Lucknow - 226001 (UP)
(vi)The Member Secretary, Uttar Pradesh Pollution Control Board, PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow (UP)
(vii)Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor bagh Road, New Delhi

Guard File/Record File/Monitoring File/Website of MoEF& CC

Annexure 1

Specific Terms of Reference for (Thermal Power Plants)

1. Socio-economic Study

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S. No	Terms of Reference 451
1.1	1. Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace. 2. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter. 3. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22- 65/2017-IA.III dated 30th September, 2020 shall be submitted. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation &Resettlement plan shall be prepared. 4. Details of settlement in 10 km area shall be submitted.

2. Environmental Management And Biodiversity Conservation

S. No	Terms of Reference
2.1	1. Cumulative Environmental Impact Assessment study of all the existing and proposed projects in the 15-km radius of the proposed project shall be conducted. 2. PCCF letter shall be obtained stating that no wildlife corridor is passing through the project boundary. 3. Wildlife conservation plan shall be prepared, in consultation with State forest and wildlife department, with adequate fund for wildlife habitat management, preserving wildlife and its corridors and be submitted along with EIA/EMP report. Human-Wildlife Conflict issue shall be studied and such incidences reported in the study area during last 10 years shall be submitted. No provision for purchasing the vehicle shall be made in the wildlife conservation plan. 4. Details of the existing rail, road networks and alignment of transmission lines along with quantity of coal being transported/to be transported for existing units and proposed expansion, its source and transportation mode shall be submitted. 5. Radioactivity studies along with coal analysis to be provided (sulphur, ash percentage and heavy metals including Pb, Cr, As and Hg). Details of auxiliary fuel, if any including its quantity, quality, storage, etc should also be given. 6. A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study. 7. Existing green plantation carried out by the project proponent (within or outside the plant boundary) with its survival rate shall be submitted and a plan shall be made to maintain survival rate upto 90%. 8. Detailed action plan shall be prepared for maintenance of air pollution control equipment. 9. Details of Ash management of existing (since operation of the plant) and proposed project shall be submitted, along with 5-year plan for 100 % ash utilization.

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S. No	Terms of Reference 452
	10. Details of Dry Ash handling system along with supplementary coal handling system shall be submitted. 11. Proper protection measures like HDPE lining, appropriate height of bund and adequate distance between proposed Ash pond and water body (minimum 500 meter) etc. shall be planned so as to reduce the possibility of mixing of leachate with any fresh water body for under construction ash pond. High Density Slurry disposal plan shall be prepared. 12. Pond and ground water quality (10 locations within 2 km radius of the plant boundary) shall be studied and report be submitted along with EIA/EMP. Action plan for Ground water monitoring stations on all hotspots like schools/hospitals within 2 km radius of the plant boundary be submitted. 13. Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report. 14. Details pertaining to water source, treatment and discharge should be provided. 15. Zero Liquid Discharge plan shall be submitted. 16. Action plan for development of green belt (40% of total project cover area) along the periphery of the project boundary with 80% survival rate shall be provided with a video clip of existing green belt. The plan shall be prepared in consultation with State Forest Department considering the project site is located in rocky area. 17. PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations. 18. Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report. 19. An action plan shall be prepared for Water shed development within 10 km radius of the plant boundary in consultation with reputed government institution. 20. A detailed plan need to be submitted for undertaking extensive green plantation within 10 km radius of the plant focusing on water reservoir, school, hospital and other institutional area and same need to be incorporated in EIA/EMP report. 21. A detailed note w.r.t. compliance of MoEF&CC notifications dated 31.12.2021 and 30.12.2022 defining the eligibility of thermal power plants for having additional ash pond shall be submitted by the IRO in its compliance report.

3. Disaster Management

S. No	Terms of Reference
3.1	Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.

4. Miscellaneous

S. No	Terms of Reference
4.1	1. Certified compliance report of previous EC to be submitted certified by Regional office of the

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S. No	Terms of Reference 453
	MoEF&CC. IRO shall provide specific observations on the status of OCMS, ash utilization, green cover and emission control equipment of all units of the plant. 2. PP shall submit details of court cases and its status for the project. 3. The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples. 4. Arial view video of project site shall be recorded through drone and be submitted.

Standard Terms of Reference for (Thermal Power Plants)

1. Statutory Compliance

S. No	Terms of Reference
1.1	The proposed project shall be given a unique name in consonance with the name submitted to other Government Departments etc. for its better identification and reference.
1.2	Vision document specifying prospective long term plan of the project shall be formulated and submitted.
1.3	Latest compliance report duly certified by the Regional Office of MoEF&CC for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.

2. Details Of The Project And Site

S. No	Terms of Reference
2.1	The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.
2.2	Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.
2.3	Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.
2.4	The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.

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S. No	Terms of Reference 454
2.5	Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
2.6	Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.
2.7	Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.
2.8	If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.
2.9	The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
2.10	Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.
2.11	Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.

3. Ecology Biodiversity And Environment

S. No	Terms of Reference
3.1	A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.
3.2	Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.
3.3	A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.
3.4	The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-

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S. No	Terms of Reference
	circulation of effluents.
3.5	Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.
3.6	It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be located 500 m away from railway track and National Highways.
3.7	Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted
3.8	Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
3.9	Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.
3.10	Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.In addition, wherever ground water is drawn, PP shall submit detailed plan of Water charging activity to be undertaken.
3.11	Feasibility of near zero discharge concept shall be critically examined and its details submitted.
3.12	Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.
3.13	Plan for recirculation of ash pond water and its implementation shall be submitted.
3.14	Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.
3.15	Hazards Characterization: Past incidents of hazard events within 10km radius of project area with detailed analysis of causes and probability of reoccurrence

4. Environmental Baseline Study And Mitigation Measures

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S. No	Terms of Reference 456
4.1	One complete season (critical season) site specific meteorological and AAQ data (except monsoon season) as per latest MoEF&CC Notification shall be collected along with past three year's meteorological data for that particular season for wins speed analysisand the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM10, PM2.5, SO2, NOx, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration the upwind direction, pre-dominant downwind direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre - dominant downwind direction at a location where maximum ground level concentration is likely to occur.
4.2	In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).
4.3	A list of industries existing and proposed in the study area shall be furnished.
4.4	Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modelling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.
4.5	Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
4.6	Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
4.7	Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted
4.8	Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.
4.9	For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.
4.10	Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.

5. Environmental Management Plan

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S. No	Terms of Reference 457
5.1	EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.
5.2	A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be prepared. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Provision for mock drills shall be suitably incorporated to check the efficiency of the plans drawn.
5.3	The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/ Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.
5.4	Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash along with monitoring mechanism.

6. Green Belt Development

S. No	Terms of Reference
6.1	Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary not less than 2000 tree per ha with survival rate of more than 85%shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO2 and other gaseous pollutants and hence a stratified green belt should be developed.
6.2	Over and above the green belt, as carbon sink, plan for additional plantation shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months

7. Socio-economic Activities

S. No	Terms of Reference
7.1	Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.
7.2	Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during

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S. No	Terms of Reference 458
	construction & operation phases of the Project.
7.3	If the area has tribal population, it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.
7.4	A detailed CER plan along with activities wise break up of financial commitment shall be prepared in terms of the provisions OM No. 22-65/2017-IA.III dated 30.09.2020.CER component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified.
7.5	While formulating CER schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CERdetails done in the past should be clearly spelt out in case of expansion projects.
7.6	R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.
7.7	Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.
7.8	Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conducive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.

8. Corporate Environment Policy

S. No	Terms of Reference
8.1	Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
8.2	Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
8.3	What is the hierarchical system or Administrative order of the company to deal with the

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S. No	Terms of Reference 459
	environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
8.4	Does the company has compliance management system in place wherein compliance status along with compliances / violations of environmental norms are reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.

9. Miscellaneous

S. No	Terms of Reference
9.1	All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.
9.2	Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.
9.3	In case any dismantling of old plants are envisaged, the planned land use & land reclamation of dismantled area to be furnished.

10. Additional Tor For Coastal Based Thermal Power Plants Projects (Tpps)

S. No	Terms of Reference
10.1	Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.
10.2	If the site includes or is located close to marshy areas and backwaters, these areas must be excluded from the site and the project boundary should be away from the CRZ line. Authenticated CRZ map from any of the authorized agencies shall be submitted.
10.3	The soil levelling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into creek. Major canals should not be altered but their embankments should be strengthened and desilted.
10.4	Additional soil required for levelling of the sites should as far as possible be generated within the site itself in such a manner that the natural drainage system of the area is protected and improved.
10.5	Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
10.6	No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. Wherever feasible, the outfall should be first treated in a Guard Pond and then only discharged into deep sea (10 to 15 m depth). Similarly, the Intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from Desalinization Plants (if any) should not be discharged into sea without adequate

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S. No	Terms of Reference
	dilution.
10.7	Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in Study Area.
10.8	A common Green Endowment Fund should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.
10.9	Impact on fisheries at various socio economic level shall be assessed.
10.10	An endowment Fishermen Welfare Fund should be created out of CER grants not only to enhance their quality of life by creation of facilities for Fish Landing Platforms / Fishing Harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.
10.11	Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
10.12	There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words necessary preventive measures for spillage from pipelines, such as lining of Guard Pond used for the treatment of outfall before discharging into the sea and surface RCC channels along the pipelines of outfall and intake should be adopted. This is just because the areas around the projects boundaries could be fertile agricultural land used for paddy cultivation.

Additional Terms of Reference

N/A

Annexure 2

Details of Products & By-products

Name of the product /By-product	Product / By-product	Existing	Proposed	Total	Unit	Mode of Transport / Transmission
Electricity	Electricity	1320	2400	3720	Mega Watt (MW)	Through Transmission line
Fly Ash	Fly Ash	1843000	3351000	5194000	Tons per Annum (TPA)	Combination of two or three modes
Gypsum	Gypsum	101405	184372	285777	Tons per Annum (TPA)	Combination of two or three modes

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Annexure (3)

The details of the project

The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

i. M/s Meja TPP (Stage-I) is a 1320 MW (2x660MW) Power Plant located in Village Kohdar, Meja Tehsil, Prayagraj (UP).

ii. MoEF&CC had accorded EC for Stage-I (2x660 MW) vide letter no J-13012/03/2008- IA.II (T) dated 10.01.2011 and both the Units are under Operation. EC for Stage-I was amended as follows:

Date of EC Amendment	**Amendment Details**
21.07.2017	Permission for road transportation of 2 Lakh Tons of coal by road for temporary period of one year or till the commissioning of railway siding whichever is earlier.
08.01.2018	Time extension for the validity of Environment Clearance
28.03.2019	Temporary permission for transportation of coal by road
08.08.2019	Extension of validity of EC for further period of one year
25.09.2020	Extension of validity of EC for further period of one year

iii. **Land Requirement:**

- About 1295 Ha of land has been acquired for Meja TPP during Stage-I. The plant facilities of Stage-II shall be accommodated within the existing premises of the Meja STPP.
- Additional area proposed to be acquired is 114 Ha for Ash Dyke and Railway Siding for Stage-II.

iv. The Salient features of the project are as under:

Project details:

Name of the Proposal	3 X 800 MW (Stage II) Meja Coal Based Thermal Power Project at Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited - Terms of Reference (ToR)- reg
Proposal No.	IA/UP/THE/449702/2023

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Location	Post Kohdar, Tehsil Meja, District Prayagraj
Company's Name	M/s Meja Urja Nigam Private Limited
Accredited Consultant and certificate no.	EQMS Global Pvt. Ltd. formerly known as EQMS India Pvt. Ltd. NABET/EIA/2225/RA 0303 Valid upto: 23/11/2025
Inter- state issue involved	No
Seismic zone	Zone II

Category details:

Category of the project	Thermal, Category - A
Capacity	**Under Operation** Stage-I: 1320 MW (2x660 MW) **Proposed Expansion** Stage-II: 3x800 MW (2400MW)
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Meja Thermal Power Project (Stage-I) is in commercial operation. This proposal is for expansion by additional capacity of 2400 MW (3x800MW) as Stage-II based on pulverized coal fired thermal power generation technology, Air Cooled Condenser System & compliant with applicable emission norms.

Project Details:

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	It is an expansion project. Ministry of Environment, Forests and Climate Change (MoEF&CC) had accorded Environmental Clearance (EC) for 2x660 MW (Stage-I) Supercritical Technology Coal Based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam villages, in Meja Taluk, in Allahbad Distt., in Uttar Pradesh vide letter no. J-13012/03/2008-IA.II (T) dated 10.01.2011.
Amendments granted, if Yes details	• Amendment dated 21.07.2017 for coal transportation by road.

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	• Amendment dated 08.01.2018 for EC validity extension • Amendment dated 28.03.2019 for coal transportation by road • Amendment dated 08.08.2019 for EC validity extension and waive off CSR recurring expenditure stipulation • Amendment dated 25.09.2020 for EC validity extension
Expansion / Green Field (new): (IPP / Merchant / Captive)	Expansion of existing Stage-I 1320 MW (2x660MW) by additional capacity of 2400 MW (3x800MW) as Stage-II
If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoEF&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	Certified Compliance report shall be submitted along with Final EIA report.
Specific webpage address where all EC related documents (including monitoring and compliance related reports/documents) of the specific project under consideration are/will be available. Also contact details of PP's officer responsible for updating this webpage/ information.	www.munpl.co.in Head of Project, Meja Thermal Power Plant Village – Kohadar, Bhagdeva, Mai Kalam Taluk – Meja District – Allahbad State – Uttar Pradesh Pin - 212301
Co-ordinates of all four corners OF TPP Site:	Latitude :25°08'18" N, 25°06'40"N, 25°09'12"N, 25°08'37"N Longitude: 81°58'34" E, 81°55'45"E, 81°56'10"E, 81°55'16"E
Average height of: (a) TPP site, (b) Ash pond site etc. above MSL	(a) 127 M (b) 115 M
Whether the project is in the Critically Polluted Area (CPA) or within 10 km of CPA. If so, the details thereof:	No
CRZ Clearance	Not Applicable
Cost of the Project (As per EC and revised): Cost of the proposed activity in the amendment:	Cost of the Existing Project at current price level (in Lakhs) [A] : 1302922

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	Cost of the proposed expansion/ modernization of Project at current price level (in Lakhs) [B]	2247997
	Total Cost of the project/ Activity (in lakhs) [A+B]	3550919
Employment Potential for entire project/plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	The project will generate direct and indirect employment opportunities as well as opportunities for self-employment. The no. of NTPC employees during construction and operation phases are 554 and 720 respectively. Workforce employed during construction phase by the EPC contractors would be much higher (about 4000-5000 during peak deployment). In addition to the people directly involved in construction and operation of the power project, employment opportunities in subsidiary industries and service sectors as well as self-employment opportunities shall also be generated.	
Benefits of the project (Specify quantitative information)	Construction and operation of the project will generate employment potential both directly or indirectly. Local people will have employment opportunities as skilled, semi-skilled and unskilled laborers as well as self-employment opportunities. Thus, there will be overall improvement in the socio-economic status of the people of the surrounding areas. Power plant will have a positive effect on the socio-economic conditions of the people nearby, the project and service activities will generate steady source of income for local people. With the implementation of the project, employment opportunities, communication, medical facilities, education and skill up-gradation facilities etc. in the area will be further improved. Besides, there will be marked improvement for various facilities in the local areas as shown below. ➢ Improvement in medical and health care system. ➢ Improvement in educational services. ➢ Improvement of drinking water & sanitation facilities. ➢ Vocational training facilities for local	

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	eligible youth of local community to enable them to seek employment in suitable project operations and elsewhere. ➢ Benefit to the State and the Central governments through financial revenues from this project directly and also indirectly. ➢ Employment opportunities to local persons of different skills and trades. ➢ Improvement in the socio-economic conditions of the inhabitants of the area

Electricity generation capacity:

Capacity & Unit Configurations:	**Under Operation** Stage-I: 1320 MW (2x660 MW) **Proposed Expansion** Stage-II: 2400MW (3x800 MW)
Generation of Electricity Annually	Stage-II: 21 Billion Units annually (2400 MW @ 85% PLF)

Details of fuel and Ash disposal

Fuel to be used:	Coal
Quantity of Fuel required per Annum	Stage-II: 9.94 Million MT at 85% PLF
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	SLC (LT) in its meeting held on 21.02.2023 had recommended grant of coal linkage to Stage-II (2x660 MW), which was further enhanced for the revised capacity of 3x800 MW in SLC (LT) Meeting held on 19.09.2023. However, as per practice of coal allocation, the Coal Block is yet to be allocated. The likely coal sources are NCL and CCL.
Details of mode of transportation of coal from coal source to the plant premises along with distances	Rail (NCL-280 to CCL-480 km)
Fly Ash Disposal System Proposed	The fly ash shall be extracted in dry form from the electrostatic precipitator hoppers. This dry ash shall either be taken to buffer hoppers for its onward transportation in dry form for

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	utilization or shall be slurrified in wetting units for its ultimate disposal in ash disposal area using HSCD System. The bottom ash shall be extracted and disposed-off in wet form. It is envisaged to have disposal system sized for 100% generation of ash. The ash management scheme for fly ash and bottom ash involves dry collection of fly ash, supply of ash to entrepreneurs for utilisation, promoting ash utilisation and safe disposal of unused ash. NTPC shall make maximum efforts to utilise the fly ash for various purposes. Unused fly ash and bottom ash shall be disposed-off in the ash pond. A blanket of water shall be maintained over the entire ash pond to control fugitive dust emission. After the ash pond is abandoned, it shall be reclaimed through green vegetation.
Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL(m)	For Stage-II, Land still to be Acquired (Proposed Area: 110 Ha.) adjacent to existing Ash dyke 115 M
Quantity of a. Fly Ash to be generated b. Bottom Ash to be generated:	Stage-II: a. Fly Ash 3.02 Million Metric TPA b. Bottom Ash 0.76 Million Metric TPA
Fly Ash utilization (details)	The Ash Utilisation shall be done as per Ministry of Environment, Forests and Climate Change Notification dated 31-12-2021 as amended on 31.12.2022. To utilize ash and also to comply the stipulations of MoEF&CC's Gazette Notification on fly ash dated 31-12-2021 following actions would be taken up by NTPC: • NTPC shall provide a system for 100% extraction of dry fly ash along with dedicated dry ash silos

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	for storage of at least sixteen hours of ash based on installed capacity having separate access roads so as to ease the delivery of fly ash. Provision shall also be kept for segregation of coarse and fine ash, loading this ash to closed/ open trucks and also for loading fly ash into rail wagons. This will ensure availability of dry fly ash required for manufacture of Fly Ash based Portland Pozzolana Cement (FAPPC) for cement plants and Ready Mix Concrete plants. • NTPC shall also promote, adopt and set up the ash based product manufacturing facilities within its premises & fly ash brick thus produced shall be utilized in in-house construction works as well as for supply in the market on price. • NTPC shall make efforts to motivate and encourage entrepreneurs to set up ash based building products such as fly ash bricks, blocks tiles, fly ash based aggregate etc. in the vicinity of proposed power plant. • To promote use of ash in agriculture/low lying areas/wasteland development- show case project shall be taken up in the vicinity of proposed thermal power station. • NTPC shall make efforts with authorities of coal mines and other minerals mines for use of ash in reclamation of mines located within 300 km of proposed power station. • All government/ private agencies responsible for construction/ design of buildings, road embankment, flyover bridges and reclamation/ development of low lying areas within 300 km of the plant areas shall be persuaded to use ash and ash based products

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	in compliance of MoEF&CC's Gazette Notification on fly ash. • With all the efforts mentioned above, it is expected that fly ash generated at proposed thermal power station shall be utilized in the areas of cement, concrete & building products manufacturing, road embankment construction, land development, mine filling, shoreline protection structure, agriculture etc.
Stack Height (m) & Type of Flue	One twin flue chimney of 220 M height & one single flue chimney of 150 m

Water Requirement:

Source of Water:	Ganga River
Quantity of water requirement:	Stage-II (With Air Cooled Condenser) 30 Cusec
Distance of source of water from Plant:	29 km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Intake Well
Mode of conveyance of water:	Pipeline
Status of water linkage:	Stage-II: Quantity Available - 5 Cusecs An additional allocation of 25 Cusecs shall be required from WRD, GoUP. Under approval with GoUP.
(If source is Sea water) Desalination Plant Capacity	NA
Mode / Management of Brine:	NA
Cooling system	Air Cooled Condenser

Land Area Breakup:

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Land Requirement: a. TPP Site b. Ash Pond c. Township d. Railway Siding & Others e. Raw Water Reservoir f. Green Belt g. others h. Total (if expansion state additional land requirement)	Land Requirement: Existing (Proposed) a. 328 Ha (Nil) b. 302 Ha (110 Ha) c. 85 Ha (Nil) d. Railway Siding 171 Ha (4 Ha) e. 75 Ha (Nil) f. Included above 133.1 ha (20 ha) g. 334 Ha (including available for expansion) h. Total 1295 Ha (114 Ha)
Status of Land Acquisition:	To be taken up
Status of the project: If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion. If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details and reasons	Construction of Stage-II not yet started Stage-I Both units commissioned
Break-Up of land-use of TPP site: a) Total land required for project components b) Private land c) Government land d) Forest Land	

Nature of Land involved in (Ha)	**Area Existing (Ha)**	**Additional Area Proposed (Ha)**	**Total Area required after expansion (Ha)**
Govt. Land	535	62	597
Pvt. Land	760	52	812
Forest Land	0	0	0
Total	**1295**	**114**	**1409**

Presence of Environmentally Sensitive areas in the study area

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Forest Land/Protected Area/ Environmental Sensitivity Zone	Yes/ No	**Details of Certificate/ letter/Remarks**
Reserve Forest/Protected Forest Land	Yes	Forest Located in 10 km area: 1. Badiha R.F -7.0 km East 2. Gadaria R.F – 5.0 km East 3. Singhpur khurd R.F.- 0.9 km SW 4. Salaiya Kalan R.F. – along the southern boundary 5. Salaiya Khurd R.F. – along the southern boundary 6. Kohdr R.F. – along the eastern boundary 7. Murpela R.F- 2.7 km East 8. Chandhs R. F. – 8.0 km East 9. Sukh P.F.- 8.5 km east
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/ historical temples etc.	No	
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:		Forest Located in 10 km area: 1. Badiha R.F -7.0 km East 2. Gadaria R.F – 5.0 km East 3. Singhpur khurd R.F.- 0.9 km SW 4. Salaiya Kalan R.F. – along the southern boundary 5. Salaiya Khurd R.F. – along the southern boundary 6. Kohdr R.F. – along the eastern boundary 7. Murpela R.F- 2.7 km East 8. Chandhs R. F. – 8.0 km East 9. Sukh P.F.- 8.5 km east

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		River in 10 km area - Tons River 1.5 km in North
Additional information (if any)		

Availability of Schedule-I species in study area – At the time of EIA for Stage-I, Blackbuck was reported by State Forest Deptt. & Conservation plan prepared & implemented for the same. However, as per recent reports wild species like Jackal, Wolf, Mongoose, Porcupine are also reported. Details shall be presented in EIA study report.

Court case details:

Any litigation/Court case pertaining to the project	NO
Is the proposal under any investigation? If so, details thereof.	NO
Any violation case pertaining to the project:	NO
Additional information (if any)	-

***

Signature Not Verified

Digitally Signed by : Mr Lalit Bokolia
Member Secretary, MoEFCC (EC)

Date: 14/12/2023

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ANNEXURE-2: UP-Power Consent Letter Uttar Pradesh and Uttarakhand

Office of The Chief Engineer
Power Purchase Agreement Directorate
U.P. Power Corporation Limited

14th Floor, Shakti Bhawan Extn.,14-Ashok Marg, Lucknow-226001.
Email: sespatcuppcl@yahoo.com/spatcircle2010@gmail.com
CIN: U32201UP1999SGC024928

No.SPATC-512/Meja TPS – Stage-II/ 82 Dated: 14/02/24

Sub : Consent for Allocation of Power from Meja Project Stage-II (3x800MW).

Chief Executive Officer,
Meja Urja Nigam Pvt. Ltd,
NTPC Limited, NPTC Bhawan,
Core-7, Scope Complex, 7 Institutional Area,
Lodhi Road, New Delhi-110003.

Dear Sir,

Please refer letter No.SPATC-512/Meja TPS – Stage-II/18 dt.10-01-2024 vide which consent of UPPCL was given for allocation of power from Meja Project Stage-II (3x800MW) as per terms and conditions of the PPA signed on 05-01-2011 for Meja Project Stage-II (2x660MW).

In reference to your Email dt. 01-02-2024, It is clarified that UPPCL has given consent as per Clause 2.2 of PPA executed for Meja Project Stage-II (2x660MW) i.e. minimum 75% allocation of power from the revised capacity of 3x800MW station subject to approval of Govt. of India.

Thanking you,

Yours faithfully,

14/02/24

(Deepak Raizada)
Chief Engineer

CC:

1. Director (Corporate Planning), UPPCL, Shakti Bhawan Lucknow.

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उत्तराखण्ड पावर कारपोरेशन लि0
(उत्तराखण्ड सरकार का उपक्रम)
Uttarakhand Power Corporation Ltd.
(A Govt. of Uttarakhand Undertaking)
CIN : U40109UR2001SGC025867
Email ID: cgm.upcl@yahoo.com, Website: www.upcl.org

Letter No. 707 /UPCL/Com/GT-1(Meja-II)/CE Date: 13/02/2024

General Manager (Commercial),
NTPC Bhawan, SCOPE Complex,
7 Institutional Area, Lodi Road,
New Delhi- 11003.

Sub:- Regarding consent for Allocation of Power from Meja project, Stage-II (3*800 MW)

This is in reference to this office letter no. 85/UPCL/Com/GT-1 (Meja-II)/CE dated 4/01/2024 and discussions regarding the availability of additional capacity from the Meja Project , Stage-II . Also it is informed by your office letter dated 20-11-2023 that a levelized tariff of Rs. 5.30/kW (mentioning that the actual tariff for electricity supplied from the project shall be determined by Hon'ble CERC) will be applicable and MEJA Urja Nigam (P) Limited has requested to provide the revised requirement of power from Meja Project, Stage-II in view of the enhanced capacity of the project.

In continuation of the same and with regard to additional requirement of power, it is to intimate that UPCL can off-take upto 600 MW power at above mentioned levelized tariff in addition to share of UPCL from Meja Stage-II for which UPCL has already signed the PPA on dated 05 01 2011

This is for your kind information and further necessary action in the matter.

(Jaswant Singh)
Chief Engineer (Commercial)

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ANNEXURE-3: MUNPL Letter to PCCF and Letter from DFO regarding No wildlife corridor and location of any National Park, Sanctuary, Elephant, Tiger Reserve within 10 km radius

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मेजा ऊर्जा निगम प्रा0 लिमिटेड
MEJA URJA NIGAM (P) LIMITED
(A Joint Venture of NTPC Limited & UPRVUNL)

Ref: MUNPL/TS/Forest/02 Date: 25.07.2024

To,

The Principal Chief Conservator of Forest (PCCF)
17, Rana Pratap Marg, Lucknow, (U.P.),226001

Subject: Confirmation regarding Wildlife Sanctuary/ National Park/Biosphere Reserves, wildlife corridor within the 10 km Boundary from Meja Urja Thermal Power Plant at Meja, Uttar Pradesh by M/s Meja Urja Nigam Private Limited – reg.

Respected Sir,

This is to inform you that M/s Meja Urja Nigam Limited, has already operating a coal based Thermal Power plant at Meja, Uttar Pradesh. Latest environmental clearance was issued to plant by MoEF&CC for (2x 660 MW) vide F. No. J-13012/03/2008- IA. II (T) dated 25.09.2020. Plant already has valid CTO issued by UPPCB vide order no. 168397/UPPCB/ Allahabad (UPPCBRO)/CTO/both/ PYAYAGRAJ dated 16.12.2022.

Now, M/s Meja Urja Nigam Limited has proposed for expansion of existing unit by adding 3X800 MW at Meja, Uttar Pradesh. Proposed expansion shall be done within the existing plant premises. MOEF&CC (Govt. of India) has already grant the Terms of Reference (TOR) for the proposed expansion project vide File no. 13012/03/2008- IA.II (T) dated 14.12.2023.

As per TOR condition mentioned in specific condition point no. 2.1 stated that "**PCCF letter shall be obtained stating that no wildlife corridor is passing through the project boundary**".

Besides, point no. 3.2 of standard TOR condition stating, that "**Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him**".

You are requested to provide necessary confirmation with respect to the above TOR compliances, required for processing environmental Clearence of MUNPL, Meja stage II.

We have attached the following documents for your ready reference.

1. Topo Maps, Project Location Map along with project coordinates and kml file of project.
2. Approved TOR copy issued from MOEF &CC.

Thanking you,

Sincerely yours

Chatterjee, 25/07/24
(Avijit Chatterjee)
CGM (TS)
अविजित चटर्जी/Avijit Chatterjee
मुख्य महाप्रबंधक (तकनीकी सेवा)/Chief General Manager (TS)
मेजा ऊर्जा निगम (प्रा) लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Prayagraj
(एनटीपीसी लिमिटेड एवं उ.प्र.वि.नि.लि.का संयुक्त उद्यम)
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

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MEJA URJA NIGAM (P) LIMITED

(A JV of NTPC Ltd & UPRVUN Ltd)

To,

The Divisional Director
Social Forestry Division, Prayagraj,
Uttar Pradesh 226001

Subject: Confirmation on Presence of Wildlife Sanctuary/ National Park/Biosphere Reserves, wildlife corridor within the 10 km boundary from Meja Thermal Power Plant at Meja, Uttar Pradesh of M/s Meja Urja Nigam Private Limited (MUNPL).

Respected Sir,

This is to inform that M/s Meja Urja Nigam Limited, has already operating a coal based Thermal Power plant at Meja, Uttar Pradesh. Latest environmental clearance was issued to plant by MoEF&CC for (2x 660 MW) vide F. No. J-13012/03/2008- IA.II(T) dated 25.09.2020 Plant already has valid CTO issued by UPPCB vide order no. 168397/UPPCB/ Allahabad (UPPCBRO)/CTO/both/ PYAYAGRAJ dated 16.12.2022.

Now, M/s Meja Urja Nigam Limited has proposed for expansion of existing unit by adding 3X800 MW at Meja, Uttar Pradesh. Proposed expansion shall be done within the existing plant premises. MOEF&CC (Govt. of India) has already grant the Terms of Reference (TOR) for the proposed expansion project vide File no. 13012/03/2008- IA.II (T) dated 14.12.2023.

As per the TOR condition mention in specific condition point no 2.1 stated that '***PCCF letter shall be obtained stating that no wildlife corridor is passing through the project boundary***'.

In this regard, we seek your assistance in confirming that our Thermal Power Plant at Meja is situated outside the 10 km radius from any Wildlife Sanctuary, National Park, Biosphere Reserves and no wildlife corridor is passing through the project boundary. We have attached the following documents for your ready reference.

1. Topo Maps
2. Project Location Map along with project coordinates
3. TOR Letter

We request you to kindly clarify that, our Thermal Power Plant is situated outside the 10 km from any of the above eco sensitive areas.

Thanking you,

20.01.2024

Sincerely yours

प्रदीप कुमार सावंत/Pradeep Kumar Sabat
GM (C&M)
मेजा ऊर्जा निगम (प्रा.) लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Prayagraj
(एनटीपीसी एवं उ.प्र.रा.वि.उ.नि.लि. का संयुक्त उद्यम)
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

Copy to, 1. Chief Conservator of forest, Social forestry department, Prayagraj

2. Divisional Director, Social forestry department, Prayagraj

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कार्यालय प्रभागीय निदेशक सामाजिक वानिकी प्रभाग, प्रयागराज

पत्रांक– 443 /15–1 दिनांक, प्रयागराज, अगस्त 2, 2024।

सेवा में,

वन संरक्षक/क्षेत्रीय निदेशक
राजकीय प्रयागराज वृत्त,
प्रयागराज।

विषय:– **Confirmation regarding Wildlife Sanctuary/National Park/Biosphere Reserves, wildlife corridor within the 10 km Boundary from Meja Urja Thermal Power Plant at Meja, Uttar Pradesh by IWs Meja Urja Nigam Private Limited –reg.**

सन्दर्भ:– आपका पत्रांक–330/26–11 (NTPC/MUNPL/ प्रयागराज), दिनांक–01.08.2024

महोदय,

उपर्युक्त विषयक सन्दर्भित पत्र जो इस कार्यालय को सम्बोधित व आपको पृष्ठांकित है **(छाया प्रति संलग्न)** का अवलोकन करने का कष्ट करें। अवगत कराना है कि उक्त विषयक क्रम में स्थलीय जांच क्षेत्रीय वन अधिकारी, मेजा द्वारा करायी गयी। क्षेत्रीय वन अधिकारी, मेजा के पत्रांक–47/मेजा/15, दिनांक–04.08.2024 द्वारा प्रेषित आख्या एवं उप प्रभागीय वनाधिकारी, प्रयागराज द्वारा की गयी संस्तुति के अनुसार अभिमत सहित आख्या निम्नवत है–

1– मै0 मेजा ऊर्जा निगम लि0 द्वारा पूर्व संचालित थर्मल प्लाण्ट के मौजूदा संयत्र से 10 किमी0 परिधि में कोई राष्ट्रीय पार्क, अभ्यारण्य, हाथी/बाघ रिजर्व, मौजूद नहीं है।

2– धाँदपुर खम्हरिया कृष्ण मृग आरक्षित संरक्षण क्षेत्र मै0 मेजा ऊर्जा निगम लि0 द्वारा पूर्व संचालित थर्मल प्लाण्ट के मौजूदा संयत्र से 10 किमी0 परिधि के अन्दर विद्यमान है।

3– मै0 मेजा ऊर्जा निगम लि0 द्वारा पूर्व संचालित थर्मल प्लाण्ट के मौजूदा संयत्र से 10 किमी0 परिधि में कोई प्रवास मार्ग/वन्य जीव कारिडोर मौदूर नहीं है।

(अरविन्द कुमार यादव)
प्रभागीय निदेशक
सामाजिक वानिकी प्रभाग, प्रयागराज।

संख्या– /समदिनांकित।

प्रतिलिपि:– मुख्य महाप्रबंधक (तकनीकी सेवाएं), मेजा ऊर्जा निगम (प्रा0) लि0, प्रयागराज।

(अरविन्द कुमार यादव)
प्रभागीय निदेशक
सामाजिक वानिकी प्रभाग, प्रयागराज।

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ई-मेल

कार्यालय प्रधान मुख्य वन संरक्षक, वन्य जीव, उत्तर प्रदेश, लखनऊ।

पत्रसंख्या– 696 /26–11 (NTPC/MUNPL/प्रयागराज), लखनऊः दिनांक 05 सितम्बर, 2024

सेवा में,

मुख्य महाप्रबंधक (तकनीकी सेवाएं),
मेजा ऊर्जा निगम (प्रा) लि., प्रयागराज।

विषयः– Confirmation regarding Wildlife Sanctuary/National Park/Biosphere Reserves, wildlife corridor within the 10 km Boundary from Meja Urja Thermal Power Plant at Meja, Uttar Pradesh by M/s Meja Urja Nigam Private Limited –reg.

संदर्भः– 1–इस कार्यालय का पत्रांक–330/26–11 (NTPC/MUNPL/प्रयागराज), दिनांक 01.08.2024
2–वन संरक्षक/क्षेत्रीय निदेशक, सामाजिक वानिकी वृत्त, प्रयागराज का पत्रांक–594/15–1, दिनांक 14.08.2024

महोदय,

आपके पत्रांक–MUNPL/TS/Forest/02, दिनांक 25.07.2024 के माध्यम से मै0 मेजा ऊर्जा निगम लि0 द्वारा पूर्व संचालित थर्मल प्लांट के मौजूदा संयत्र परिसर के भीतर ही 3X800 MW क्षमता विस्तार हेतु दिए गए प्रस्ताव में भारत सरकार के पत्रांक–File no. 13012/03/2008-IA.II (T), दिनांक 14.12.2023 द्वारा लगाई गई शर्तों में शर्त संख्या–2.1, "PCCF letter shall be obtained stating that no wildlife corridor is passing through the project boundary" एवं शर्त संख्या–3.2, "Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes/wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him" के सम्बन्ध में की गई पुष्टि की अपेक्षा के क्रम में इस कार्यालय के उपरोक्त सन्दर्भित पत्र दिनांक 01.08.2024, जो अन्य सहित आपको भी पृष्ठांकित है, द्वारा प्रभागीय निदेशक, सामाजिक वानिकी वन प्रभाग, प्रयागराज को विषयक प्रकरण के सम्बन्ध में सुविचारित औचित्यपूर्ण आख्या निज अभिमत सहित अपने नियंत्रक अधिकारी के माध्यम से यथाशीघ्र उपलब्ध कराए जाने हेतु निर्देशित किया गया।

तद्क्रम में प्रभागीय निदेशक, सामाजिक वानिकी वन प्रभाग, प्रयागराज के पत्रांक–443/15–1, दिनांक 09.08.2024 द्वारा अवगत कराया गया कि प्रकरण की स्थलीय जांच क्षेत्रीय वन अधिकारी, मेजा द्वारा करायी गयी तथा उप प्रभागीय वनाधिकारी द्वारा की गयी संस्तुति के अनुसार प्रेषित आख्या को वन संरक्षक/क्षेत्रीय निदेशक, सामाजिक वानिकी वृत्त, प्रयागराज के उपरोक्त सन्दर्भित पत्र दिनांक 14.08.2024 द्वारा संस्तुति सहित सूचनार्थ एवं आवश्यक कार्यवाही हेतु इस कार्यालय को निम्नवत् प्रेषित किया गयाः–

1. मै0 मेजा ऊर्जा निगम लिमिटेड द्वारा पूर्व संचालित थर्मल प्लान्ट के मौजूदा संयत्र से 10 किमी0 परिधि में कोई राष्ट्रीय पार्क, अभ्यारण्य एवं हाथी/बाघ रिजर्व मौजूद नही है।
2. चॉद खम्हरिया कृष्ण मृग आरक्षित संरक्षित क्षेत्र मै0 मेजा ऊर्जा निगम लिमिटेड द्वारा पूर्व संचालित थर्मल प्लान्ट के मौजूदा संयत्र से 10 किमी0 परिधि के अन्दर विद्यमान है।
3. मै0 मेजा ऊर्जा निगम लिमिटेड द्वारा पूर्व संचालित थर्मल प्लान्ट के मौजूदा संयत्र से 10 किमी0 परिधि में कोई प्रवास मार्ग/वन्यजीव कॉरिडोर मौजूद नही है।

अतः वन संरक्षक/क्षेत्रीय निदेशक, सामाजिक वानिकी वृत्त, प्रयागराज के उपरोक्त सन्दर्भित पत्र दिनांक 14.08.2024 द्वारा प्रेषित उक्त आख्या तथ्यात्मक है। कृपया विषयक प्रकरण के सम्बन्ध में अपने स्तर से अग्रेतर आवश्यक कार्यवाही कराने का कष्ट करें।

भवदीय,

(संजय श्रीवास्तव)
प्रधान मुख्य वन संरक्षक, वन्यजीव/
मुख्य वन्यजीव प्रतिपालक,
उत्तर प्रदेश, लखनऊ।

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पत्रसंख्या- 696 / उक्तदिनांकित।

प्रतिलिपि: निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित:-

1. मुख्य वन संरक्षक, दक्षिणी क्षेत्र, उत्तर प्रदेश, प्रयागराज।
2. वन संरक्षक/क्षेत्रीय निदेशक, सामाजिक वानिकी वृत्त, प्रयागराज।
3. प्रभागीय निदेशक, सामाजिक वानिकी वन प्रभाग, प्रयागराज।

(संजय श्रीवास्तव)
प्रधान मुख्य वन संरक्षक, वन्यजीव/
मुख्य वन्यजीव प्रतिपालक,
उत्तर प्रदेश, लखनऊ।

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ANNEXURE-4 Wildlife Conservation Plan - DFO-2024

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कार्यालय प्रभागीय निदेशक, सामाजिक वानिकी प्रभाग,प्रयागराज।
पत्रांक 579 /5–3, दिनांक, प्रयागराज, अगस्त, 23, 2024।

सेवा में,
मुख्य कार्यकारी अधिकारी,(सी.ई.ओ.),
मेजा ऊर्जा निगम प्रा0लिमिटेड,
प्रयागराज।

विषयः–मेजा ऊर्जा निगम प्रा0 लिमिटेड के द्वारा वन्य जीव संरक्षण परियोजना के सम्बंध में।
संदर्भः–आपके द्वारा प्रेषित ईमेल दिनांक 07.11.2024।
महोदय,

उपरोक्त संदर्भित पत्र के क्रम में मांगी गयी बिन्दु सं0–4 के क्रम में आपके साथ दिनांक 29.07.2024 को अधोहस्ताक्षरी के साथ आपके विचार–विमर्श के उपरान्त मेजा ऊर्जा निगम के समीप 10 वर्ष की वन्य जीव संरक्षण परियोजना तैयार की गयी है। वन्य जीव संरक्षण की 10 वर्ष की परियोजना की प्रति संलग्न है।

संलग्नकः–उपरोक्तानुसार।

भवदीय,

(अरविन्द कुमार यादव)
प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
प्रयागराज।

पत्रांक /समदिनांकित।

प्रतिलिपि वन संरक्षक/क्षेत्रीय निदेशक, सामाजिक वानिकी वृत्त, उ0प्र0, प्रयागराज की सेवा में सूचनार्थ एवं अनुमोदनार्थ प्रेषित।

प्रतिलिपि क्षेत्रीय वन अधिकारी मेजा को इस निर्देश के साथ कि परियोजना की एक प्रति मेजा ऊर्जा निगम को उपलब्ध करावें।

(अरविन्द कुमार यादव)
प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
प्रयागराज।

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Table 11.1: Year wise wildlife Conservation Budget

S.No.	Improvement & Mitigation Measures (Food, Water, Shelter, Movement, etc.) and measures to reduce/ minimize the human-animal conflicts and Contribution towards Conservation of Wildlife	Awareness and Extension (WII Scholar will also be invited for various activities to ensure participation)	Support to Forest Department for monitoring, rescue & rehabilitation of Wildlife (Veterinary care, animal health, rescue, tools, equipment, etc.)	Miscellaneous including Eco-development	Total (in Rs. Lacs)
1st Year	60	20	15	10	105
2nd Year	30	10	15	6	61
3rd Year	15	10	12	4	41
4th Year	9	5	12	3	29
5th Year	9	3	12	2	26
6th Year	9	3	8	2	22
7th Year	4.5	3	8	2	17.5
8th Year	4.5	2	8	2	16.5
9th Year	4.5	2	8	2	16.5
10th Year	4.5	2	8	2	16.5
Total	150	60	106	35	351

क्षेत्रीय वन अधिकारी,
मेजा।

उप प्रभागीय वनाधिकारी,
प्रयागराज।

प्रभागीय निदेशक,
सा0वा0प्रभाग, प्रयागराज।

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WILDLIFE CONSERVATION PLAN

For

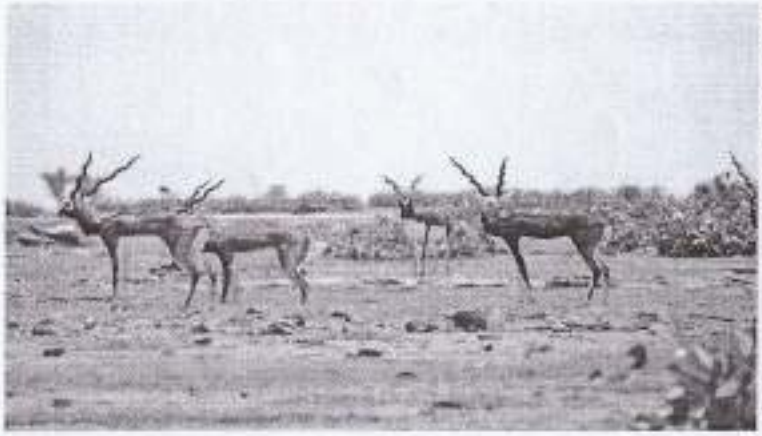
Schedule-I species observed in study area of

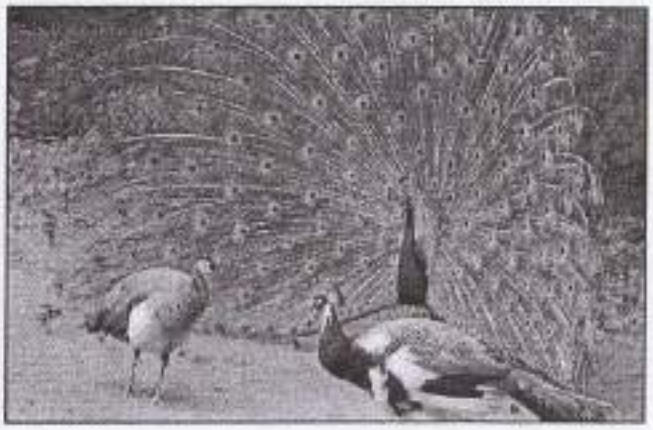
"MEJA THERMAL POWER PROJECT STAGE-II (3X800 MW)"

At

Village- Kohdar, Mai Khurd & Patai Dandi

Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh





PROJECT PROPONENT

मेजा ऊर्जा निगम प्रा० लिमिटेड

MEJA URJA NIGAM (P) LIMITED

M/s Meja Urja Nigam Private Limited (MUNPL)

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CHAPTER 1. INTRODUCTION

1.1. Project Background

Meja Urja Nigam Private Limited (MUNPL), a 50:50 Joint Venture Company of NTPC Ltd & UPRVUNL and was registered as a company on 02.04.2008, with an intent to establish Meja Thermal Power Project. Meja Urja Nigam Private Limited (MUNPL) has an installed capacity of 1320 MW with both units (2X660 MW) under commercial operation since 30.04.2019 and 31.01.2021 respectively. The power plant is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, District-Prayagraj, Uttar Pradesh. Both the units of the power plant have been commissioned. The power generated by the plant is supplied mainly to Uttar Pradesh along with the states of Uttarakhand, Chandigarh, Rajasthan, Punjab, J&K, Delhi, Madhya Pradesh and Haryana.

1.2. Nature size and Location of Project

As per the Government of India (Ministry of Environment, Forests & Climate Change (MoEF& CC),) EIA Notification, 2006 and further amendments, the proposed project will be covered under Activity 1(d); Category A and hence requires environmental clearance from MoEF& CC, New Delhi. The total cost of the project is □ Rs.22,479.97 Crores (Estimated, yet to be approved). About 1295 Ha of land has been acquired for Meja TPP during Stage-I. The plant facilities of Stage-II shall be accommodated within the existing premises of the Meja STPP. Additional area of 114 Ha for Ash Dyke and Railway Siding shall be acquired, out of which 62 Ha is government land and 52 Ha is private land. No forest land is involved.

Location: Proposed3x800 MW Super Thermal Power Plant of **M/s Meja Urja Nigam Private Limited (MUNPL),** is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, Prayagraj, Uttar Pradesh. The latitude and longitude of centre of the site are 25^0 09' 10'' North and 81^0 56'50'' East, respectively.

Proposed site is well connected through the rail and road. The nearest railway station, Meja Road Railway Station on Prayagraj-Mughalsarai section of North Central Railway is about 14.23 km from the project site, NE. The site is in south-west of Prayagraj-Mirzapur Highway. National Highway-135 C is passing about 4.16 km, ENE of the site. The nearest commercial airport is Prayagraj Airport approximately at an aerial distance of 38 km, NNW. Varanasi Airport is located at a distance of about 95 km, ENE.

Site connectivity Map showing coordinates of the study area is presented in **Figure 1.1.** Nearest settlement is Mai Khurd Village abutting the project site. Other villages located within 1 km area of the proposed site are Korhar (0.37 Km, NNE), Jhadiyahi (0.40 Km, WNW).

Tons River is located at about 0.95 km, WNW of the project site. River Ganga is located at a distance of about23.24 Km, NNW from the project site. No National park, wildlife sanctuary,

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biosphere reserve is present within the 10 km area of the proposed site. Few reserved and protected forests are present in the study area. The locational environment features presented in **Table 1.13.** Location map provided in **Figure 1.1.** The Google satellite image of the 10 km area of the site is given in **Figure 1.2** and Topo map of 10 Km radius map is given in **Figure 1.3**

Table 1.1 : Salient Environmental Features of Proposed Site

S. No.	Parameter	Description
1	Presence of Wildlife Sanctuary/National Park/Biosphere Reserves	None within 10 km study area.
2.	Reserved /Protected Forests	• Badiha Reserved Forest (7.00 Km, SW) • Gadaria Reserved Forest (8.00 Km, SW) • Singhpur Khurd Reserved forest (0.90 Km, SW) • Salaiya Kalan Reserved forest (Along Southern Boundary) • Salaiya Khurd Reserved forest (Along Southern Boundary) • KohdarReserved forest (Along Eastern Boundary) • MurpelaReserved forest (2.70 Km, E) • East Chandhs Reserved Forest (8.00 Km, E) • Sukh Protected Forest (8.50 Km, E)
3.	Wetland of State andNational Interest	None within study area
4.	Presence of Schedule-I Fauna	Peafowl, Jungle Cat, Porcupine, Black buck, Hyaena, Rat snake and Russel'sViper
5.	Critically Polluted Area	None within study area
6	Site connectivity	Site is connected to NH-135 C through NTPC Meja Road which is passing close to the site. NH-135 C, 4.16 Km, ENE.
7	Nearest Rail Station	Meja Road Railway Station, 14.23 km, SE.
8	Nearest Airport	Prayagraj Airport – 36.76 km, NNW
9	Nearest Habitat	Nearest settlement is Mai Khurd Village abutting the project site.
10	Archaeologically important places	None
11	Water Bodies	➢ Tons River (0.95 Km, WNW) ➢ River Ganga (23.24 Km, NNW)

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12	Seismic zone	Seismic Zone-II (Low Risk Zone)
13	Physical Sensitive Receptors	School: Vijay Degree College, Salaiya, Meja, Prayagraj (0.68 Km, SSW) Hospitals: Ma Isaraja Devi CharitableHospital, Sirihir, Meja, Prayagraj (3.05 Km, SSW)
14	Archaeological Monuments	None

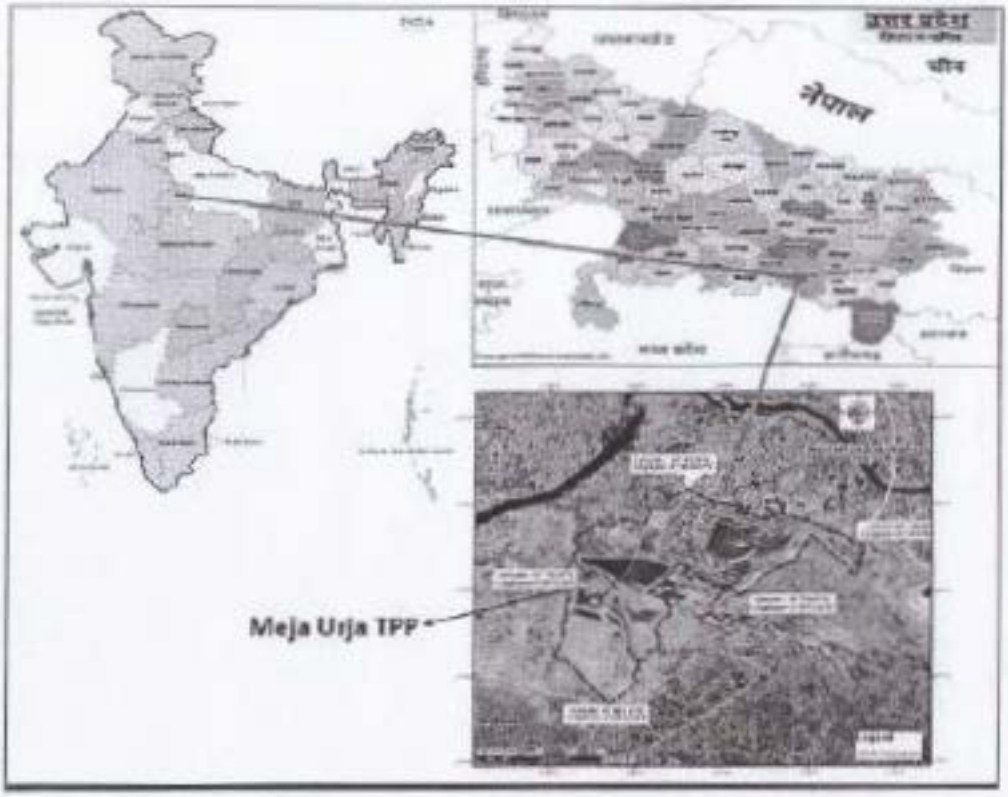


Figure 1: Project Location

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Figure 2: Google Map of Project Site

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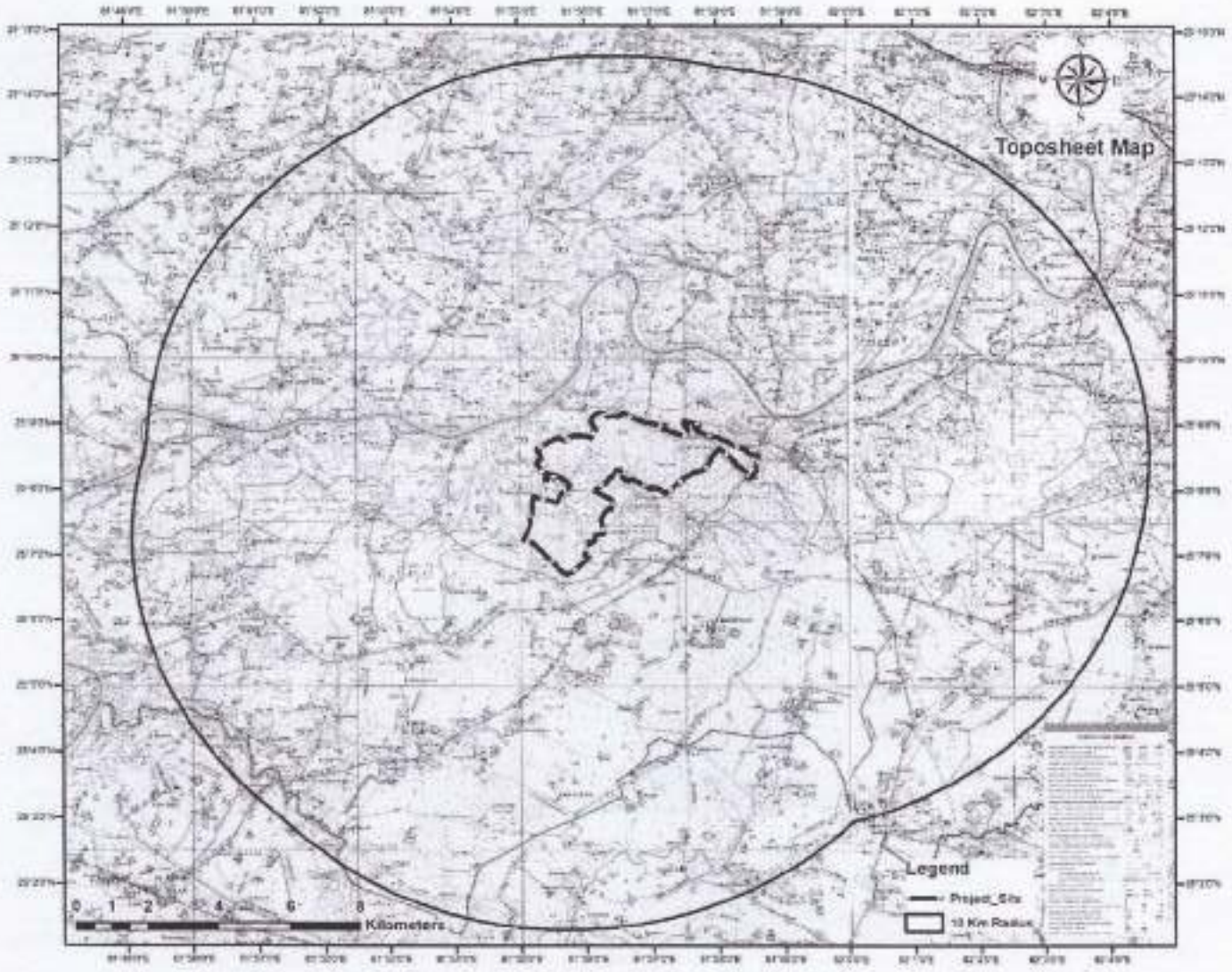


Figure 3: Topo Map of Project Site

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CHAPTER 2. SIGNIFICANCE OF CONSERVATION PLAN

2.1. Significance of Wildlife Conservation

Conservation is the care and protection of these resources so that they can persist for future generations. It includes maintaining diversity of species, genes, and ecosystems, as well as functions of the environment, such as nutrient cycling. Conservation is like preservation, but while both relate to the protection of nature, they strive to accomplish this task in different ways. Conservation seeks the sustainable use of nature by humans, for activities such as hunting, logging, or mining, while preservation means protecting nature from human use. Wildlife conservation is the preservation and protection of animals, plants, and their habitats.The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

Objectives of Wildlife Conservation:

- Protection of natural habitats of organisms.
- Maintenance of rare species in protected areas such as national parks, sanctuaries etc.,
- Establishment of specific biosphere reserves for endangered plants and animals.
- Protection of wildlife through legislation such as banning hunting etc.,
- Imposing specific restrictions on export of endangered plants and animals or their products.
- Educating the public about the need to protect and preserve the environ-ment as a long-range goal for the welfare of future generations.

2.2. Conservation Plan

Conservation plan is a document that outlines the decisions the organization has made to protect and enhance the natural resources on the land. A conservation plan, when completed, describes and schedules each of the conservation practices the organization decided to apply to meet the goals and objectives. Developing a conservation plan is voluntary and relies on making the decisions and implementing the plan by the organization.

2.3. Need of Conservation Plan in Project

As per procedure laid down in the EIA Notification 2006 it is mandatory to study Ecological Biodiversity within the study area of 10 km radius of Project Site while preparing the EIA Report. During the EIA study of the Meja STPP Stage-IIthe following Schedule-I species have been observed in the study area:

1. Peafowl
2. *Jungle Cat*
3. *Prcupine*
4. *Black buck*
5. *Hyaena*

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6. *Rat snake*
7. *Russel's Viper*

As per ***TOR point no. 5(v)***, it is mandatory to prepare Wildlife Conservation Plan for Schedule-I Fauna and same to be approved by Chief Wildlife Warden of the State Government.

Thus, we have prepared the conservation plan for Schedule-I species including the allocation of the funds for the implementation of the same. Same shall be approved /vetted from Chief Wildlife Warden.

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CHAPTER 3. COMMON THREATS AND SUGGESTIVE CONSERVATION MEASURES

3.1. Common Threats to Biodiversity

1. **Heavy Grazing:** Livestock of the villagers residing in and around the forest are mainly dependent on the grasses and herbaceous plants found in the forest for fodder. Heavy grazing adversely affects the natural regeneration of species. Freely grazing cattle are the major threat to survival of plantation. Looping of trees for fodder is also practiced during dry season and is highly damaging during scarcity years. Heavy grazing pressure was the main cause of degradation. Coupe areas in the district could not be regenerated successfully after harvesting due to this pressure. The disturbance caused by livestock and their grazers affects the free movement of wildlife and causes conflict between wildlife and man. Many incidents of attacks of animals on humans have been on grazers.

2. **Unauthorized Cultivation, grazing& Grass Cutting:** Forests of the study area are highly prone to unauthorized grazing, cultivation and grass cutting. Series of regularizations of unauthorized cultivation in forest area, higher levels of encroachments have adversely affected the forest. This damaging activity not only degrades the forests but also deplete soil fertility due to heavy soil erosion and land use of the area gets changed in a very short span. Traditionally,people have exploited grasses from the natural habitat for use as fodder for their cattle or for material in constructing houses. Removal of grass has both positive and negative impacts. Grass is usually cut during the dry season, thus reducing the incidences of fire and fulfilling a management objective of the Forest Department.

3. **Erosion:** Erosion is mainly due to rains & causes soil loss. Encroachment, grazing, illicit cutting and fires lead to loss of ground cover which aggravates the soil erosion significantly. Grazing by local cattle result in soil loosening during rains and leads to enhanced erosion.

4. **Illicit Cutting:** Cutting of trees for requirement of small timber for house repair and young coppice crop for firewood is done by villagers staying in and around the forest areas. Extensive damagers are observed in forest areas nearby habitations. Because of high fuel wood demand. Young regeneration and crop are mostly damaged for this purpose. Firewood collection is done through head load and sometimes even cycles and carts are also used for firewood transportation. Local people have right to collect the dead wood as firewood, the young regeneration especially the coppice crop of teak is first hacked/cut

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and later is collected as dead wood after it gets dried up. Illegal transportation by cycles as started off late and is more prevalent from forest areas.

5. **Forest Fires:** Fires observed in the tract are mostly ground fires and generally manmade. Fires at times are caused for clearing the land for encroachment also by offenders who have confronted the staff on protection duty. More incidences of fire are observed during the period of collection of Mahua flower while clearing the land by burning the gasses/shrubs.

6. **Poaching:** The illegal hunting and harvesting of animals is the second biggest direct threat to species after habitat destruction. It can have a devastating effect on the individual species and on entire ecosystems as well as on local communities. Wild animals are being poached on a massive scale, with millions of individual animals of thousands of species worldwide killed or captured from their native habitats. The worldwide illegal trade in wildlife has grown in recent years alongside rising wealth in parts of the world where there is demand, coupled with increasing ease of trade through the internet. Poachers capture some animals live (e.g., birds, reptiles, and primates), so that they can be kept or sold as exotic pets. Others are slaughtered for their commercial value as food, jewellery, decor, or traditional medicine.

7. **Environmental Stress and Biotic Pressures:**
   a. Illegal entry of villagers in protected areas.
   b. Transporatation/construction including air, noise ,water pollution
   c. Crop Damage
   d. Occurrence of periodic drought
   e. Traffic Movement on Roads
   f. Ever increasing human and livestock population.

3.2. Wildlife Management

3.2.1 Objectives of Management

National Forest Policy (1988) has provided one if its basic objectives i.e, "***Conserving the Natural heritage of the country by preserving the remaining natural forests with vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the county".***

Objectives of Management:

1. To conserve and protect the diverse pollution of life forms and the ecosystem.
2. To improve health of forests, their ecological functions and productivity including small timber, fodder, firewood and other forest produce.
3. To reduce negative impacts on the biodiversity through adequate eco-development programs.
4. To create infrastructure for conservation and maintenance of wildlife and for nature awareness.

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5. To promote awareness regarding wildlife through imparting nature education and ecological research.

3.2.2 Strategies for Conservation

PRINCIPLE

To maintain and conserve the biological and genetic diversity as well as to provide mist of appropriate food, water and shelter to wildlife, a minimum disturbance approach should be adopted for improving habitat. Species specific management along with location of welfare factors within home ranges are needed to conserve the biological diversity or the ecosystem. In this regard, the principle of "Restoration" & "Compensation" of habitat attributes would be adopted as management strategies.

Following are some important approaches for conservation and enhancement of the ecosystem.

A. REDUCTION OF BIOTIC PRESSURE AND ECO-DEVELOPMENT

1. Unauthorized cultivation and encroachments need to be recovered by plantation of indigenous and endemic tree species as per suitability of soil and topography of the area.
2. Demarcation of fixed grazing zone needs to be done around each village particularly for cattle.
3. Development of Water Harvesting structures.
4. Agro-forestry needs to be encouraged for locals. They can be educated and encouraged to do contour ploughing, gully lugging, farm bunding and other soil & moisture conservation methods.
5. In order to reduce biotic pressure & human interference, proper training should be given along with facilities to earn their own livelihood through different activities like raising nursery, minor forest produce collection, apiary, fishing, poultry, handicrafts etc.
6. The degraded areas should be afforested with fast growing tree species to meet the requirements of fuel wood for nearby villagers.

B. HABITAT PROTECTION AND MANAGEMENT

1. Soil & moisture conservation methods like construction of more check dams & van-talavadis at suitable & required sites should be done at soil erosion affected areas.
2. Due to rain-splash erosion, the roots are easily exposed, and the trees get uprooted in some areas where roads pass over the hills. These slopes need to be covered by rubbles and fast-growing species for their stabilization. Moreover, post monsoon, soil is dug out unevenly from the roadsides without considering the steepness of the side walls. It is suggested to dig out soil in the form of rectangular pits in levelled lands to check soil erosion.
3. Development of perennial water holes should be constructed in the areas for wildlife. Groundwater outlets like springs & seepages can be tapped for

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developing water holes. Additionally, water structures sourced by nearby surface water bodies can also be developed.

4. Plant species particularly fruit trees preferred by animals should be planted.
5. Light motor vehicles should be purchased for firefighting. A few more fire lines are also necessary to control extensive fires in the summer season. Moreover, improvised telecommunication systems is essential for detecting fire hazards. Extensive wireless sets and walkie talkie are required for transmitting information efficiently.

C. WILDLIFE CONSERVATION AND MANAGEMENT

1. Captive breeding of rare and endangered fauna needs to be encouraged.
2. Telescopes or binoculars, spotlights, glass plates for tracing pug marks and plaster of paris should be made available at each Round Forester's office. The local staff should be trained to use articles for spotting wildlife and recording pugmarks.
3. Data base information of fauna & avifauna should be maintained to track the status and distribution of birds and animals.
4. Wildlife Census should be carried out at a regular level. Nature clubs and interested local individuals as well as Nature lovers should be involved in such activities.
5. Range Forest Office (Wildlife) would be well trained and thorough in the field of wildlife and must be supported by sufficient trained and interested field staff supplemented with vehicles and other necessary facilities.

D. NATURE EDUCATION AND AWARENESS PROGRAM

A comprehensive Nature Education Program should be talked out. Young people both from rural and urban areas need to be specifically covered under this program to bring nature awareness. Every year, Forest Department and World Wildlife Fund for Nature should organize Nature Education camps for school and colleges children. The camps can prove very useful for the forest villager and surrounding areas as under:

1. Proper interpretation of nature and its various components should be imparted in simple terms like Usefulness of nature, birds & animals, their roles and significance in ecosystem.
2. Literature in form of pamphlets, leaflets, brochures etc., should be provided in local language. This will increase the internet of participants in understanding the matters easily. Field guides and other interpretative literatures are important tools for participants of field trips.
3. Video and audio-visual programs should be prepared in local language. An audio-visual unit should be set up to cover villages for imparting nature education. This will help in enriching the knowledge and getting people interested in Nature's wealth and its conservation.
4. Orientation Centres should be set up with photographs, stuffed specimens of bird and animals.
5. Forest Youth Clubs & Youth Clubs should be formed in schools and colleges.

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3.3. Suggestive Conservation Measures

1. PROTECTION AGAINST GRAZING

Measures should be evolved to prevent grazing by creating physical obstruction. Strict enforcement of anti-grazing measures should be carried out through constant patrolling of sensitive areas. Grazing demand of cattle alleviated for posterity by increasing grass and fodder production by developing pasture lands. Grazing should be allowed on rotational basis.

2. PROTECTION AGAINST FIRE

Fire protection techniques should be modernized through improvements in arrangements for transport of labour force to fight forest fires and use of chemical firefightingequipments etc.Villagers should be trained and educated for fire protection methods. Suitable prices and certificates should be awarded to fire watchers, forest guards. In case of gross neglect of fire protection discipline, n deterrent punishments should be given as Indian Forest Act, 1927.

3. HABITAT AMELIORATION

To conserve wildlife, an ideal breeding and potential environment is required. Due to tremendous biotic interference and pressure, the proportion of predator with prey gets disturbed and consequently the relationship has got imbalanced. Habitat Amelioration implied that creation & restoration of necessary environment in which the area tends towards a climax community with well distributed food sources at every level of the food chain in the ecosystem. Following are the few common methods:

A. Soil & Conservation Measures
B. Improvement of Water: It includes watershed improvement, improvement of existing water sources, revival of old water sources, development of new water sources, restriction on use of water sources.
C. Improvement of Food: Development of pasture lands and plantation of fruti bearing trees for wildlife.

4. PROVISION OF CAPTIVE BREEDING PROGRAM

It is necessary to undertake captive breeding program with natural surroundings to facilitate animals and birds in getting acquainted and adjusted to such habitat immediately.

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CHAPTER 4. CONSERVATION PLAN FOR BLACK BUCK (*Antelope cervicapra*)

4.1. Reason of Conservation

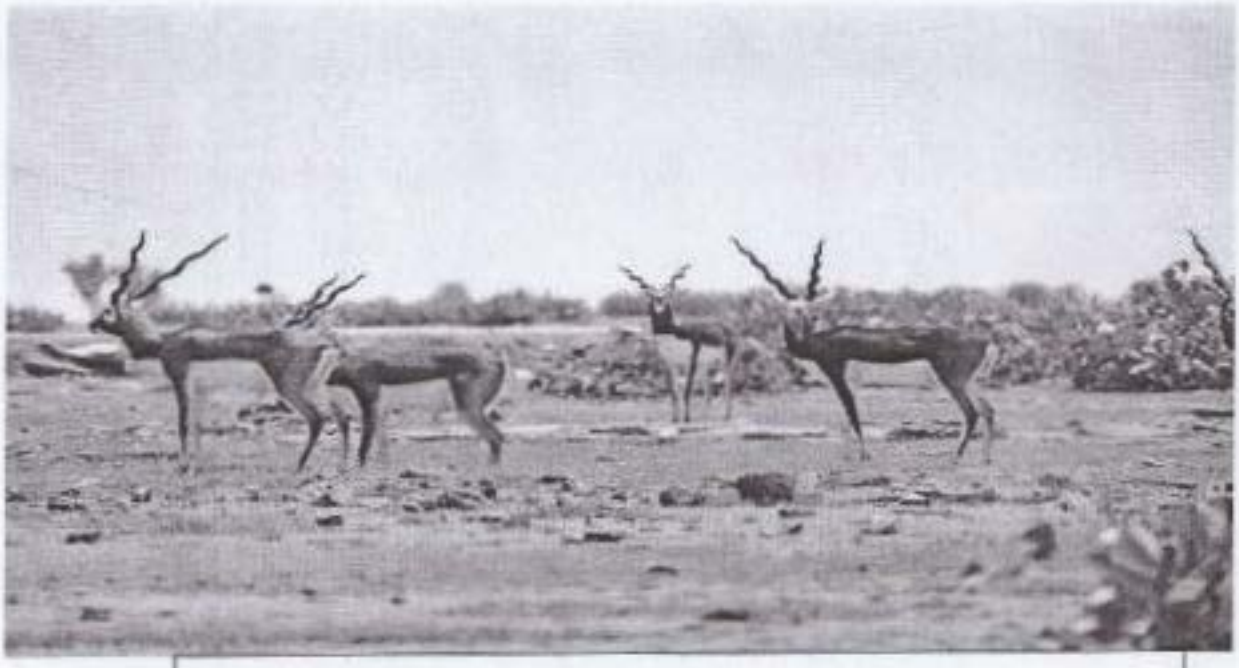
As per the IUCN Red List, the Black buck is listed as Least concern species but as per the Wild Life Protection Act 1972 amended in Dec 2022 is schedule-I species and require a high protection/conservation.

4.2. Conservation efforts Made by MUNPL

Chandkhamharia located within 10 km from the proposed site and this site is developed as a conservation reserve for black Buck by Forest department, local village panchayat and Meja Urja Nigam Private limited. This place (Chandkhamharia) is a conservation reserve for the Black buck. For conservation of the black MUNPL Meja has given a fund of Rs. 1.75 Cr to Forest department. This amount was given for 2010 to 2015 period. In this period under the conservation of species pond construction along with pump house, plantation in the area, water tower, beautification of area, construction of lavatory etc. work has been done. Details of the budget is given below:



Watch Tower



Buck Black buck at **Chandkhamharia conservation site**

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4.3. Description



Black Bucks (*Antilope cervicapra*) is also known as Indian antelope. Its primary habitat includes the grassland in which a permanent source of water is present. They came from the family Bovidae which include ruminant mammals along with giraffes, deer, cattle, sheep and goat. The name cervicapra is composed of the Latin words cervus(deer) and capra(she-goat). There are generally 3 types of classes present in this animal group - Male, Female and Bachelor herds. The male show 2 type of coloration- the upper parts and sides of legs are dark brown to black while the underparts and inside parts of legs are white. Females are generally

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yellowish in colour. The males have 38-76cm long ringed horns which are ringed at the base, twisted spiral with up to 4 turns.

4.4. Classification fo Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Class	Mammalia
Order	Artiodactyla
Family	Bovideae
Genus	Antilope
Species	Cervicapra

4.5. Behavior & Ecology

Males grow darker as the breeding season approaches. The blackbucks mate all year round while the peak of rutting season is March-April and August-October. After a gestation period of 6 months, the female gives birth to a single baby. The female shows her receptivity by waving her tail and thumping the hindlegs on the ground. Females become sexually mature at the age of eight months, but mate no earlier than two years. One male mate with more than one female. During the rut, the male establishes its own territory, aggressively defending it from other males of the area. Rutting males give out loud grunts and fight each other, using their horns. The Black Bucks have a life span of 10-15 years. The blackbuck is a species of antelope with a slender and elegant body. The blackbucks have pointed and delicate hooves. Black Bucks lack a strong sense of smell or hearing but they have a good eyesight, which helps them to detect any kind of danger and react on time. The blackbuck shows variation in its diploid chromosome number. Males have 31-33, while females have 30-32. Males have an XY1Y2 sex chromosome. The total numbers of teeth in blackbuck were only thirty-two. {2*(I0/3, Co/1, P3/3, M3/3)}; similar to the Sheep, Ox, Buffalo, Chitals etc. Both melanism and albinism have been observed in wild blackbuck.

4.6. Range & Habitat

The blackbuck is native to the Indian subcontinent and inhabits grassy plains and thinly forested areas where perennial water sources are available for its daily need to drink. Herds travel long distances to obtain water.The British naturalist William Thomas Blanford described the range of the blackbuck in his 1891 The Fauna of British India, including Ceylon and Burma as:

India from the base of the Himalayas to the neighborhood of Cape Comorin (the southernmost locality known to me is Point Calimere), and from the Punjab to Lower Assam, in open plains, not in Ceylon nor east of the Bay of Bengal. Not found on hills nor in thickly wooded tracts, and wanting throughout the Malabar coast south of the

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neighborhood of Surat. The statement that this antelope is not found in Lower Bengal is not quite correct ; none are found in the swampy Gangetic delta, but many exist on the plains near the coast in Midnapore , as they also do in Orissa. Antelopes are most abundant in the North-west Provinces, Rajputana, and parts of the Deccan, but are locally distributed and keep to particular tracts.

Distribution in study area: In study area Black back was reported in Chandkhamharia located about 5 km from the proposed site. This place (Chandkhamharia) is act a conservation reserve for the Black buck. It is maintained by the village panchayat and forest department.

4.7. Diet

As being a herbivores animal, the Black buck needs to have a proper diet in the form of grasses and leaves of the tree. A fresh vegetation would be a great meal for the animal.

4.8. Threats

The decreasing natural resources lead to conflicts and threats to the wild population. The cause of threat to the population of blackbuck (*Antilope cervicapra*) in study area is due to developmental work and human encroachment of grassland area. Human population pressure and change in the land use pattern has further restricted the habitat of blackbuck. There is competition between blackbuck and cattle stock for grazing and territory. Blackbuckcause heavy damage to the crops and thus come in direct conflict with the inhabitants also. Illegal hunting and poaching is another threat to the blackbuck population.

4.9. Action plan for conservation of Black Buck

Following conservation measures has been suggested for Black buck:

- Improvement of habitats by planting various species of trees and grasses
- Construction of rain sheds for species
- Construction of water holes
- Public awareness for conservation of the species.
- Education should emphasize the importance of maintaining entire forest ecosystems of which sloth bears and other large mammals are a part. Charismatic mega fauna like tigers, rhinos, and elephants naturally garner the most attention. In developing a conservation ethic that protects these species against habitat degradation and poaching, sloth bears will gain protection as well.

4.10. Conservation Measures

- Seminars, Focus Group Discussion (FGD), Organizing plays, poster presentation will be organized at villages, or to farmers and Gram Panchayat level to spread awareness to the local people.

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4.11. Budget for Conservation

In study area Black back was reported in Chandkhamharia located about 5 km from the proposed site. Therefore, conservation of the species is required. M/s Meja Urja Nigam Private Limitedhas proposed a common fund for conservation of schedule-I species. Present the study area details are given at end of this report. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator / Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

CHAPTER 5. CONSERVATION PLAN FOR INDIAN CRESTED PORCUPINE (*Hystrix indica*)

5.1. Reason of Conservation

The Indian crested porcupine (*Hystrix indica*) is a hystricomorph rodent species native to southern Asia and the Middle east. Due to its adaptability to a wide range of habitats and food types, the Indian crested porcupine is listed by the IUCN Red List as Least Concern as of 2008. Populations are stable and not severely fragmented, and while population status varies across its range, in many places it is common enough to be considered a pest. However, because of urbanization, infrastructure development, and pesticide use, suitable porcupine habitats are currently declining. As per the WPA 1972 amended 2022 the species is listed as schedule-I species, and it requires high level of conservation.



5.2. Biology

The Indian crested porcupine is a large rodent, weighing 11–18 kg (24–40 lb). Their body (from the nose to the base of the tail) measures between 70 and 90 cm (28 and 35 in) with the tail adding an additional 8–10 cm (3.1–3.9 in). The lifespan of wild Indian crested porcupines is unknown, but the oldest known captive individual was a female that lived to be 27.1 years old.

It is covered in multiple layers of modified hair called quills, with longer, thinner quills covering a layer of shorter, thicker ones. The quills are brown or black with alternating white and black bands. They are made of keratin and are relatively

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flexible. Each quill is connected to a muscle at its base, allowing the porcupine to raise its quills when it feels threatened. The longest quills are located on the neck and shoulder, where the quills form a "skirt" around the animal. These quills can grow up to 51 cm (20 in) long, with most measuring between 15 and 30 cm (5.9 and 11.8 in). Smaller (20 cm) and more rigid quills are packed densely on the back and rump. These smaller quills are used to stab at potential threats. The base of the tail contains shorter quills that appear white in color, with longer, hollow quills that the porcupine can rattle to produce a warning sound when threatened. Contrary to popular belief, Indian crested porcupines (like all porcupines) cannot shoot their quills.

The Indian crested porcupine has a stocky build with a low surface area to volume ratio, which aids in heat conservation. It has broad feet with long claws used for burrowing. Like all porcupines, the Indian crested porcupine has a good sense of smell and sharp, chisel-like incisors.

5.3. Classification fo Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Rodentia
Family	Histricidae
Genus	Hystrix
Species	Indica

5.4. Behavior & Ecology

Like other Old-World porcupines, the Indian crested porcupine is nocturnal. Both adults and weaned juveniles spend an average of 7 hours foraging every night. They tend to avoid moonlight in the winter months, which could be a strategy to evade predation. However, during summer months they do not avoid moonlight (likely because there are less dark hours during which to forage), but instead tend to stay closer to their dens. During the day, they remain in their dens, but throughout the winter, they occasionally emerge from their dens during daylight hours to bask in the sun.

They live in natural caves or in excavated burrows. Because they do not climb or jump well, they spend most of their lives on or under the ground. However, they are good swimmers. Predators of the Indian crested porcupine includes large cats, caracals, wolves, striped hyenas, Asian wild dogs, Saltwater crocodiles and humans. When excited or scared, a porcupine stands its quills up to appear larger. It can also rattle the hollow quills at the base of its tail, stomp its feet, growl, grunt, or charge backward into the threat.

5.5. Distribution & Habitat

Indian crested porcupines are found throughout southwest and central Asia, including Afghanistan, Armenia, Azerbaijan, China, Georgia, India, Iran, Iraq, Israel, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Nepal, Pakistan, Saudi Arabia, Sri Lanka, Turkey, Turkmenistan, and Yemen. Due to their flexible environmental tolerances, Indian crested porcupines occupy a broad range of habitats. They prefer rocky hillsides, but are also common in tropical and temperate shrublands, grasslands, forests, plantations, and gardens. Their range seems to be limited by seasonal densities of forage and the availability of suitable substrates for digging burrows. More specifically, the northern range of the Indian crested porcupine is limited by minimum summer night duration: they do not occur above latitudes where minimum night duration is less than 7 hours, presumably because of the amount of foraging time required to meet their dietary needs.

Distribution in study area: In the study area the Indian crested porcupines is not common and not seen during the site visit. However as per the Divisional Forestrecords the species is reported in concerned forest division. The species is reported in hilly terrain near boulders and rocky area near forest zone.

5.6. Diet

Indian crested porcupines have a very broad and mostly herbivorous diet. They consume a variety of natural and agricultural plant material, including roots, bulbs, fruits, grains, drupe and tubers, along with insects and small vertebrates. Because they are cecal digesters, they are able to exploit low quality forage. They have also been known to chew on bones to acquire minerals, such as calcium, that aid in quill growth. Their capability to form substantial fat reserves is a useful adaptation for living in seasonally fluctuating habitats.

These porcupines can act as substantial habitat modifiers when excavating for tubers. They are also considered serious agricultural pests in many parts of their range due to their taste for agricultural crops. For these reasons, they are often regarded as a nuisance.

5.7. Threats

The porcupine is eaten by large cats, wolves, hyenas. But, of course, its biggest threat is humans, specially farmers and tribals, who hunt them relentlessly. The animal is easy to catch. It's a clumsy creature whose top speed is 3 kmph. You can walk right up to it and poke it with a stick – which is what the tribals do. There exists a large trade of these porcupines for consumption and so-called indigenous medicinal use. A market exists for quills and claws sellers even offer them on the notorious ebay. These are used for jewellery, fly fishing ties, decorations and religious symbols. The exotic pet trade laps them up. Vicious spring traps are placed in their habitats. Another way of catching them is to put a noose trap outside the burrow. When the animal comes out the noose tightens round it and it is lifted in the air and then speared. Tiwa hunters, in the hills of Karbi Anglong district of

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Assam, catch them when they come out of the forests and into thejhum clearings. Porcupine hunting season lasts for nearly two-three months and the entire tribe feasts on hundreds of them every year. Habitat loss, due to construction of dams, livestock grazing, adds to the toll.

They are shot by sport hunters (though it would have to be a truly sick mind to hit an almost immobile animal) poisoned and often killed while crossing the road. Porcupines have a sharp sense of smell and hearing. They are intelligent animals and have an uncanny ability to avoid traps. Till 2008 they were not endangered. In as little as 8 years their population has taken a nosedive. Conservationists have estimated that porcupines are reducing by 10% every year now. Which means, a genocide is taking place and within ten years they may be none left. When they go they will leave the environment much poorer, because they are extremely important ecologically in spreading seeds and pollen. The forest department needs to start educating the tribals.

5.8. Action plan for conservation of Indian Porcupine

Following conservation measures has been suggested for Indian Porcupine:

- Identification of porcupine habitat and distribution across the 10 km radius from project site as per consultation with local forest department.
- Providing proper habitats along with the food availability to the species.
- Public awareness for conservation of the species
- Quantification of trade, with details on source and people involved.

5.9. Conservation Measures

Indian crested porcupines have a very broad and mostly herbivorous diet. They consume a variety of natural and agricultural plant material, including roots, bulbs, fruits, grains, drupe and tubers, along with insects and small vertebrates. Encourage Afforestation activities around the reserve forest area by planting wild edible fruits like Ber (*Ziziphus mauritiana*), neem (*Azadirachta indica*), mango (*Mangifera indica*), jambu (*Syzygiumcumini*) and banyan (*Ficus benghalensis*) etc.Natural caves shall be protected in forest area.

Seminars, Focus Group Discussion (FGD), Organizing plays, poster presentation will be organized at school and Gram Panchayat level to spread awareness to the local people. Group discussions shall be conducted indicating how to protect this species from killings, predators, poachers for its body parts are used in traditional medicine and meat etc.

5.10. Budget for Conservation

The species is being reported from the rocky, hilly terrain in ReservedForest area. Forest areas have natural caves, stony habitats that suit the species species. The species was not directly seen in the study area during the study period. But as per the secondary data available it is reported in 10 km study area. Being a schedule-I species, the Indian porcupine needs conservation today.

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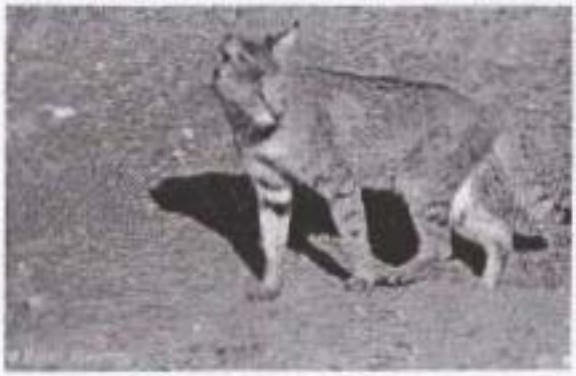
Therefore, conservation of the Indian porcupine is required. M/s Meja Urja Nigam Private Limited (MUNPL) has proposed a common fund for conservation of schedule-I species present the study area. Detailed description of conservation budget is given at end of this report. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator / Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

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CHAPTER 6. CONSERVATION PLAN FOR INDIAN CRESTED Jungle Cat (*Felis chaus*)

6.1. Reason of Conservation

The Jungle Cat (*Felis chaus*) is larger and lankier than domestic cats, the jungle cat has an unspotted coat that varies from reddish or sandy brown to tawny gray. Fine black tips on the guard hairs give this cat a speckled appearance. The face of the jungle cat is long and slim with a bright white muzzle. Long, rounded ears are set close together high on the head, with a small but distinct tuft of black hair inside each. The cat has a short tail. Like in most species of cats, adult males are larger and heavier than adult females. Due to its adaptability to a wide range of habitats and food types, the Jungle Cat (Felis chaus) is listed by the IUCN Red List as Least Concern as of 2008. Populations are stable and not severely fragmented, and while population status varies across its range, in many places it is common enough to be considered a pest. However, because of urbanization, infrastructure development, and pesticide use, suitable jungle cat habitats are currently declining. As per the WPA 1972 amended 2022 the species is listed as schedule-I species, and it requires a high level of conservation.



6.2. Classification of Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Felidae
Genus	Felis
Species	Chaus

6.3. Behavior & Ecology

The jungle cat is an excellent swimmer and is not averse to getting wet. Not as strictly nocturnal in its habits as many cats, it often can be seen hunting during daylight hours. It hunts chiefly on the ground, capturing its prey with stealth using felid stalk and ambush techniques. The jungle cat also uses vertical arching leaps to capture birds and small rodents.

The jungle cat is solitary and active during day and night. It is a good climber. It rests in borrows of badgers, porcupines or foxes, under bushes, in caves, in the thicket or in reeds where it also makes its dens. The jungle cat stalks its prey on the ground and attacks from behind, but can also jump high into the air to catch birds. It communicates via scent markings yet little is known about its social organization. In captivity, males are very protective of the cubs, even more so than females, and sexual dimorphism may be linked to this behavior. Family groups of a male with a female and cubs have been seen in the wild. The jungle cat is a good swimmer and even dives to catch fish or to escape danger such as a dog. Jungle cats are sometimes killed by larger predators such as leopards and big snakes.

Its reproductive biology is not well understood. The reproductive season is reported to be in October in south-western India, and in January to February in Central Asia. In Armenia, births were reported in early May. Estrus lasts for five days and gestation for 63–68 days. Interbirth Interval is 93–131 days. Sexual maturity is reached at 11–18 months. Both males and females produce bark like calls when females are in estrus

6.4. Distribution & Habitat

The jungle cat has a fairly wide geographic distribution throughout the Middle East and Asia. A more appropriate name for this cat is "swamp cat" or "reed cat," since the species is usually not found in the dense jungle. Instead, it is more common in densely vegetated river valleys in grass, thick brush, riverine swamps, and reed beds. Throughout its range, the cat lives in a variety of habitats and conditions, suggesting that it is a very adaptable species. The species is usually found at elevations lower than 1,000 meters (3,200 feet).

The jungle cat is closely associated with scrub, grassland, wetlands and dense vegetation. It inhabits a remarkable spread of habitats. It prefers moist habitats with dense vegetation cover as well as tall grass or reeds to hide in, especially reed swamps, wet marshes and littoral and riparian environments.

Distribution in study area: In the study area the jungle cat is common and commonly seen near shrubby jungle, along roads in urbans areas. The species is reported Jungle areas near water bodies, near hilly terrain. near boulders and rock caves in forest areas.

6.5. Diet

Primarily a carnivore, the jungle cat prefers small mammals such as gerbils, hares and rodents. It also hunts birds, fishes, frogs, insects and small snakes. Its prey typically weighs less than 1 kg, but occasionally includes mammals as large as young gazelles. The jungle cat is unusual in that it is partially omnivorous: it eats fruits, especially in winter. In a study carried out in Sariska Tiger Reserve, rodents were found to comprise as much as 95% of its diet.

The jungle cat hunts by stalking its prey, followed by a sprint or a leap; the sharp ears help in pinpointing the location of prey. It uses different techniques to secure prey. The cat has been observed searching for musk rats in their holes. Like the caracal, the jungle cat can perform one or two high leaps into the air to grab birds. It is an efficient climber as well. The jungle cat has been clocked at 32 km/h (20 mph). It is an efficient swimmer and can swim up to 1.5 km in water and plunge into water to catch fish.

6.6. Threats

Major threats to the jungle cat include habitat loss such as the destruction of wetlands, dam construction, environmentalpollution, industrialisation and urbanisat ion. Illegal hunting is a threat in Turkey and Iran. Its rarity in Southeast Asia is possibly due to high levels of hunting. Since the 1960s, populations of the Caucasian jungle cat living along the Caspian Sea and in the Caucasus range states have been rapidly declining. Only small populations persist today. There has been no record in the Astrakhan Nature Reserve in the Volga Delta since the 1980s. It is rare in the Middle East. In Jordan, it is highly affected by the expansion of agricultural areas around the river beds of Yarmouk and Jordan rivers, where farmers hunted and poisoned jungle cats in retaliation for attacking poultry. It is also considered rare and threatened in Afghanistan. India exported jungle cat skins in large numbers, until this trade was banned in 1979; some illegal trade continues in the country, in Egypt and Afghanistan.

In the 1970s, Southeast Asian jungle cats still used to be the most common wild cats near villages in certain parts of northern Thailand and occurred in many protected areas of the country. However, since the early 1990s, jungle cats are rarely encountered and have suffered drastic declines due to hunting and habitat destruction. Today, their official status in the country is critically endangered. In Cambodia, Laos and Vietnam, jungle cats have been subject to extensive hunting. Skins are occasionally recorded in border markets, and live individuals, possibly taken from Myanmar or Cambodia, occasionally turn up in the Khao Khieo and Chiang Mai zoos of Thailand.

6.7. Action plan for conservation of Jungle Cat

Following conservation measures has been suggested for Jungle Cat:

- Identification of Jungle cat habitat and distribution in 10 km radius from project site as per consultation with local forest department.
- Providing proper habitats along with the food availability to the species.
- Public awareness for conservation of the species

6.8. Conservation Measures

- Develop habitats for jungle cat.
- Seminars, Focus Group Discussion (FGD), Organizing plays, poster presentation will be organized at school and Gram Panchayat level to spread awareness to the

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local people. Group discussions shall be conducted indicating how to protect this species from killings.

6.9. Budget for Conservation

As per the Divisional Forest Office the species is being reported from the forest areas in hilly terrain. Due to urbanization/industrialization there are very less forest/vegetation left in the study area. Therefore, conservation of the jungle cat is required M/s Meja Urja Nigam Private Limited (MUNPL)has proposed a common fund for conservation of schedule-I species present the study area detail description of the budget is given at end of this report. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator / Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

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CHAPTER 7. CONSERVATION PLAN FOR HYAENA (*Hyaena hyaena*)

7.1. Reason of Conservation

As per the IUCN Red List, the HYAENA(*Hyaena hyaena*)is listed as near Threatened speciesand as per the Wildlife Protection Act 1972 amended in Dec 2022 is schedule-I species and require a high level protection/conservation.

7.2. Description



The striped hyena is a middle-sized predator with pointed ears, pale brown and males are slightly larger than the female (Pocock, 1941). Primarily, striped -hyena is a nocturnal scavenger feeding on ungulate carcasses, bones, ligaments, and cartilages but can switch between scavenging and predating as per need so they are termed as 'opportunistic predator' (Heptner &Sludskii 1992; Yirga et al., 2014). They have a life span of 10-12 years in the wild with no apparent seasonal pattern of reproduction, their gestation period is 90-91 days usually springing 1-6 cubs born per litter (Wagner, 2006). Striped hyena's pack is led by a matriarch, although she participates very little in the actual hunting and females are found to have maintained smaller territory which can be easily defendable while males occupy larger territory (Jarman, 1974; Sandell, 1989).

It is the smallest of the bone-cracking hyenas and retains many primitive viverrid-like characteristics lost in larger species,having a smaller and less specialised skull. Though primarily a scavenger, large specimens have been known to kill their own prey, and attacks on humans have occurred in rare instances. The striped hyena is a monogamous animal, with both males and females assisting one another in raising their cubs. A nocturnal animal, the striped hyena typically only emerges in complete darkness, and is quick to return to its lair before sunrise. Although it has a habit of feigning death when attacked, it has been known to stand its ground against larger predators in disputes over food.

7.3. Classification fo Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Class	Mammalia
Order	Carnivora
Family	Hyaenidae

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Genus	*Hyaena*
Species	*Hyaena*

7.4. Behavior & Ecology

The striped hyena is a primarily nocturnal animal, which typically only leaves its den at the onset of total darkness, returning before sunrise. Striped hyenas typically live alone or in pairs. They are generally not territorial animals, with home ranges of different groups often overlapping each other. When marking their territory, striped hyenas use the paste of their anal pouch (hyena butter) to scent mark grass, stalks, stones, tree trunks, and other objects. In aggressive encounters, the black patch near the thoracic and lumbar vertebrae is erected. When fighting, striped hyenas will bite at the throat and legs, but avoid the mane, which serves as a signalling device. When greeting each other, they lick the mid-back region, sniff each other's noses, extrude their anal pouch, or paw each other's throats.

7.5. Range & Habitat

The striped hyena's historical range encompassed Africa north of and including the Sahel zone, eastern Africa south into Tanzania, the Arabian Peninsula and the Middle East up to the Mediterranean Sea, Turkey, Iraq, the Caucasus (Azerbaijan, Armenia, Georgia), Iran, Turkmenistan, Uzbekistan, Tajik istan, Afghanistan (excluding the higher areas of Hindukush), and the Indian Subcontinent. Today the species' distribution is patchy in most ranges, thus indicating that it occurs in many isolated populations, particularly in most of west Africa, most of the Sahara, parts of the Middle East, the Caucasus, and central Asia. It does however have a continuous distribution over large areas of Ethiopia, Kenya, and Tanzania. Its modern distribution in Pakistan, Iran, and Afghanistan is unknown with some sizable large number in India in open areas of Deccan Plateau.

7.6. Diet

The striped hyena is primarily a scavenger which feeds mainly on ungulate carcasses in different stages of decomposition, fresh bones, cartilages, ligaments, and bone marrow. It crushes long bones into fine particles and swallows them, though sometimes entire bones are eaten whole. The striped hyena is not a fussy eater, though it has an aversion to vulture flesh. It will occasionally attack and kill any animal it can overcome. It hunts prey by running it down, grabbing its flanks or groin and inflicting mortal wounds by tearing out the viscera. The species is recorded to feed on wild boar, kulan, porcupines, and tortoises.

7.7. Threats

The decreasing natural resources, Industrialization, urbanization and loss of forests lead to conflicts and threats to the wild population.

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7.8. Action plan for conservation of hyaena

Following conservation measures has been suggested for hyaena.

- Plantation in degraded forest areas
- Construction of waterholes for the species
- Public awareness for conservation of the species.

7.9. Budget for Conservation

As per the forest working plan Hyaena was reported in study area. but as per the local people this species was not seen by the villagers in recent past. Though, conservation of the species is required. M/s Meja Urja Nigam Private Limitedhas proposed a common fund for conservation of schedule-I species. Present the study area details are given at end of this report. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator / Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

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CHAPTER 8. CONSERVATION PLAN FOR RAT SNAKE (*Ptyasmuscous*)

8.1. Reason of Conservation

Rat snakes are very common in the in India. Due to its adaptability to a wide range of habitats and food types, the the species is listed by the IUCN Red List as Least Concern as of 2008. Populations are stable and not severely fragmented, and while population status varies across its range, in many places it is common enough to be considered a pest. However, as a result of urbanization, infrastructure development, the habitat of rat snake is currently declining. As per the WPA 1972 amended 2022 the species is now listed as schedule-I species, which requires high level of the conservation.

8.2. Description



Adult rat snakes are typically 3-5 ft (91-152 cm), but large individuals may be more than 6 ft (183 cm) long. The appearance of rat snakes varies greatly throughout the geographic range. Black rat snakes are more northern in distribution and are characteristically black on top with a faint hint of white between some of the scales. Yellow rat snakes are greenish, yellow, or orange with four dark stripes running the length of the body. Gray rat snakes are dark to light gray with darker gray or brown blotches. The juveniles of all subspecies resemble the gray rat. The belly is whitish in color near the head and becomes checkered or mottled toward the tail. The body cross section is loaf-shaped and not round. Rat snakes have weakly keeled scales and the anal plate is divided.

8.3. Biology

The Indian or oriental rat snake (*Ptyas mucosa*) is arguably the second longest colubrid snake (snakes without any vestigial limbs or enlarged teeth on the pre-maxillary bone) in the world. The longest recorded rat snake is 3.7 m, which is a little over 12 feet! However, it is rare to see an individual over 2.5 metres. Its size, speed, and lack of stealth have made it one of the most frequently seen snakes around human habitation.

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8.4. Classification fo Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Phylum	Chordata
Class	Reptilia
Order	Squamata
Family	Colubridae
Genus	Ptyas
Species	muscous

8.5. Behavior & Ecology

Rat snakes, though harmless to humans, are fast-moving, excitable snakes. In captivity, they are territorial and may defend their turf aggressively, attempting to startle or strike at passing objects. Rat snakes are diurnal and semi-arboreal. They inhabit forest floors, wetlands, rice paddies, farmland, and suburban areas where they prey upon small reptiles, amphibians, birds, and mammals. Adults, unusually for a colubrid, prefer to subdue their prey by sitting on it rather than by constricting, using body weight to weaken prey.

Rat snakes mate in late spring and early summer, though in tropical areas reproduction may take place year round. Males establish boundaries of territory using a ritualised test of strength in which they intertwine their bodies. The behaviour is sometime misread by observers as a "mating dance" between opposite-sex individuals. Females produce 6–15 eggs per clutch several weeks after mating.

Adult members of this species emit a growling sound and inflate their necks when threatened. This adaptation may represent mimicry of the king cobra or Indian cobra which overlaps this species in range. The resemblance often backfires in human settlements, though, as the harmless animal may be mistaken for a venomous snake and killed.

8.6. Range & Habitat

Rat snakes are found throughout every southeastern state and most of the eastern and midwestern states as far north as southern New England and southern Michigan. In our region, black rat snakes are found in the mountains and Piedmont regions of central Georgia and South Carolina. Yellow rat snakes are found along the coast and gray rat snakes are found in southern Georgia and along the Savannah River in Southern South Carolina . Rat snakes occupy a wide variety of habitats including rocky timbered hills, hardwood forests, river floodplains and swamp margins. They are commonly found in abandoned buildings and barns and are often the most common large snake in suburban areas.

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Distribution in study area: In the study area the rat snake is common and commonly seen near villages, agriculture fields, shrubby area and woodlands.

8.7. Habits:

Adult rat snakes primarily eat mice, rats, squirrels, and birds, as well as bird eggs. They are a common predator on wood duck eggs. Juveniles eat small frogs, lizards, and small rodents. Rat snakes are constrictors, and adept climbers that can scale brick walls as well as tree trunks. When frightened they often assume a "kinked" posture and remain motionless. They will vibrate the tail and expel malodorous musk.

8.8. Diet

The Indian rat snake is an active predator and will eat almost anything including other snakes. Most of rat snakes are found in agriculture fields, woodlands and around farm buildings. They hunt rats and mice and kill them by constriction. They also eat eggs, and some species raid poultry yards and are sometimes called chicken snakes. Some hunt birds in trees and have the ventral scales keeled (ridged), for climbing. These rather large, nonvenomous, egg-laying snakes are normally slow and docile, but in self-defense they vibrate the tail, discharge a foul liquid from the anal gland, and strike from an upreared position..

8.9. Threats

In India the snakes often get killed by no reason. Snakes are the most feared grouped of reptiles. This is just because of unawareness regarding the species. the snakes are best rodents destryoers. Thus, it is sufficient to protect them. Make people aware of rat snakes as they are the best suitable helpers to the farmers.

8.10. Action plan for conservation of Rat Snake

Following conservation measures has been suggested for Rat snake :

- Public awareness for conservation of the species as they are the best suitable helpers to the farmers.

8.11. Conservation Measures

- Seminars, Focus Group Discussion (FGD), Organizing plays, poster presentation will be organized at villages, or to farmers and Gram Panchayat level to spread awareness to the local people.

8.12. Budget for Conservation

As per the Concerned Divisional Forest Office the species is being reported from the study area. Therefore, conservation of the species is required. M/s Meja Urja Nigam Private Limitedhas proposed a common fund for conservation of schedule-I species. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator /

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Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

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CHAPTER 9. CONSERVATION PLAN FOR RUSSELL'S VIPER (*ViperaRussellis*)

9.1. Introduction

Russell's viper *(Viperarusselii)* is a venomous snake found in Asia. The species is named for Patrick Russell, a Scottish herpetologist who first described many of India's snakes. Since it carries lenticular or more precisely lunar marks all over its body. Apart from being a member of the big four snakes in India, Russell's viper is also responsible for causing the most snakebite incidents and deaths among all venomous snakes.

9.2. Reason of Conservation

Russel Viper is very common in the in India. Due to its adaptability to a wide range of habitats and food types, the the species has been listed as "Least Concern" species by the IUCN Red List of Threatened Species, 2016. Populations are stable and not severely fragmented, and while population status varies across its range, in many places it is common enough to be considered a pest. However, because of urbanization and infrastructure development, the habitat of rat snake is currently declining. As per the Wildlife Protection Act, 1972 amended 2022 the species is now listed as schedule-I species, which requires high level of conservation.

9.3. Description

The head is flattened, triangular, and distinct from the neck. The snout is blunt, rounded, and raised. The nostrils are large, each in the middle of a large, single nasal scale. The lower edge of the nasal scale touches the nasorostral scale. The supranasal scale has a strong crescent shape and separates the nasal from the nasorostral scale anteriorly. The rostal scale is as broad as it is high. The crown of the head is covered with irregular, strongly fragmented scales. The supraocular scales are narrow, single, and separated by six to nine scales across the head. The eyes are large, flecked with yellow or gold, and surrounded by 10–15 circumorbital scales. The snake has 10–12 supralabials, the fourth and fifth of which are significantly larger. The eye is separated from the supralabials by three or four rows of subocular. Of the two pairs of chin shields, the front pair is notably enlarged. The two maxillary bones support at least two and at the most five or six pairs of fangs at a time: the first are active and the rest replacements. The fangs attain a length of 16.5 mm (0.65 in) in the average specimen. The body is stout, the cross-section of which is rounded to circular. The dorsal scale is strongly keeled; only the lowest row is smooth. Mid-body, the dorsal scales number 27– 33. The ventral scales number 153–180. The anal plate is not divided. The tail is short— about 14% of the total length—with the paired subcaudals numbering 41–68. Dorsally the color pattern consists of a deep yellow, tan, or brown ground color, with three series of dark brown spots that run the length of the body. Each of these spots has a black ring around it, the outer border of which is intensified with a rim of white or yellow. The dorsal spots, which usually number 23–30, may grow together, while the side spots may break apart. The head has a pair of distinct dark patches, one on each temple, together with a pinkish, salmon, or brownish V or X

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marking that forms an apex towards the snout. Behind the eye is a dark streak, outlined in white, pink, or buff. The venter is white, whitish, yellowish, or pinkish, often with an irregular scattering of dark spots. Russell's viper grows to a maximum body and tail length of 166 cm (65 in) and averages about 120 cm (47 in) in mainland Asia. In islands, it is slightly shorter on average. It is slenderer than most vipers.

9.4. Classification of Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Phylum	Chordata
Class	Reptilia
Order	Squamata
Family	Viperidae
Genus	Viper
Species	Russelli

9.5. Behavior & Ecology

These snakes are deep yellow, tan, or brown in color, with three series of dark brown spots that run the length of the body. Each of these spots has a black ring around it, the outer border of which is intensified with a rim of white or yellow. The head has a pair of distinct dark patches, one on each temple, together with a pinkish, salmon, or brownish V or X marking that forms an apex towards the snout. Behind the eye is a dark streak, outlined in white, pink, or buff. The venter is white, whitish, yellowish, or pinkish, often with an irregular scattering of dark spots.

9.6. Range & Habitat

Russell's vipers are found in India, Sri Lanka, Bangladesh, Nepal, Myanmar, Thailand, Pakistan, Cambodia, Tibet, China (Guangxi, Guangdong), Taiwan, and Indonesia (Endeh, Flores, east Java, Komodo, and Lomblen Islands). These snakes are not restricted to any particular habitat but do tend to avoid dense forests. They are mostly found in open, grassy, or bushy areas, but may also be found in second-growth forests (scrub jungles), on forested plantations, and on farmland. Russell's vipers are most common in plains, coastal lowlands, and hills of suitable habitat. Humid environments, such as marshes, swamps, and rainforests, are avoided. They are also often found in highly urbanized areas and settlements in the countryside because of the abundance of rodents. areas.

Distribution in study area: In the study area the rat snake is common and commonly seen near agriculture fields, shrubby areas, near settlements and woodlands.

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9.7. Habits

Russell's vipers are solitary terrestrial creatures. They are primarily nocturnal foragers. However, during cool weather, they become more active during the day. These snakes like to bask in the sun during the day. The rest of the time is spent hiding in the caves, in cracks in the soil, or under the leaf litter. Adults move slowly and sluggishly unless they are threatened; after that, they can become very aggressive. Juveniles are generally more nervous in nature. When threatened, Russell's vipers form a series of S-loops, raise the first third of the body, and produce a hiss that is supposedly louder than that of any other snake. When striking from this position, they can exert so much force that even a large individual can lift most of their body off the ground in the process. These snakes are strong and may react violently to being picked up. The bite may be a snap, or they may hang on for many seconds.

9.8. Diet

Russell's vipers are carnivores. They feed primarily on rodents but will also eat small reptiles, land crabs, scorpions, and other arthropods. Juveniles hunt lizards. As they grow and become adults, they begin to specialize in rodents.

9.9. Threats

The main threats to Russell's vipers include illegal collection and trade for food and skins. They are also often killed because of fear.

9.10. Conservation Measures

Seminars, Focus Group Discussion (FGD), Organizing plays, poster presentation will be organized at villages, or to farmers and Gram Panchayat level to spread awareness to the local people.

9.11. Budget for Conservation

As per the Concerned Divisional Forest Office the species is being reported from the study area. Therefore, conservation of the species is required. M/s Meja Urja Nigam Private Limitedhas proposed a common fund for conservation of schedule-I species. Present the study area details are given at end of this report. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator / Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

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CHAPTER 10. CONSERVATION PLAN FOR PEAFOWL (Pavo cristatus)

10.1. Taxonomy of *Pavo cristatus*

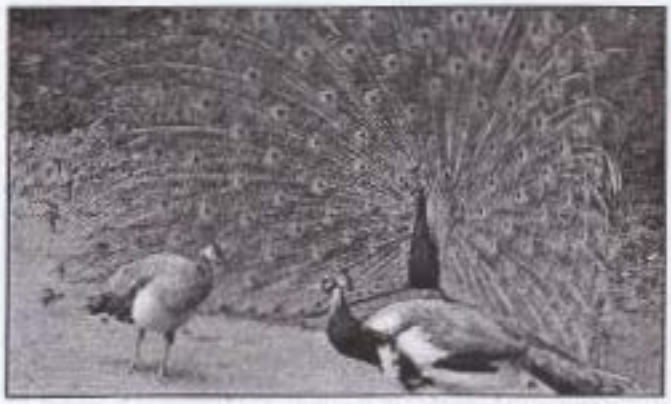
The Indian Peafowl (*Pavo cristatus*) has been an integral part of Indian culture, religion andmythologyforcenturiesinIndia.InadditiontothistheIndianPeafowliswellrecognized forits ecologicaland aestheticalvalues,and henceaptlydeclaredasthe'NationalBird'ofIndiainthe year1963.

Since the early 1990's, there have been reports of increasing illegal trade in Peafowl feathers, large-scale mortalities due to increased use of insecticides/pesticides in agricultural lands, poaching,andretaliatorykillingsbypeopleduetoallegedcropdepredationbyPeafowl.Several Peafowlstrongholdareasinthecountryarenowconcernedaboutthecurrentdeclinningstatus.

10.2. Reason of Conservation

This bird recognized under Schedule- I (Part- III (11)) species of Indian Wildlife Protection Act, 1972. This species does not fall in any category of IUCN Red List.

10.3. Biology



Peacocks are a larger sized bird with a length from bill to tail of 100 to 115 cm (39 to 45 in) and to the end of a fully grown train as much as 195 to 225 cm (77 to 89 in) and weigh 4–6 kg (8.8–13.2 lb). The females, or peahens, are smaller at around 95 cm (37 in) in length and weigh 2.75–4 kg (6.1–8.8 lb). Indian peafowl are among the largest and heaviest. Peafowl are forest birds that nest on the ground, but roost in trees. They are terrestrial feeders. All species of peafowl are believed to be polygamous. In common with other members of the Galliformes, the males possess metatarsal spurs or "thorns" on their legs used during intraspecific territorial fights with other members of their kind.

Peafowl are omnivores and eat mostly plant parts, flower petals, seed heads, insects and other arthropods, reptiles, and amphibians. Wild peafowl look for their food scratching around in leaf litter either early in the morning or at dusk. They retreat to the shade and security of the woods for the hottest portion of the day. These birds are not picky and will eat almost anything they can fit in their beak and digest. They

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actively hunt insects like ants, crickets and termites; millipedes; and other arthropods and small mammals. Indian peafowl also eat small snakes.

Domesticated peafowl may also eat bread and cracked grain such as oats and corn, cheese, cooked rice and sometimes cat food. It has been noticed by keepers that peafowl enjoy protein rich food including larvae that infest granaries, different kinds of meat and fruit, as well as vegetables including dark leafy greens, broccoli, carrots, beans, beets, and peas

10.4. Classification fo Species

Scientific Classification of the Species is as below:

Kingdom	Animalia
Phylum	Chordata
Class	Aves
Order	Galliformes
Family	Phasianidae
Subfamily	Phasianinae
Genus	Pavo
Species	Pavo cristatus

10.5. Behavior

Peafowl are best known for the male's extravagant display feathers which, despite actually growing from their back, are thought of as a tail. The "train" is in reality made up of the enormously elongated upper tail coverts. The tail itself is brown and short as in the peahen. The colours result not from any green or blue pigments but from the micro-structure of the feathers and the resulting optical phenomena. The long train feathers (and tarsal spurs) of the male develop only after the second year of life. Fully developed trains are found in birds older than four years. In northern India, these begin to develop each February and are moulted at the end of August. The moult of the flight feathers may be spread out across the year.

Peafowl forage on the ground in small groups, known as musters, that usually have a cock and 3 to 5 hens. After the breeding season, the flocks tend to be made up only of females and young. They are found in the open early in the mornings and tend to stay in cover during the heat of the day. They are fond of dust-bathing and at dusk, groups walk in single file to a favourite waterhole to drink. When disturbed, they usually escape by running and rarely take to flight.

Peafowl produce loud calls especially in the breeding season. They may call at night when alarmed and neighbouring birds may call in a relay like series. Nearly seven different call variants have been identified in the peacocks apart from six alarm calls that are commonly produced by both sexes.

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Peafowl roost in groups during the night on tall trees but may sometimes make use of rocks, buildings or pylons. In the Gir forest, they chose tall trees in steep river banks. Birds arrive at dusk and call frequently before taking their position on the roost trees. Due to this habit of congregating at the roost, many population studies are made at these sites. The population structure is not well understood. In a study in northern India (Jodhpur), the number of males was 170–210 for 100 females but a study involving evening counts at the roost site in southern India (Injar) suggested a ratio of 47 males for 100 females.

10.6. Distribution

The Indian peafowl is a resident breeder across the Indian subcontinent and inhabits the drier lowland areas of Sri Lanka. In the Indian subcontinent, it is found mainly below an elevation of 1,800 m (1.1 mi) and in rare cases seen at about 2,000 m (1.2 mi). It is found in moist and dry-deciduous forests, but can adapt to live in cultivated regions and around human habitations and is usually found where water is available. In many parts of northern India, they are protected by religious practices and will forage around villages and towns for scraps. Some have suggested that the peacock was introduced into Europe by Alexander the Great, while others say the bird had reached Athens by 450 BCE and may have been introduced even earlier. It has since been introduced in many other parts of the world and has become feral in some areas.

Besides its native habitat, the bird has been introduced by humans to the United States, Mexico, Honduras, Colombia, Guyana, Suriname, Brazil, Uruguay, Argentina, South Africa, Portugal, Madagascar, Mauritius, Réunion, Indonesia, Papua New Guinea, Australia, Croatia (Split, island of Lokrum), and elsewhere. In isolated cases, the Indian peafowl has been known to be able to adapt to harsher climates, such as those of northern Canada. The species has been spotted by hunters as far north as Huntsville, Ontario, thriving in its newly adapted northern climate.

Distribution in study area: In the study area the peafowl is common and can be seen near agriculture fields, near shrubby vegetation, parks and gardens.

10.7. Threats

As the Peafowl movement is restricted near vegetation areas, agricultural fields and village areas. As the site is located inindustrial area and no movements of peafowl is present in plant area hence no direct threat to the Peafowl is anticipateddue to proposed project activity. The reason of the threat to Indian peafowl are:

- TheIndianPeafowlisunderthreatfromvariousquartersthatincludethedemandforfeathers and wild meat, conflict with farmers during cropping season andhabitatdegradation.
- Habitat degradation and loss- more significantly from conversion of their habitat to agriculture, habitation and industrial growth, poisoning to counter crop

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damage,
consumptionofeggsandfatextractsforallegedmedicinalvalues,andkillingforwildmeat.

- Predators:Foxes,Raccoons,Dogs,CrestedHawkEagle,EagleOwlandJackals.
- Althoughthese threats are believed to be causing an alarming decline in population, the magnitudeandpatternoftheeffectsinprojectstudyareaareyettobequantified
- The species prefers closed dense forests which are declining at a rapid rate. Habitat destruction and associated loss of vegetation and prey base has resulted in a rapid decline in population of peafowl in the wild. Besides this the species is extensively hunted for its feathers also.

10.8. Action plan for conservation of peafowl

Following conservation measures has been suggested for peafowl:

- Mapping of habitat and distribution status of the species across the 10 km radius from project site as per consultation with local forest department.
- Time series analysis of habitat change, to quantify the rate of change and identify high risk areas and potential sites for further affirmative action.
- Estimation of population size by different counting methods such as line transect, call counts and roost counts.
- Intensive ecological investigation in reprehensive sites in major biogeography zone with focus on the effects of threats in relation to breeding success and survival probability.
- Quantification of trade, with details on source and people involved.

10.9. Conservation Measures

- Encourage Afforestation activities around the Peafowl habitation area. The selection of plant species should be based on requirements of Peafowl roosting, food, shelter etc.
- Fruit and shady plants will be grown near to the Peafowl habitation like Mango, Amla, Guava, Imli, Banyan, Neem, Pipal, Jack fruit etc.
- By planting Neem, Siris, Aldu, Bad, Pipal and Shady trees in each grove.
- 5 water hole containing water should be constructed in groves area and around habitation zone of peafowl and its water quality will be maintained.
- Seminars, Focus Group Discussion (FGD), Organizing plays, poster presentation will be organized at school and Gram Panchayat level to spread awareness to the local people. Group discussions shall be conducted indicating how to protect this bird from killings, predators, poarchers for meat, eggs & feathers, etc.
- Encourage local farmer to use bio-pesticide, bio-fertilizer and vermi-composting in agriculture practices.

10.10. Budget for Conservation

As per the Divisional Forest Office the species is being reported from the study area. Therefore, conservation of the species is required. MUNPL has proposed a common fund for conservation of schedule-I species present the study area details

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are given at end of this report. The earmarked fund shall be deposited to the office of Forest Conservator / Divisional Forest Office. After approval of the office of Forest Conservator / Divisional Forest Office the above budget shall be spent on conservation of schedule-I species.

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CHAPTER 11. BUDGET FOR CONSERVATION OF SCHEDULE-I SPECIES

11.1. General

As per the Secondary and primary Data analysis of the area, there are seven mammal and reptile species i.ePeafowl, Jungle cat, Porcupine, Black buck, Hyaena, Rat snake and Russel's Viper are Schedule-I, faunal species reported from the study area. For conservation of these species in the study areaM/s Meja Urja Nigam Private Limited has proposed a common budget for conservation of these species.

11.2. Budget for Conservation of Schedule-I Species Present in the study area

M/s Meja Urja Nigam Private Limited has earmarked a onetime common fund of Rs. 95 Lac for conservation of all schedule -I species present in the study area. The earmarked fund will be utilized for conservation schedule -I species in consultation with the concerned Forest department for implementation of suggested mitigation measures. Further this budget will be implemented as suggested by Concerned department. Proposed budget is for 10 year and shall be implemented in consultation withForest department. Combined conservation budget is provided in Table 11.1 and year wise conservation budget is provided in Table 11.2.

Table 11.1: Combined wildlife Conservation Budget for Schedule-I species

S.No.	Conservation Activities	% of Total Outlay of Wildlife Conservation Plan (in Rs. Lacs)
A	Measures to be adopted	
1	• Habitat improvement & mitigation measures (Food, Water, Shelter, Movement etc.) and measures to reduce/minimize the human- animal conflicts • Contribution towards Conservation of Wildlife in PA's	150
2	Awareness and Extension (will research scholar will also be invited for various activities to ensure participation)	60
3	Support to Forest Department for monitoring, rescue & rehabilitation of wildlife (Veterinary care, animal health, rescue, tools and equipment, training and awareness, etc.)	106
4	Miscellaneous including Eco-development/ Computer Operator, other required manpower, etc.	35
	Total	351 Lac

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Table 11.1: Year wise wildlife Conservation Budget

S.No.	Improvement & Mitigation Measures (Food, Water, Shelter, Movement, etc.) and measures to reduce/ minimize the human-animal conflicts and Contribution towards Conservation of Wildlife	Awareness and Extension (WII Scholar will also be invited for various activities to ensure participation)	Support to Forest Department for monitoring, rescue & rehabilitation of Wildlife (Veterinary care, animal health, rescue, tools, equipment, etc.)	Miscellaneous including Eco-development	Total (in Rs. Lacs)
1st Year	60	20	15	10	105
2nd Year	30	10	15	6	61
3rd Year	15	10	12	4	41
4th Year	9	5	12	3	29
5th Year	9	3	12	2	26
6th Year	9	3	8	2	22
7th Year	4.5	3	8	2	17.5
8th Year	4.5	2	8	2	16.5
9th Year	4.5	2	8	2	16.5
10th Year	4.5	2	8	2	16.5
Total	150	60	106	35	351

क्षेत्रीय वन अधिकारी,
मेजा।

उप प्रभागीय वनाधिकारी,
प्रयागराज।

प्रभागीय निदेशक,
सा0वा0प्रभाग, प्रयागराज।

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ANNEXURE-5 Coal analysis test reports

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SATURN
Quality Certifications Pvt. Ltd.
A Government Approved Testing Laboratory

RESEARCH & ANALYTICAL DIVISION :
V-17, Modern Industrial Estate (M.I.E.),
Red Cross Road, Bahadurgarh, Haryana
Phone : 01276-297780, 9212190099
E-mail : lab@saturngroupindia.com
Website : www.saturngroupindia.com



TEST REPORT

SQC/QF/7.8/01

Report No	SQC/NR 24051403	Issue Date	18.06.2024
ULR No	TC711324000001249P	Sample Received On	14.05.2024
Issued To	M/s. EQMS Global Pvt. Ltd. 305, 3rd Floor, Plot No. 16, Rishabh Towers, Community Centre, Karkardooma, Delhi- 110092.	Analysis Starting Date	14.05.2024
		Analysis Completion Date	18.06.2024
		Sampling Location	BCCI Mine
		Sampling Date	Not Mentioned

I. RADIOLOGICAL TESTING

1. Coal

PART A: PARTICULARS OF THE SAMPLE SUBMITTED

a.	Nature of Sample	Coal	g.	Quantity	1 X 2 Kg. (Apx.) Polypouch
b.	Grade/Variety/Type/Class/ Size etc.	Poly Pouch	h.	Mode of Packing	Not Mentioned
c.	Brand Name	Not Mentioned	i.	Date of Receipt	14.05.2024
d.	Declared Values, if any	Not Mentioned	j.	BIS Seal	Not Applicable
e.	Code No.	ECOBAL-102346	k.	IO's Signature	Not Mentioned
f.	Batch No. & Date of Manufacturing	Not Mentioned	l.	Any other Information/ Expiry Date, if any	Not Mentioned

PART B: SUPPLEMENTARY INFORMATION

a.	Reference to Sampling Procedure	Sample drawn by Customer
b.	Supporting Documents for the measurement taken and results derived like graphs, tables, sketches and or photographs as appropriate to the test report, if any	NA
c.	Deviation from the test methods as per prescribed in relevant ISS/work instructions, if any	No deviation
d.	The location of performance of Laboratory activity	Testing is performed at Saturn Lab, Bahadurgarh, Haryana

PART C: TEST RESULTS

Parameters	Ra- 226 Bq/Kg	Ra-228 Bq/Kg	Uranium Bq/Kg	Th- 232 Bq/Kg	Pb-210 Bq/Kg	K- 40 Bq/Kg	Cs- 137 Bq/Kg
Results	≤ 0.21 (MDL)	≤ 7.21 (MDL)	≤ 0.24 (MDL)	34.75	≤ 1.60 (MDL)	≤ 3.61 (MDL)	≤ 10.95 (MDL)

Part D: Remarks

- Customer asked for above Parameters only.
- The measurements values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table 3) dated 26.11.2010.

SATURN QUALITY CERTIFICATIONS PVT. LTD.

***** End of Test Report *****

Dr. Smriti Babbar
Quality Manager
(Authorized Signatory –Radiology)

NOTE
1. Sample(s) not drawn by us, unless otherwise mentioned.
2. Uncertainty of measurement is limited to the reported amount.
3. Sample will be destroyed after 30 days of testing unless otherwise specified.
4. The results listed refer only to the tested sample and applicable parameters tested. Sample(s) received and tested as supplied.
5. This report is not to be reproduced wholly or in part and cannot be used as evidence in a court of law or be used in any advertising media without special permission in writing.

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS 532

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

TEST REPORT

Test Report Number	RAK2119104	**Page Number**	Page 1 of 1
Job Order Number	JPT/AK21/19101	**Customer Ref. Number**	EQMS-EIA
Date of Issue	25.06.2024	**Sample Received On**	03.04.2024
Discipline	Chemical Testing	**Product Category**	Coal
NAME & ADDRESS OF CUSTOMER		**SAMPLE DETAILS**	
Issued to: **M/s EQMS Global Pvt. Ltd.**, 304 & 305, 3rd floor, Plot No. 16, Rishabh Towers,Community Centre, Karkardooma, Delhi		Sample Description: Coal Analysis Done on : 04.03.2024 to 20.04.2024	
Project: EIA Study of Meja Thermal Power project Stage-II (3 x 800 MW) at Tehsil Meja, District Prayagraj, Uttar Pradesh.			

TRACE ELEMENTS NTPC COAL SAMPLES (Coal Samples BCCL)

RAKE NO/ SAMPLE CODE	859
R R NO./SEAL NO.	162001523
COAL COMPANY/SUPPLIER NAME	BCCL
SAMPLING LOCATION/LOADING POING	Coal Handling Plant

TEST RESULTS

R R NO./SEAL NO	**As**	**Cd**	**Co**	**Cr**	**Cu**	**Mn**	**Ni**	**Pb**	**Zn**	**Hg**	**Ba**
	Milligram of trace elements per gram of coal										
162001523	ND	ND	0.0062	0.0580	0.0135	0.1121	0.0600	ND	0.0310	ND	0.2102

AUTHORIZED SIGNATORY

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Lab and Research Services
ECOBAL

Ecobal Research & Development Centre
(A Division of Ecobal Energy System LLP)
1st floor, 4/33A, Site – 4, Sahibabad
Industrial Area, District Ghaziabad,
Uttar Pradesh – 201001
Email : ecoballab@gmail.com
Contact No.: 0120-4483651

TEST REPORT

LDO ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	**LDO**
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231030-00	Protocol Used	**Standard**
Sample Collected by	Lab Representative	Sampling plan & Procedure	**As per standard**

Test Results

S.No	Parameter	Specification	STD.Method	LDO Quality
1	Relative Density @ 15 °C, Kg / m3	Report	IS 1448(P: 32)	855
2	Flash Point (PMC), °C	66 Min.	IS 1448(P: 21)	74
3	Viscosity, Kinematic @ 40°C, cSt	2.5 to 15.7 Max.	IS 1448(P: 25)	5
4	Ramsbottom Carbon Residue (RCR), percent by mass	1.50 Max	IS 1448(P: 8)	1.3
5	Copper Strip Corrosion, 3 hrs at 100°C	Not Worse than No. 2	IS 1448(P: 15)	No.1
6	Water content % by Vol.	1.0 Max.	IS 1448(P: 40)	<0.05
7	Sediment % by Mass	0.10 Max.	IS 1448(P: 30)	0.04
8	Ash % by Mass.	0.02 Max	IS 1448(P: 4)	0.01
9	Acidity, Inorganic, mg KOH/gm,	NIL	IS 1448(P: 2)	Nil
10	Sulphur, Total % by Mass	1.8 Max	IS 1448(P: 33) & P: 35	1.2
11	Pour Point, °C	21°C for Winter, Max 21°C for Summer, Max	IS 1448(P: 10)	Minus 3

*** End of Report***

Checked By

Authorized Signatory

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer

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ANNEXURE-6: NIH Roorkee Watershed Study 2024

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PREPARATION OF ACTION PLAN FOR WATERSHED MANAGEMENT WITHIN 10 KM RADIUS AT MEJA PRAYAGRAJ, UP.

AUGUST-2024

National Institute of Hydrology
Ministry of Jal Shakti, Department of Water Resources
River Development & Ganga Rejuvenation-Govt. of India
Vigyan Bhawan, Roorkee

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Introduction:

Watershed development is a multifaceted strategy aimed at conserving and managing natural resources within a defined geographical area, known as a watershed. It encompasses a range of interventions designed to address environmental degradation, enhance livelihoods, and promote sustainable development (Sharma et al., 2019). At its core, watershed development emphasizes the integrated management of land, water, and vegetation to achieve ecological balance and socio-economic prosperity. This approach recognizes the interconnectedness of various components within a watershed and seeks to optimize their utilization while minimizing negative impacts (Meinzen-Dick et al., 2004). Key components of watershed development include soil and water conservation measures, afforestation, reforestation, rainwater harvesting, and adoption of sustainable agricultural practices (Srivastava et al., 2017). These interventions are implemented through collaborative efforts involving local communities, government agencies, non-governmental organizations, and research institutions (Thakur et al., 2020). Community participation is integral to the success of watershed development initiatives. Local communities are actively involved in planning, implementation, and monitoring activities, ensuring that interventions are culturally appropriate and sustainable (Kulkarni et al., 2018). By empowering communities and fostering ownership, watershed development projects promote social equity and enhance resilience to environmental challenges (Hegde et al., 2015). Furthermore, watershed development encourages multi-sectoral collaboration and convergence among various government departments, such as agriculture, forestry, water resources, rural development, and environment (Pandey et al., 2019). This integrated approach maximizes resource efficiency, minimizes duplication of efforts, and optimizes the impact of investments (Singh et al., 2016). In addition to its environmental and social benefits, watershed development generates economic opportunities for rural communities (Sharma et al., 2020). By improving agricultural productivity, enhancing water availability, and diversifying livelihood options, it contributes to poverty alleviation and sustainable rural development (Bargali et al., 2018).

In summary, watershed development represents a holistic approach to resource management that promotes sustainable development and resilience. By fostering integrated and participatory approaches, watershed development empowers communities, enhances their resilience, and triggers positive transformations at the local level.

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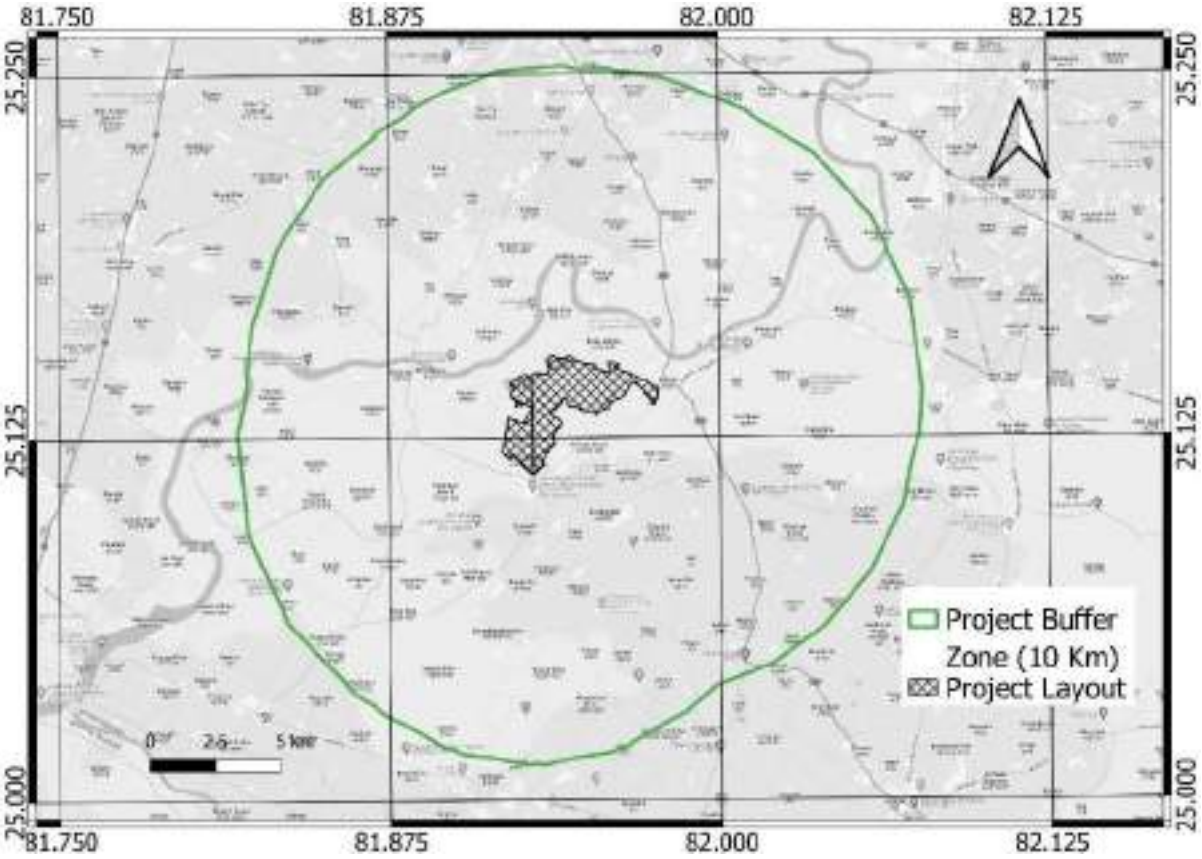


Figure 1 Location of the study area with ten kilometre buffer

Study Area

Meja Urja Nigam private Limited (MUNPL) is 50:50 JV of NTPC Ltd & UPRVUNL. MUNPL got registered as a company on 02.04.2008. MUNPL, Meja is a 1320 MW capacity (660*2) Power Plant located in Village Kohdar,Meja Tehsil, Prayagraj (UP) and the same is under commercial operation.

MUNPL, Meja has its own 28-km freight corridor that helps in bringing critical materials, such as coal, to plant by rail. The plant is also connected to river Ganga at Bijoura village, through a network of about 30 km pipeline, to transport water for industrial purposes. Figure 1 shows plant layout with its buffer boundary of 10 km in which watershed management is suggested.

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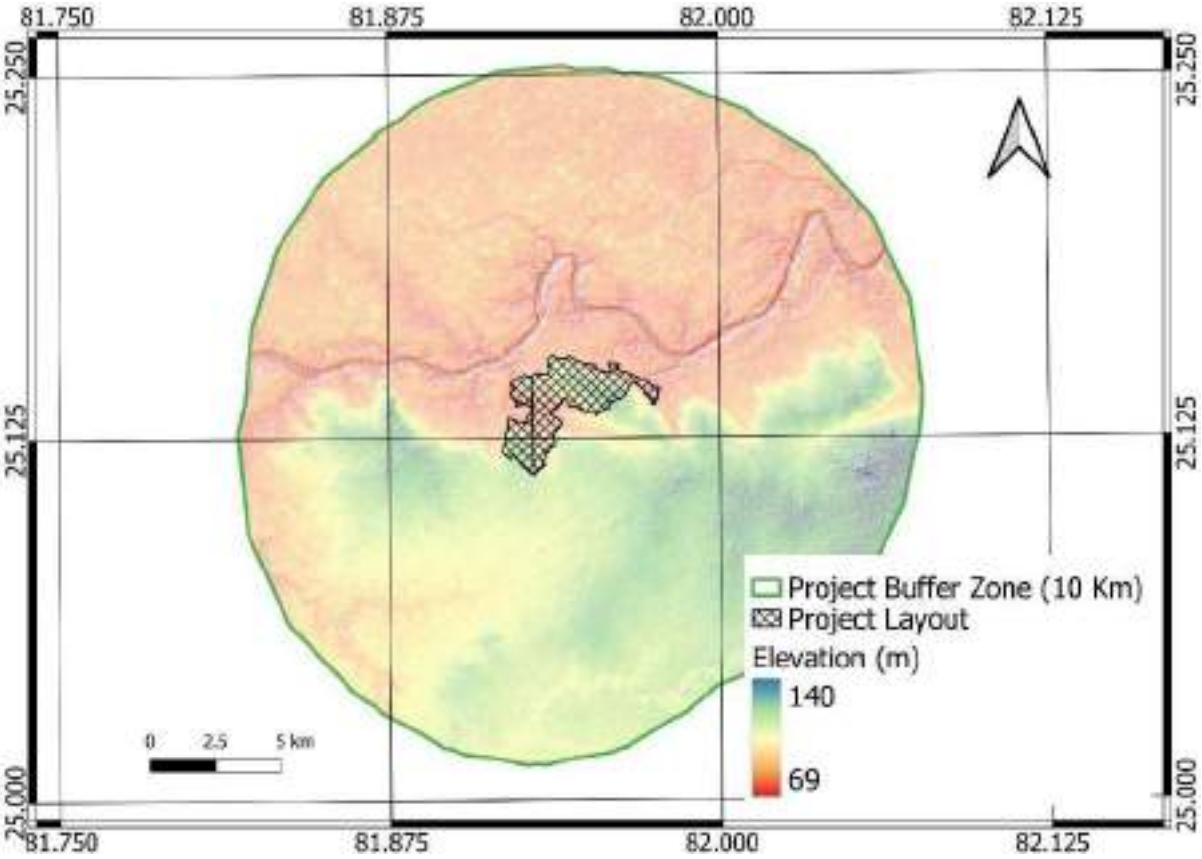


Figure 2 Digital elevation model of the study area (30 m resolutions)

Figure 2 presents the digital elevation model (DEM) of the study area. The figure indicates that the elevation ranges from 69 m to 140 m above mean sea level (AMSL), with a mean elevation of 102 m and a standard deviation of 12 m. This suggests that the study area, including the 10 km buffer, is relatively flat with minimal undulation.

The land use and land cover map has been prepared using satellite based product ESRI 10m Annual Land Cover (Karra, Kontgis, et al) for the year 2023 as shown in Figure 3, the map show that major part of the area in 10 km is occupied by crop land (76%) and Rangeland (12%).

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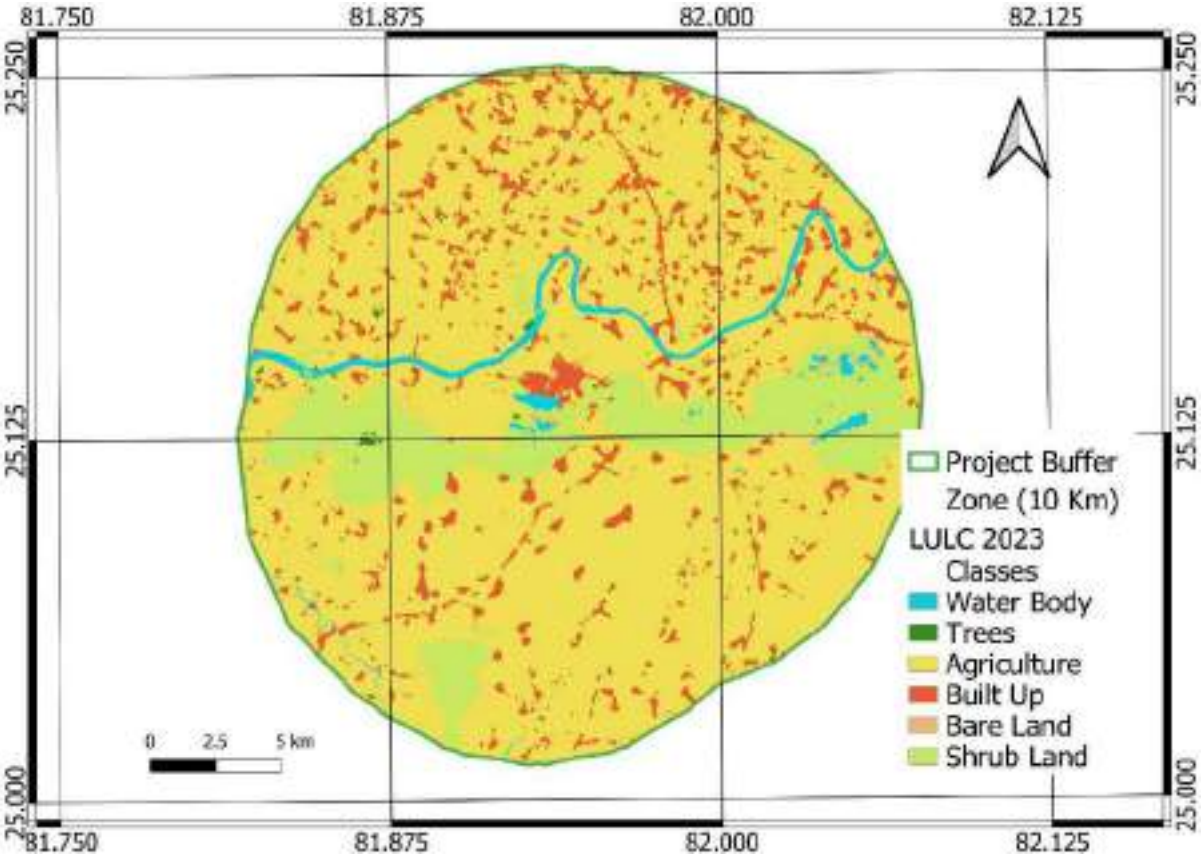


Figure 3 Land use and land cover map prepared for the year 2023 (10 m resolutions)

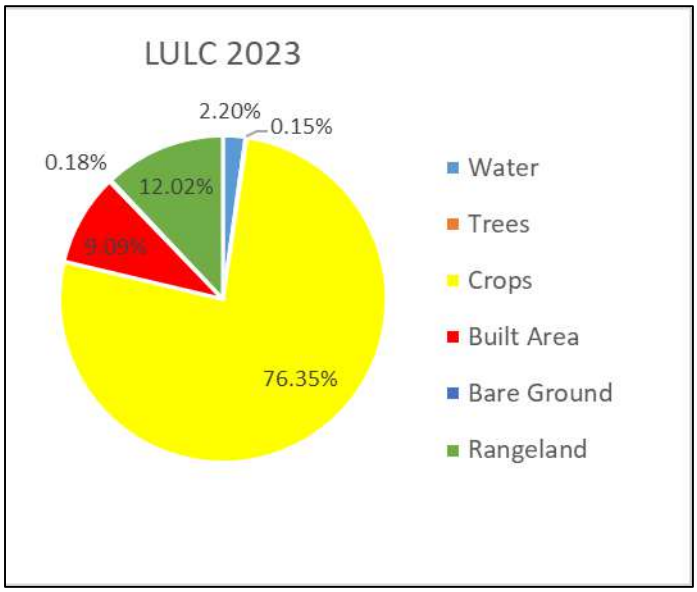


Figure 4 LULC 2023 Distribution

Surface Soil Features

A soil map for the core zone and buffer zone is prepared based on the soil data available from the National Bureau of Soil Survey and Land Use Planning (NBSS&LUP). The scanned image

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was geo-referenced in the GIS environment. The geo-referenced map was then used to digitize various types of soil polygons falling in the study area. The classified soil map is presented in Figure 5. It is seen that the predominant soil type in the area is loamy and clayey soil, Clayey soil has a higher proportion of fine particles which are closely packed. Due to close packing of fine particles, clayey soil have good water holding properties. Whereas Loamy soil has an almost equal proportion of large and fine particles so, its water holding capacity is less than that of the clayey soil.

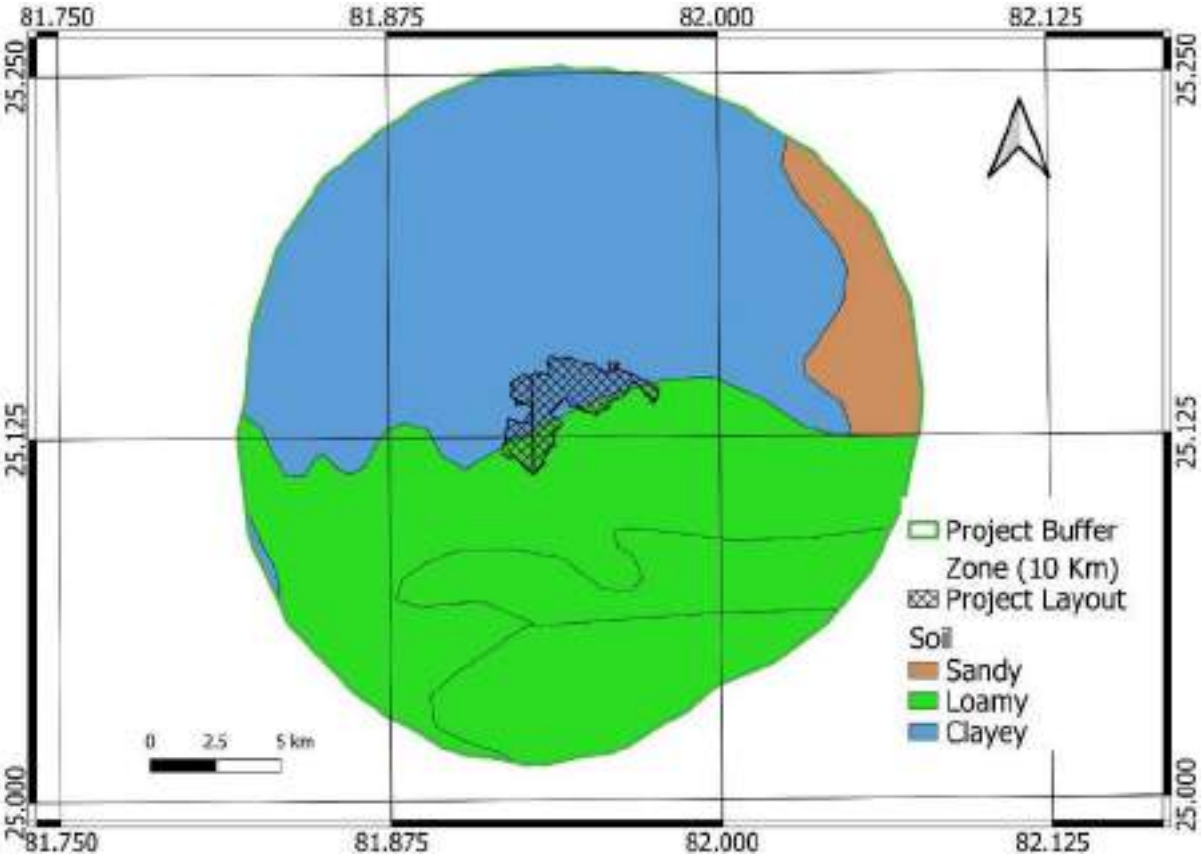


Figure 5 Soil type in the study area

Drainage Density

Stream order plays a significant role in watershed development as it provides valuable insights into the hierarchical structure and functioning of river networks within a watershed. Stream order, typically determined using the Strahler stream order classification system, assigns numerical values to streams based on their branching patterns and the convergence of tributaries. The derived stream order for the study area based on 30 m resolution DEM show

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that, maximum stream order for the study area is 4th order in the study area as shown in Figure 6.

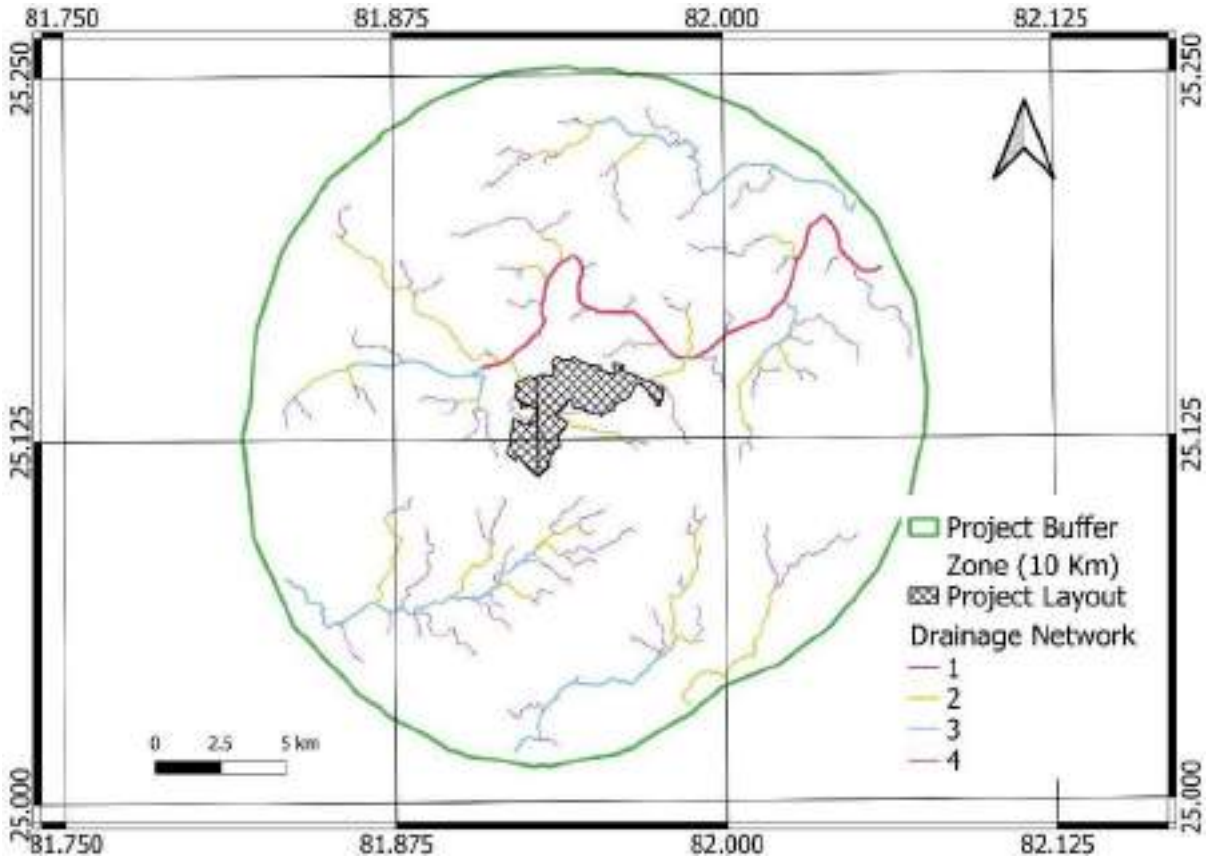


Figure 6 Drainage pattern along with stream orders showing the watershed area within

Stream order helps in organizing river networks hierarchically, with first-order streams being the smallest and highest-order streams representing the main trunk of the river system. This hierarchical structure facilitates the understanding of how water flows through the watershed, from smaller headwater streams to larger river channels. Stream order classification provides valuable information for watershed planning and management activities. It helps identify priority areas for conservation, restoration, and land use planning within the watershed. For example, protecting first-order streams and their riparian zones can help maintain water quality, prevent erosion, and preserve habitat diversity.

Geology

Geologically, the rock formations exposed in the study area belong to Dhandraul Formation of Kaimur group of Vindhyan Super group comprising medium to coarse grained, white to greyish and white sandstone in the study area. The rock exhibits sedimentary structure like ripple marks

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and cross bedding. The rocks were moderately jointed. The deposition of horizontal and vertical joints has given the blocky nature to the rock (Figure 7).

Also, the area exposes quaternary sediments represented by Banda Alluvium (Older Alluvium). The area is covered with thick overburden comprising yellowish brown variegated silty clay with ubiquitous kankar and coarse to fine sand and reddish-brown silt.Porous alluvial formation occurring in the alluvium plain area, forms the most prolific aquifer system, whereas the sedimentary semi-consolidated formations and hard rocks, form aquifer of low yield prospect in the denudational hilly region.

Two broad hydrogeological units, namely, unconsolidated (Alluvium) and consolidated (hard rock) are the major components in the district. Groundwater occurs in alluvium and in the weathered and joint sandstones in areas which are underlain by the hard rocks such as in Salaiya Khurd, Salaiya Kalan and Jhadiyahi denudational hilly region. The drill hole data revealed that the thickness of overburden varies from 0.5 to 34.25 m,bgl in the study area. However, near VES-01 village Salaiya Khurd around 1.65 m,bgl overburden was observed.



Figure 7 Blocky nature of rock due to deposition of horizontal and vertical joint sets near

In the study area wells and tube wells are the main ground water abstraction structures. Ground water is being developed in the area by medium to deep tube wells, dug wells, dug-cum bored wells. Based on 3 exploratory wells data in the area CGWB observed yield at Pipraon village was about 770 lpm (good to excellent on groundwater prospective) whereas yield of 107 lpm encountered at Saliya Khurd village belongs to very poor prospective area. Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period (September 2023).

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Watershed Planning

For planning purpose the study area is divided into 29 sub watersheds and basis on that measure to preserve water and soil like plantation, ponds and trenches will be recommended.

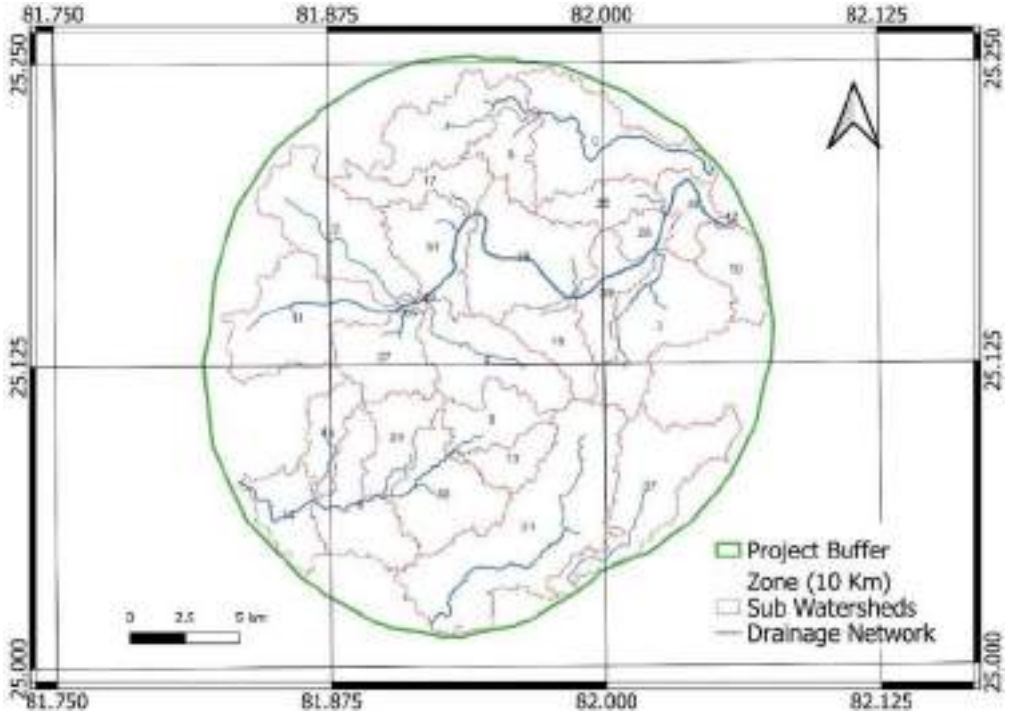


Figure 8 Sub Watershed in the study areas

Plantation

Plantation within a watershed is a fundamental strategy for sustainable watershed planning and management. Trees and vegetation play a crucial role in stabilizing soil, reducing erosion, and enhancing water infiltration into the ground. By promoting deep root systems, plantations help bind the soil, preventing it from being washed away by surface runoff, which in turn reduces sedimentation in water bodies. Additionally, the canopy provided by trees reduces the impact of raindrops on the soil, further minimizing erosion and promoting groundwater recharge. Incorporating plantation into watershed management also contributes to improving the microclimate of the area, as trees help regulate temperature, increase humidity, and enhance the overall resilience of the ecosystem against climate variability. Native species should be prioritized in plantation efforts, as they are better adapted to the local environment and support the existing biodiversity. Planting along riparian zones, on slopes, and in degraded areas can

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significantly improve water retention in the watershed, reduce the likelihood of flash floods, and maintain stream flows during dry seasons.

Moreover, thoughtfully designed and implemented plantations bring significant long-term economic and social advantages to local communities. These plantations can be a sustainable source of valuable resources such as timber, fuelwood, fruits, medicinal plants, and a variety of other non-timber forest products. By providing these resources, plantations contribute to local economies, creating income-generating opportunities for residents and reducing dependence on external sources.

In addition to resource provision, plantations can serve as sites for eco-tourism and recreational activities. The establishment of well-maintained green spaces attracts visitors, offering potential revenue streams through tourism. This can lead to the development of related businesses, such as guided tours, hospitality services, and the sale of local handicrafts, further boosting the local economy.

Engaging local communities in the planning, planting, and management of these areas is crucial for the success of such initiatives. When communities are actively involved, they develop a sense of ownership and responsibility towards the plantations, which helps ensure their protection and proper maintenance over time. This participatory approach not only enhances the sustainability of watershed management efforts but also strengthens social cohesion and community resilience.

By integrating plantations into watershed planning, a more resilient and productive landscape can be created. Such a landscape supports ecological balance by stabilizing soils, regulating water flow, and enhancing biodiversity. At the same time, it promotes human livelihoods by providing continuous economic opportunities and securing essential resources for local populations. This holistic approach ensures that watershed management is not only environmentally sound but also socially equitable and economically viable, benefiting both people and the planet for generations to come.

In the study area, a total of 9 clusters have been identified as forestry zones (Figure 9) using the Survey of India (SOI) toposheets. According to the Land Use and Land Cover (LULC) analysis and satellite imagery, much of this land is classified as degraded, making it highly

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suitable for plantation drives aimed at improving watershed management. These clusters, which collectively cover approximately 2,550 hectares out of which approximately.

Out of total identified land, 200 hectares of land may be identified as phase wise for plantation as per the updated land cover, land availability, other local conditions and consultation with district administration / other stake holders. It also presents a significant opportunity for restoration and reforestation efforts to enhance the overall health and sustainability of the watershed.

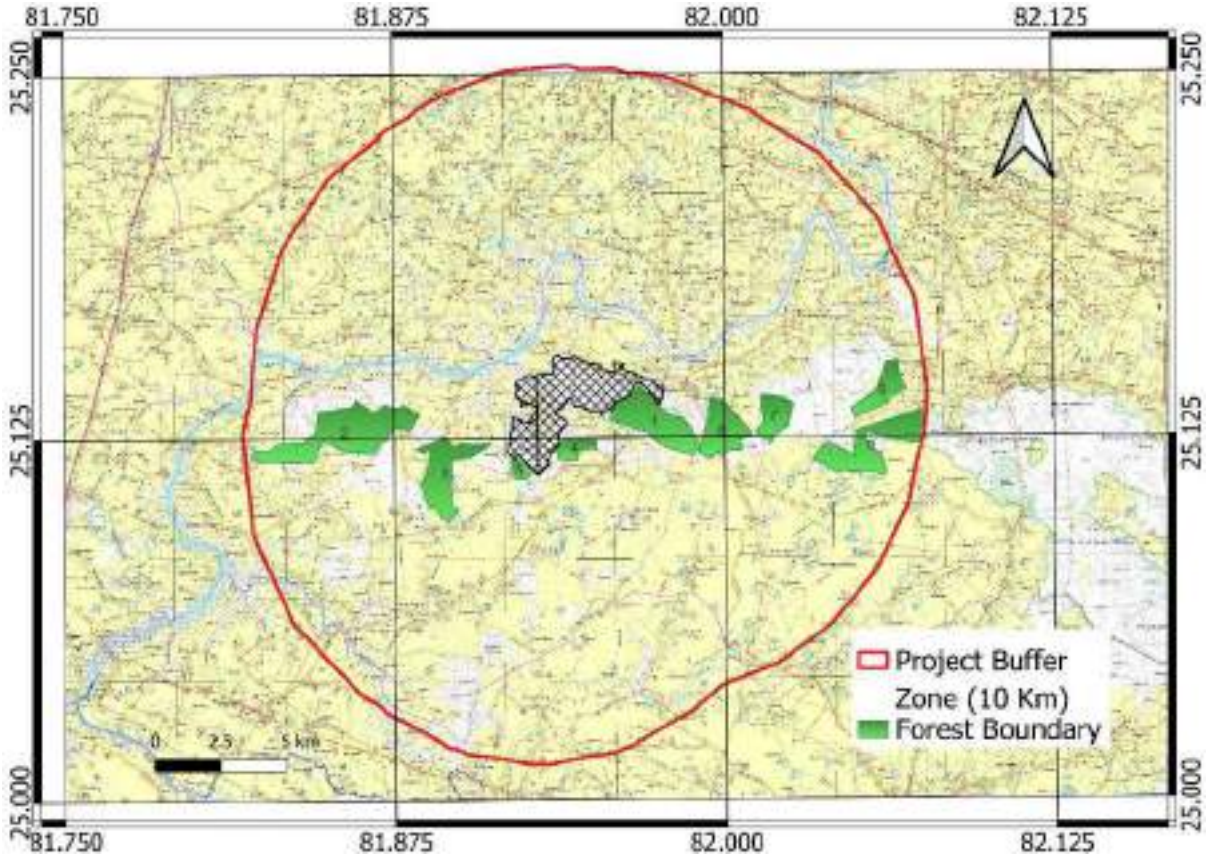


Figure 9 Forest Boundary area with SOI toposheets

Ponds

Ponds play a vital role in watershed management and planning, offering multiple benefits such as water storage, flood control, and groundwater recharge. By strategically placing ponds within a watershed, surface runoff can be captured, reducing the risk of downstream flooding and soil erosion. This stored water can then be used during dry seasons for agricultural irrigation, livestock, and even replenishing local aquifers, thus ensuring a stable water supply. Additionally, ponds enhance biodiversity by providing habitats for various aquatic and

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terrestrial species, contributing to the ecological balance of the watershed. Moreover, ponds can act as sediment traps, improving water quality by preventing sediment and pollutants from reaching larger water bodies. In planning watershed management, it is essential to consider the placement, size, and maintenance of ponds to maximize their benefits. Properly designed ponds can serve as key components in integrated water resources management, supporting both environmental sustainability and community needs. By incorporating ponds into watershed planning, long-term resilience against climate variability and water-related challenges can be significantly improved.

In the study, a total of 5 ponds (Figure 10 and Table 1) were identified within the study area. These ponds are strategically positioned to collect water from smaller drainage channels, making them crucial for managing surface runoff. To enhance their effectiveness for watershed planning and management, it is recommended that these ponds undergo further excavation. This deepening will increase their water storage capacity, improving their ability to mitigate flooding, support groundwater recharge, and provide a more reliable water supply during dry periods. Enhanced pond capacity will also contribute to better sediment retention and improved water quality in the watershed.

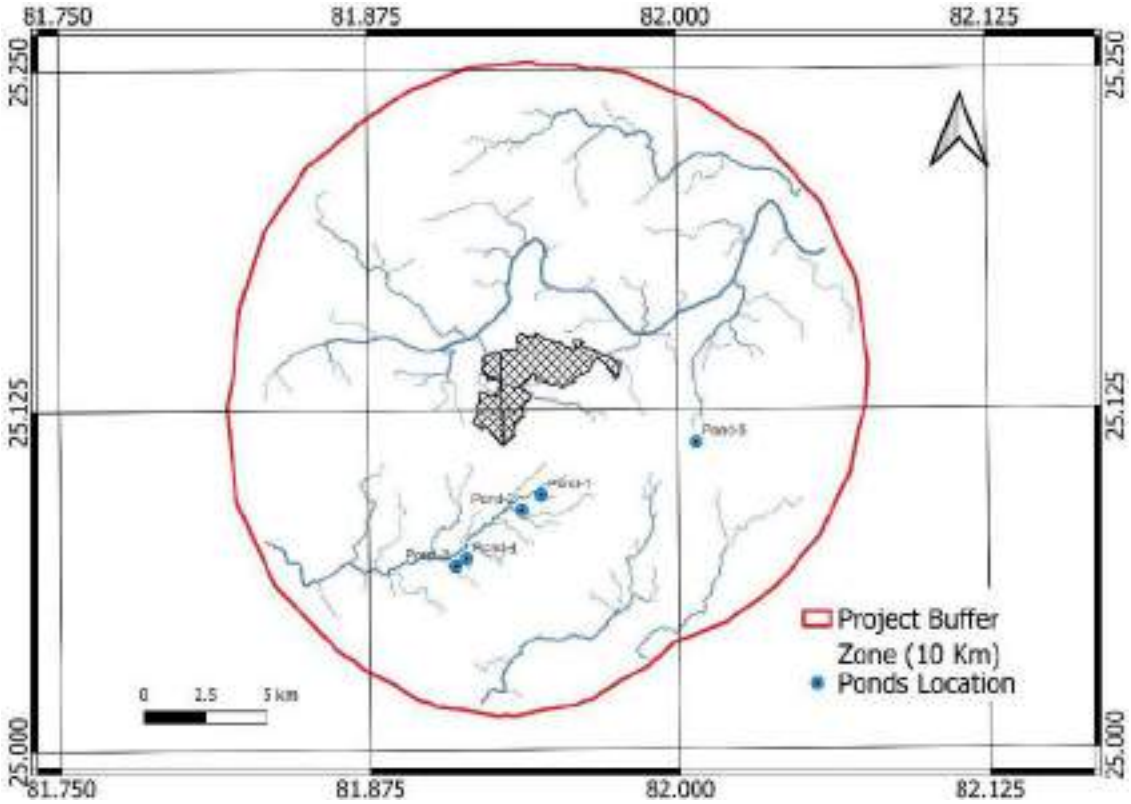


Figure 10 Ponds in the study area

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Table 1 Details of Ponds in the study area

S.No.	Water source	Name	Location	Distance/Direction	Lat	Long
1	Pond	Pond-1	Near Sirhir village	1.86 km, S	25° 5'37.11"N	81°56'40.58"E
2	Pond	Pond-2	Near Sirhir village	1.86 km, S	25° 5'17.37"N	81°56'11.55"E
3	Pond	Pond-3	Near Bagariha village	5.00 km, S	25° 4'3.76"N	81°54'35.33"E
4	Pond	Pond-4	Near Bagariha village	5.00 km, S	25° 4'13.11"N	81°54'51.47"E
5	Pond	Pond-5	Near Kharka Dabar village	4.77 km, SE	25° 6'46.71"N	82° 0'26.06"E

The NTPC HR team conducted visits to all the ponds. Photographs of each pond are provided in **APPENDIX 1**. Based on their observations, the team has proposed a budget of Rs. 20 lakhs per pond for implementing various rejuvenation and management practices. This budget allocation aims to ensure the sustainable restoration and upkeep of the ponds, covering activities such as desilting, water quality improvement, vegetation management, and community engagement initiatives

Pond rejuvenation and management involve several steps to restore and maintain the health of a pond, ensuring it supports aquatic life, maintains water quality, and provides aesthetic and environmental benefits. Here are the suggested guidelines:

A. Assessment

Water Quality Testing: Regularly test for pH, dissolved oxygen, nitrates, phosphates, and other key parameters.

Sediment Analysis: Check the depth and composition of sediment to determine the level of nutrient build-up or contaminants.

Aquatic Life Inventory: Assess the diversity and health of the pond's ecosystem, including fish, plants, and other organisms.

Inlet/Outlet Conditions: Examine the inflow and outflow structures for blockages or damage.

B. Dredging and Sediment Removal

Dredging: Remove accumulated sediments that can smother aquatic habitats, reduce water depth, and increase nutrient levels, leading to algal blooms.

Sediment Management: Decide on sediment disposal or reuse, possibly as a soil amendment.

C. Aquatic Vegetation Management

Planting Native Species: Introduce native aquatic plants to stabilize sediments, provide habitat, and compete with unwanted species.

Controlling Invasive Species: Manually remove or use herbicides to control invasive plants that may choke out beneficial species.

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D. Algae Control

Nutrient Reduction: Reduce nutrient input from runoff by using buffer strips, reducing fertilizer use, and improving watershed management.

Aeration: Install aerators or fountains to increase oxygen levels and prevent algae overgrowth.

Algaecides: Use chemical treatments sparingly to control algae blooms, ensuring they are safe for the ecosystem.

E. Water Level Management

Outlet Control: Install or repair outlet structures to manage water levels, preventing flooding or excessive drawdown.

Shoreline Stabilization: Use riprap, vegetation, or other methods to stabilize shorelines and prevent erosion.

F. Wildlife Habitat Enhancement

Create Shelters: Add logs, rocks, and aquatic plants to create habitats for fish, amphibians, and invertebrates.

Nesting Areas: Install birdhouses or floating platforms for waterfowl and other wildlife.

G. Regular Monitoring and Maintenance

Routine Inspections: Regularly check water quality, vegetation growth, and structural integrity.

Seasonal Maintenance: Clean out debris, manage vegetation, and perform necessary repairs before and after the pond's active seasons.

H. Community Engagement and Education

Involvement: Engage the local community in pond clean-up and monitoring efforts.

Education: Provide information on the importance of pond health and responsible land use practices.

Following these guidelines allows for the rejuvenation and maintenance of a healthy, functional pond that supports a diverse ecosystem and enhances the surrounding environment.

Trenches

Trenching is one of the major engineering measures for erosion control in non-arable lands and is mainly aimed to slope stabilization and drainage line treatment. The area with steep slope e.g. hilly region, are prone to soil erosion due to lack of vegetative cover and accelerated transportation of soil. The hilly area exhibits the characteristics of “high rainfall, quick drainage” that provides little retention time to the runoff to infiltrate into the soil profile. The

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overland flow velocity is often surpassing the safe limit to cause soil erosion from surface. The trenches constructed in these regions to address the problem of soil conservation to act as flow barrier (restricting the flow velocity within the safe limit from soil erosion point of view) and facilitating in-situ water conservation for establishment of vegetation.

Types of Trenching

The trenches are constructed in different geometrical configurations namely contour trenching, continuous trenching, staggered trenching and in-line trenching. The selection of trenches depends on the site characteristics and rainfall intensity.

Continuous Trenches

These are series of broad channel or embankments constructed at suitable spacing along the graded contours of gentle slopes. They are suitable for the areas having high annual rainfall. This type of trenches is long trenches (as long as 50 m) and have fixed interval (15 -30 meters). In this type of trenches, horizontal intervals are fixed but vertical intervals are varied. These types of trench are easy to construct but there is a problem of inconsistent deposition of soil in the trenches due to varied vertical interval and hence it is difficult to maintain. The cross-sectional area of the trench is usually kept as 0.25 m^2 and depth should not be higher than 0.5 m. The cross sections of trenches are kept as square (Figure 11). The life of trench is considered as 5 years. Desiltation is required in every alternate year under normal rainfall condition and every year under excess rainfall conditions

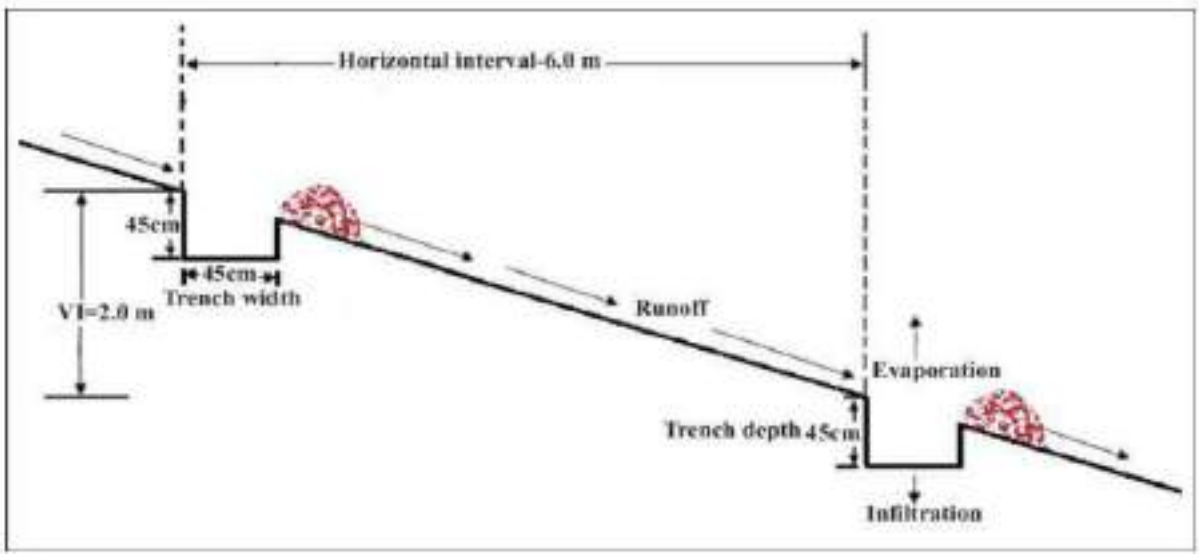


Figure 11 Continuous contours trenches

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In-line Trench

This type of trench addresses the problem of inconsistent deposition of soil. These trenches are maximum 5-meter-long and cross section is similar to continuous trenches. The gap between two inline trenches should not be more than 2 meters as shown below. This type of trenches has the limitation that it fails to collect runoff flowing between the gaps of two trenches.

Staggered Trenches

The staggered trenching involves the excavation of trenches of shorter length in a row along the contour with interspace between them. These trenches are arranged in straight line (staggered form). Suitable vertical intervals between the rows are restricted to impound the runoff without overflow. In the alternate row, the trenches are located directly below one another. The trenches in successive rows are thus staggered, with the trenches in the upper row and the interspace in the lower row being directly below each other. The length of the trench and the interspace between the trenches in the same row should be suitably designed such that no long unprotected or uninterrupted slope to cause unexpected runoff or erosion. As the trenches are not continuous, no vertical disposal drain is excavated. The cross sectional area of these trenches should be designed to collect the runoff expected from intense storms at recurrence intervals of 5-10 years.

Design of Trenches

This measure has been proposed in the study area. These are the trenches excavated along the contour to break the slope lengths for reducing the velocity of surface runoff. The staggered type of trenches are suggested for the mostly shrubland and rangeland in study area. As per the specifications from literature, staggered contour trench is found to be suitable for the site conditions. The average annual rainfall of area is 1042 mm and the soil type is clayey and loamy. From the contour map of area slope map is derived in GIS environment and the value of slopes is ranging from 2 to 20 percent (Figure 12). The slope map is further classified in different zones in four different classes ranging from 0 to 2%, 2 to 5%, 5 to 10% and 10 to 20%. The spacing and vertical interval for trenches have been designed based slope and runoff in these areas. Size of trench is generally taken as 4m in length, 0.4 m in width and 0.4 m depth. The shape of staggered trenches are of rectangle type. The cross-sectional area of the trench is 1600 cm^2.

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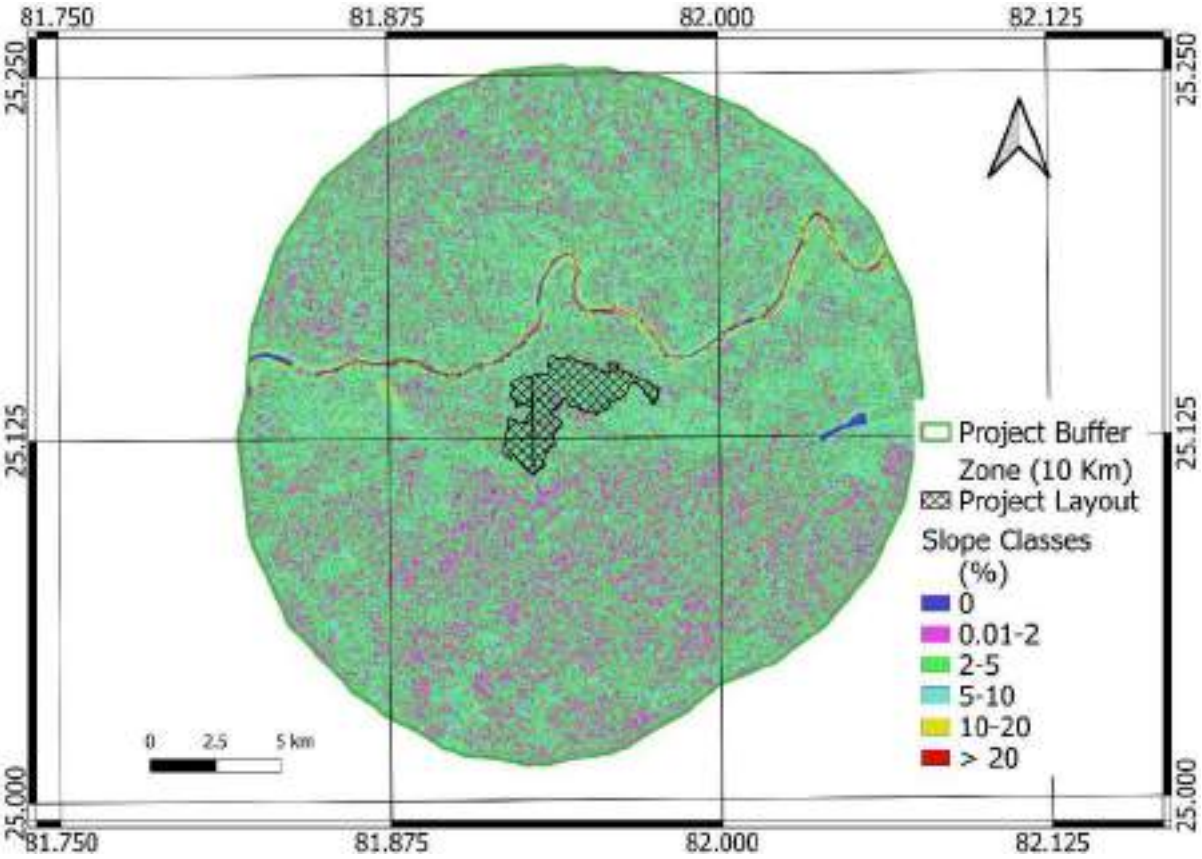


Figure 12 Slope Map

The spacing between two consecutive trenches is calculated as per the slope of different zones. Horizontal and vertical spacing is estimated using the factors like rainfall, slope and c/s area. With an overlay of slope zonal map and contour map the trenches were identified. Total 14 clusters zone as shown in Figure 13 has been identified to plan our trenches.. The size and spacing of the trenches is depend on the slope of that area as shown in Figure 14 to Figure 16.

Out of total identified clusters, portions in the cluster may be further drilled down for phase wise construction of trenches as per the updated land cover, land availability, other local conditions and consultation with district administration / other stake holders.

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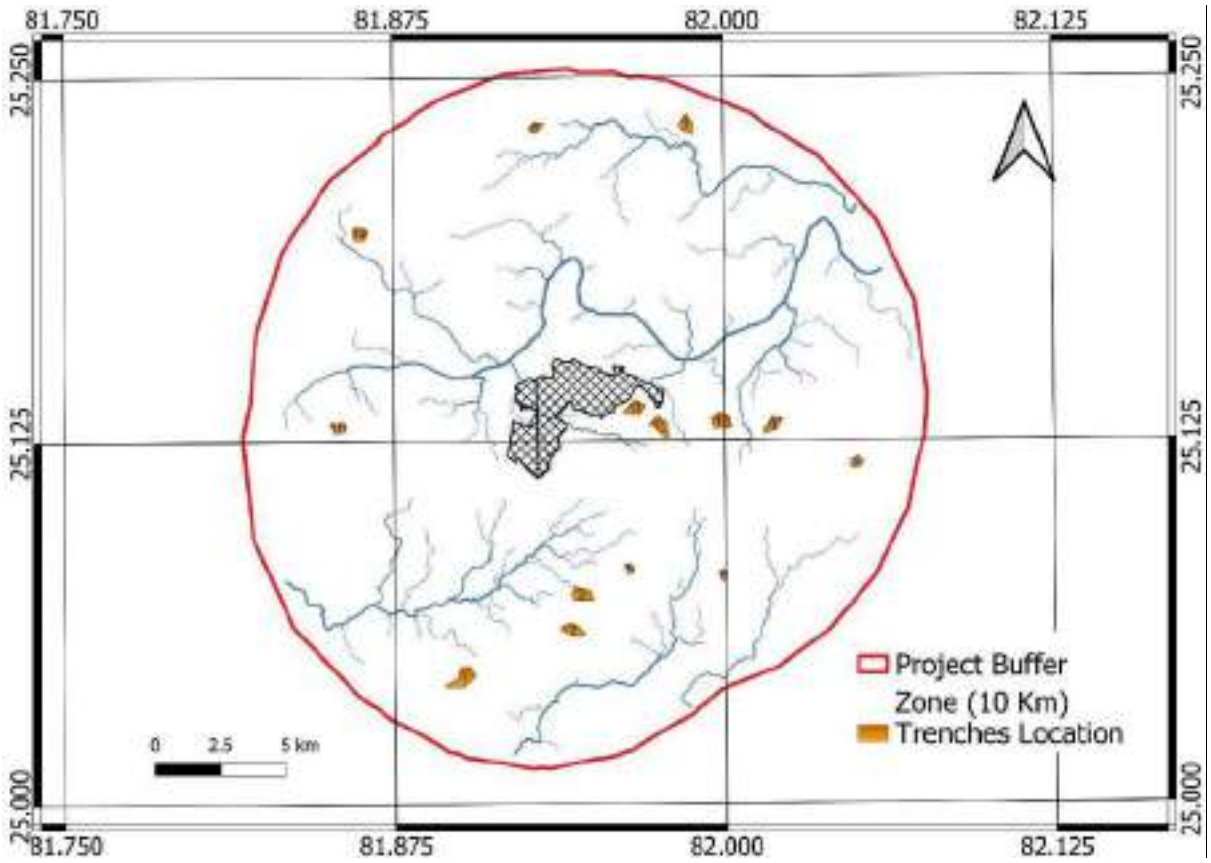


Figure 13 Clusters of Trenches

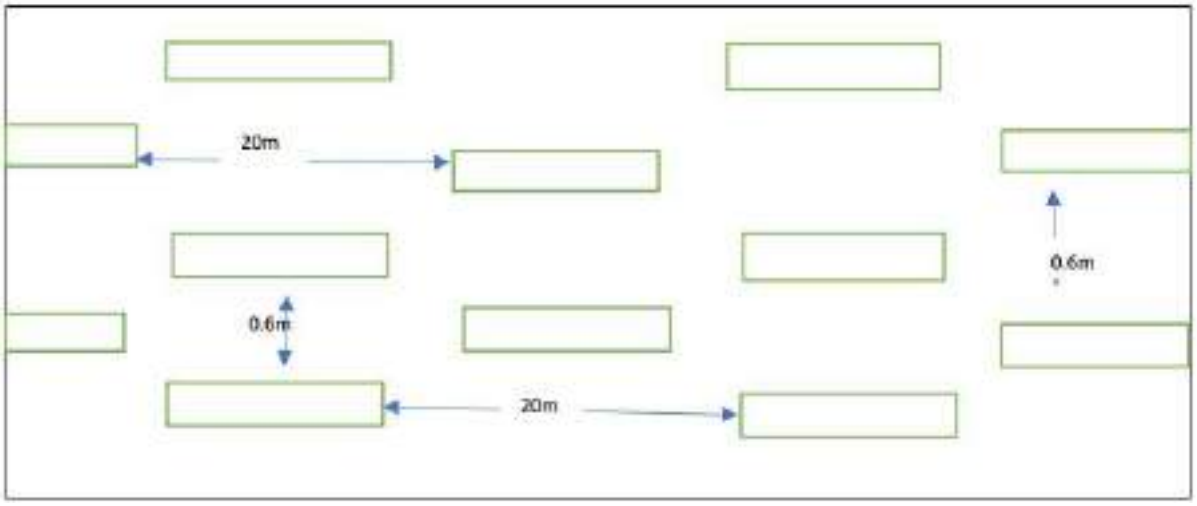


Figure 14 Schematic diagram of staggered trenches for 2-5 % of slope

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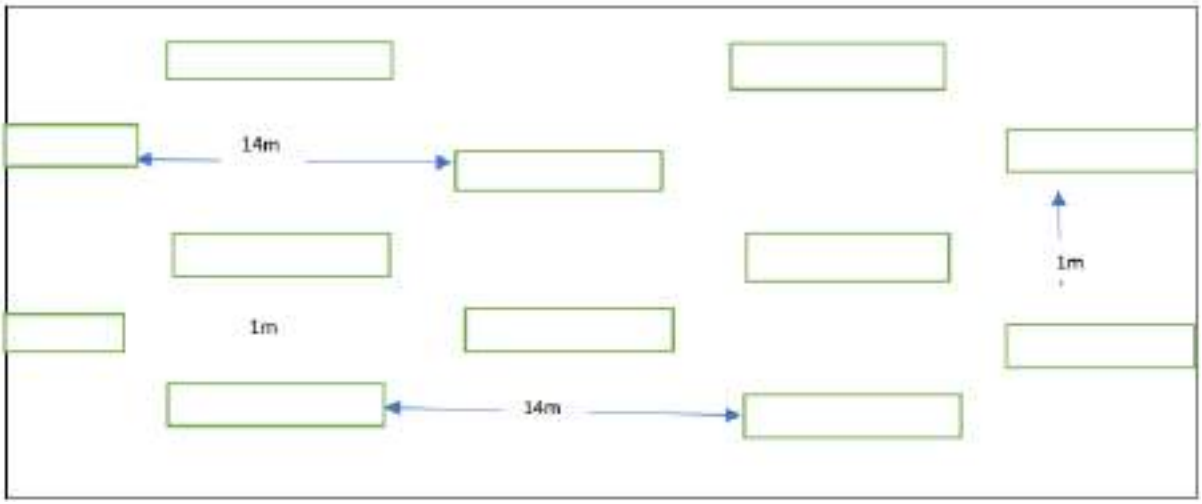


Figure 15 Schematic diagram of staggered trenches for 5-10 % of slope

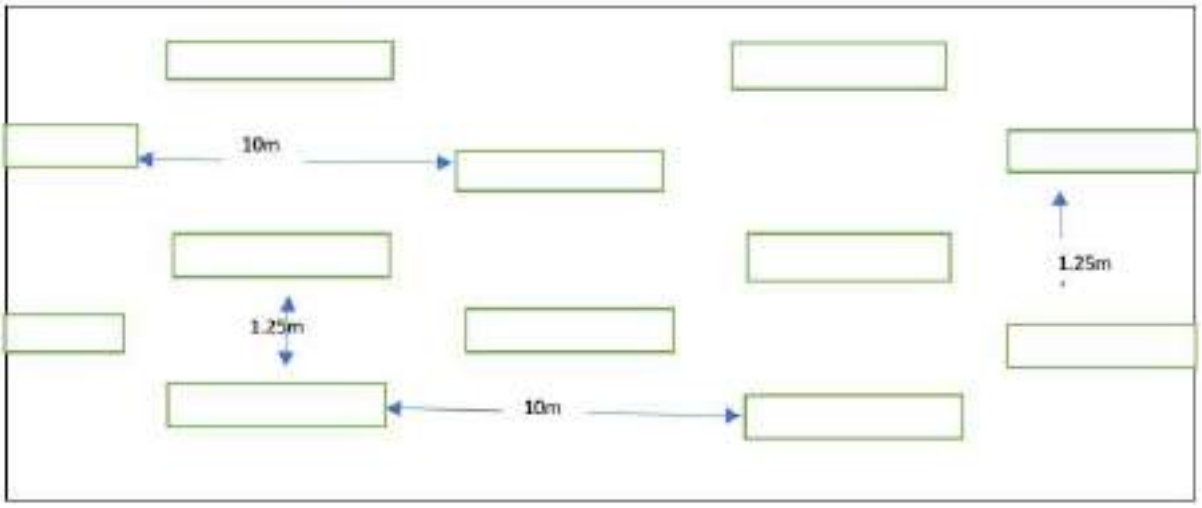


Figure 16 Schematic diagram of staggered trenches for 10-20 % of slope

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Action Plan

Following is the proposed action plan to be followed in the next five years which may be updated following the updated land cover, land availability, other local conditions and consultation with district administration / other stake holders.

Year	Watershed development types	Clusters/S. No.	Approx. Area
2025-2026	Plantation	Cluster 01	20-50 Hectres
	Pond Development	Pond No. 01	
	Soil & Water conservation through trenches	Cluster 01, 02, 03	
2026-2027	Plantation	Cluster 01, 02, 03	30-50 Hectres
	Pond Development	Pond No. 02	
	Soil & Water conservation through trenches	Cluster 04, 05, 06	
2027-2028	Plantation	Cluster 01, 04, 05	30-40 Hectres
	Pond Development	Pond No. 03	
	Soil & Water conservation through trenches	Cluster 07, 08, 09	
2028-2029	Plantation	Cluster 06, 07	30-40 Hectres
	Pond Development	Pond No. 04	
	Soil & Water conservation through trenches	Cluster 10, 11, 12	
2029-2030	Plantation	Cluster 08, 09	30-40 Hectres
	Pond Development	Pond No. 05	
	Soil & Water conservation through trenches	Cluster 13, 14	

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APPENDIX 1

Photographs of identified ponds as mentioned in Table 1











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ANNEXURE-7: IRO's certified compliance report of previous EC and MUNPL's reply to IRO Compliance Report

	MEJA URJA NIGAM (P) LIMITED **(A JV of NTPC Ltd & UPRVUN Ltd)**	
		Date: 10.01.2025

Sl.	IRO Observation dated 04.09.24	Action Plan/ Status
i)	As per the specific condition no. III" land requirement shall be restricted to 1100 acre (including ash pond)" However it has come to notice that PA's have acquired around 2762.63 acre of land, which is 1762.63 acre more as mentioned in the EC.	**IRO observation dated 16.12.24:** **Present status of compliance** As per the submitted reply, it has been observed that the PAs have acquired land for both stages, which has also been mentioned in the EIA report, not in the preamble/condition of EC dated 2011. Besides, as per the submitted break-up of land for stage I and II, it has been observed that the total land area acquired for Stage I is 1111.2 ha. (2745.835 Acre), which is still more than the land mentioned in the EC condition i.e., 1100 acres (445.15 ha). **MUNPL reply:** The land break-up table earlier submitted on 27.11.24 is Area under possession (1295 Ha i.e. 3198.7 acres) for both Stage-I & II envisaged at the time of acquiring land and mentioned in draft EIA report of St-I also. The break-up of existing land under possession and additional land requirement for Stage-II is given below:

Description	Land area for Stage-I as per EC/EIA (Ha)	Land area for Stage-II already taken with Stage-I (Ha)	Additional land requirement for Stage-II (Ha)
Main Plant	144.2	183.8	0
Ash Pond	262	Shared with Stage-I	110
Reservoir	75	Shared with Stage-I	0
Makeup water	5.22	Shared with Stage-I	0
Township	85	Shared with Stage-I	0

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<table>
<tr><th>Sl.</th><th>IRO Observation dated 04.09.24</th><th>Action Plan/ Status</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Railway Siding</td><td>171</td><td>Shared with Stage-I</td><td>4</td></tr>
<tr><td>Existing Green belt (other than Main Plant, Township and Railway Siding)</td><td>87</td><td>0</td><td>0</td></tr>
<tr><td>Proposed Greenbelt</td><td>0</td><td>160</td><td>0</td></tr>
<tr><td>*Miscellaneous</td><td>121.78</td><td>Shared with Stage-I</td><td>0</td></tr>
<tr><td>Sub-Total (Ha)</td><td>951.2</td><td>343.8</td><td>114</td></tr>
<tr><td>Existing and Proposed Total (Ha)</td><td colspan="2">1295</td><td>114</td></tr>
<tr><td>Total (Ha)</td><td colspan="3">1409</td></tr>
</table>
* Includes Public roads, vegetable market, Parking, admin building, undulating land, drains, dry fly ash silo, outside area, open areas etc.
</td></tr>
<tr><td>ii)</td><td>It is required to submit the breakup of the plant, fly ash area, coal yard, etc.</td><td>IRO observation dated 16.12.24:

Present status of compliance

As per the submitted reply, it has been observed that the PAs have acquired land for both stages, which has also been mentioned in the EIA report, not in the preamble/condition of EC dated 2011. Besides, as per the submitted break-up of land for stage I and II, it has been</td></tr>
</table>

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Sl.	IRO Observation dated 04.09.24	Action Plan/ Status

observed that the total land area acquired for Stage I is 1111.2 ha. (2745.835 Acre), which is still more than the land mentioned in the EC condition i.e., 1100 acres (445.15 ha).

MUNPL reply:

The land break-up table earlier submitted on 27.11.24 is Area under possession (1295 Ha i.e. 3198.7 acres) for both Stage-I & II envisaged at the time of acquiring land and mentioned in draft EIA report of St-I also. The break-up of existing land under possession and additional land requirement for Stage-II is given below:

Description	Land area for Stage-I as per EC/EIA (Ha)	Land area for Stage-II already taken with Stage-I (Ha)	Additional land requirement for Stage-II (Ha)
Main Plant	144.2	183.8	0
Ash Pond	262	Shared with Stage-I	110
Reservoir	75	Shared with Stage-I	0
Makeup water	5.22	Shared with Stage-I	0
Township	85	Shared with Stage-I	0
Railway Siding	171	Shared with Stage-I	4
Existing Green belt (other than Main Plant, Township and Railway Siding)	87	0	0
Proposed Greenbelt	0	160	0

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<table>
<tr><th>Sl.</th><th>IRO Observation dated 04.09.24</th><th>Action Plan/ Status</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>*Miscellaneous</td><td>121.78</td><td>Shared with Stage-I</td><td>0</td></tr>
<tr><td>Sub-Total (Ha)</td><td>951.2</td><td>343.8</td><td>114</td></tr>
<tr><td>Existing and Proposed Total (Ha)</td><td colspan="2">1295</td><td>114</td></tr>
<tr><td>Total (Ha)</td><td colspan="3">1409</td></tr>
</table>
* Includes Public roads, vegetable market, Parking, admin building, undulating land, drains, dry fly ash silo, outside area, open areas etc.
</td></tr>
<tr><td>iii)</td><td>it has been found that the COC of the plant is of 2.5 to 3 against the 5, recommended in EC. Therefore, it is required to take suitable measure to achieve 5 COC at the earliest.</td><td>IRO observation dated 16.12.24:

Present status of compliance

As per the submitted document now COC of the plant is ranging in between 4.5 to 5.0. It is required to be maintain regularly.

Being Complied.</td></tr>
<tr><td>iv)</td><td>PAs have also changed their coal linkage from SECL to CCL and NCL in 2021. However, no EC amendment has been taken so far, which is required H for ministry office memorandum number</td><td>IRO observation dated 16.12.24:

Present status of compliance

Based on the submitted document, It has been observed that the Ministry issued OM vide letter no. J-3012/8/2009-IA.II (T) dated 11.11.2020 with six additional conditions. However, PAs have changed coal sources in the year 2021, further, the Ministry issued OM vide letter no. J-</td></tr>
</table>

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	MEJA URJA NIGAM (P) LIMITED **(A JV of NTPC Ltd & UPRVUN Ltd)**	
		Date: 10.01.2025

Sl.	IRO Observation dated 04.09.24	Action Plan/ Status
	J-13012/8/2009-IA dated 11.11.2020.	13012/8/2009-IA.II (T) dated 06.12.2023 gives cushion to such thermal powers who have changed their sources with the same additional condition, imposed vide OM dated 11.111.2020, including modified conditions as "project shall achieve 100% fly ash utilization within four years of the commissioning of the plant", which is not comply by this project so far. **MUNPL reply:** As per MoEF &CC notification dated 31.12.2021 ash compliance cycle for category B stations (for MUNPL,Meja) is 04 years i.e from 01.04.2022 to 31.03.2026. Year wise ash utilization is as follows:

S.N.	Year	Ash generation (MT)	Ash Utilization(MT)	% Utilization
1	FY 22-23	1573606	981851.3	62.39%
2	FY 23-24	1784617	1263085	70.78%
3	FY 24-25(up to December 30)	1524219.8	1280149	84%
4	FY 24-25(from January to March 25)	381054.95	304843.96	80%
5	FY 25-26	1784617	3218185.49	180.32%

During the compliance period station has to achieve average ash utilization 100% at the end of compliance cycle.

v)	As informed, 4 number of check dams had been constructed in surrounding villages namely Jhariyahi, Isauta, Patai Dandi &	**IRO observation dated 16.12.24:** **Present status of compliance** As per the submitted documents it has been found that the copy of permission from the concerned state government department related to the construction of the Check dam has not

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	MEJA URJA NIGAM (P) LIMITED **(A JV of NTPC Ltd & UPRVUN Ltd)**	
		Date: 10.01.2025

Sl.	IRO Observation dated 04.09.24	Action Plan/ Status
	Kohdar. It is required to submit a copy of state government permission for the construction of the above check dams to be submitted to this office.	been produced so far. Besides, PAs stated that the above work was done by a government-approved vendor and wetted by UP Jal Nigam. **MUNPL reply:** It is again submitted that check dams were constructed by UP Jal Nigam, a government body under Community Development work on demands of Gram Sabhas. However, required permission from State Govt has been inadvertently missed out. The omission may be exempted one time and this shall be duly taken care of in future.
vi)	It has been found that ground water level analysis report has not been submitted so far.	**IRO observation dated 16.12.24:** **Present status of compliance** It has been found that the PAs have yet not submitted third-party groundwater level analysis report to this office. PAs have only submitted third-party groundwater quality analysis reports to this office, which has already been mentioned in the issued monitoring report. It is again requested that a third-party groundwater level analysis report be conducted by MOEF&CC or NABL-accredited laboratory to this office. **MUNPL reply:** We have contacted M/s Prakriti Consultant (Accredited by NABL) for ground water level analysis and budgetary offer of the same has been received from the agency. The report from the agency shall be received by 31.01.2025 and thereafter submitted to IRO.

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	MEJA URJA NIGAM (P) LIMITED **(A JV of NTPC Ltd & UPRVUN Ltd)**	
		Date: 10.01.2025

Sl.	IRO Observation dated 04.09.24	Action Plan/ Status
vii)	It has been found that the reply to this condition is not properly addressed in the submitted report, it is required to submit details reply to the EC condition "Minimum required environmental flow suggested by the competent authority of the state Govt. shall be maintained in the channel/Rivers (as applicable) even in the lean season".	**IRO observation dated 16.12.24:** **Present status of compliance** As per the submitted reply, it has been observed that the irrigation department, the Govt. of UP maintains minimum environmental flow in ganga river. **Complied.**
viii)	It is required to submit the source of water meeting requirement during the lean season to this office.	**IRO observation dated 16.12.24:** **Present status of compliance** As per submitted reply, it has been observed that irrigation department, the Govt. of UP maintains minimum environmental flow in Ganga river. **Complied.**
ix)	It has been found that the PAs have yet not submitted fly ash return to this office. Its is required to submit fly ash returns to this office regularly.	**IRO observation dated 16.12.24:** **Present status of compliance** PAs have assured to submit fly ash returns to this office regularly. As per the submitted report, it has been found that the fly ash utilization of this project is as follows:

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	MEJA URJA NIGAM (P) LIMITED **(A JV of NTPC Ltd & UPRVUN Ltd)**	
		Date: 10.01.2025

Sl.	IRO Observation dated 04.09.24	Action Plan/ Status

Financial year	Fly Ash Utilization
2021-2022	70.40%
2022-23	62.39%
2023-24	70.78%
2024-25 (up to August)	90.2%

Based on the submitted report, it has been observed that the fly ash utilization of the above is less than 100%, which is contradictory to Fly ash notification dated 14.09.1999, 27.08.2003, 03.11.2009, 25.01.2016, 31.12.2021 & 30.12.2022. These orders stated that the project is to achieve 100% fly ash utilization within four years of the commissioning of the plant. Besides, PAs have also submitted a draft for 5 five-year plans for Ash utilization.

MUNPL reply:

MUNPL, Meja Stage-I (2x660 MW) U#1 commissioned in 2019. As per M0EF&CC notification 31.12.2021, TPP falling in B category (MUNPL, Meja) has to achieve 100% ash utilization in a compliance cycle of 04 years i.e. from 01.04.2022 to 31.03.2026.

Year wise ash utilization is as follows:

S.N.	Year	Ash generation (MT)	Ash Utilization(MT)	% Utilization
1	FY 22-23	1573606	981851.3	62.39%
2	FY 23-24	1784617	1263085	70.78%
3	FY 24-25(up to December 30)	1524219.8	1280149	84%
4	FY 24-25(from January to March 25)	381054.95	304843.96	80%
5	FY 25-26	1784617	3218185.49	180.32%

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भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मन्त्रालय
क्षेत्रीय कार्यालय, लखनऊ
Government of India
Ministry of Environment, Forest & Climate Change
Regional Office, Lucknow

केन्द्रीय भवन, 11वां तल, सेक्टर एच, अलीगंज लखनऊ 226024
Kendriya Bhawan, 11th Floor, Sector-H, Aliganj, Lucknow-226024, Telefax-2326696
Email:rocz.lko-mef@nic.in

File no.: IV/ENV/UP/T H- 41/319/2010/270 **Dated:** 16.12.2024

To,

Member Secretary (Thermal)
Ministry Of Environment, Forest and Climate Change
Indira Paryaran Bhawan, JorBagh, Aliganj, New Delhi-110003
Email: r.sundar@nic.in; rp.rastogi@gov.in

Subject: EC to 2x660MW Super Critical Technology Coal-based Meja Thermal Power Project.

References:1. EC no. J-13012/03/2008- IA.II (T) dated 10.01.2011
2. Non-Compliance RO letter no- IV/ENV/UP/TH-41/319/2010/194 Dated 04.09.2024
3. PP email reply dated 14.09.2024., 27.11.2024 and 10.12.2024.
4. EDS raised by Ministry on dated 13.11.2024

Sir,

I am directed to draw your kind attention to the above-referred letter on the captioned subject. As per the record above project was monitored by the Regional Office, Lucknow on 06-07.08.2024. During monitoring non-compliances have been observed, which was communicated to PP vide letter no. IV/ENV/UP/TH-41/319/2010/194 Dated 04.09.2024. In reply, PAs have submitted a reply report to this office vide various emails dated 14.09.2024., 27.11.2024 and 10.12.2024. Besides, thermal-EAC raised EDS on dated 13.11.2024 and requested to submit ATR before EAC. Based on the submitted reply of non-compliance raised by this office, point-wise observations of this office are as follows–

SN	Status of compliance
i	As per the specific condition no. III" land requirement shall be restricted to 1100 acre (including ash pond)" However it has come to notice that PA's have acquired around 2762.63 acre of land, which is 1762.63 acre more as mentioned in the EC **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** As per final EIA report dated 25.03.2010 submitted to MoEF&CC for Stage-I Environment Clearance process, the conceptualization of the project was carried out for both Stage-I (2x660MW) and Stage-II (initially planned as 2x660 MW). The land requirements for both the stages were projected in the aforementioned report (part of the report is attached as annexure I-A). The land was acquired for both the Stages (4x660 MW) together. Expansion for Meja Stage-II (2x660MW) was also envisaged in power purchase agreement signed between MejaUrja Nigam Private Limited (MUNPL) and Uttar Pradesh Power Corporation Limited (UPPCL) on 05.01.2011 (attached as annexure I-B, paragraph no. 3, page no. 3).

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Subsequently, the capacity of Stage-II was changed from 2x660 to 3x800 MW as per Ministry of Power office memorandum dated 25.10.2023 (attached as annexure I-C, Sl. no. 7, page no. 14).Thus, the total acquired land by MejaUrja Nigam Pvt. Ltd. (MUNPL) is 1295 Ha for both the Stages (Plant including ash dyke, water reservoir, township, make-up water pump house and railway siding).

Further, the constructed area of stage-I is 1071.6 acres (Plant 356.3 acres, ash dyke 442.07, Reservoir-185.33 acres, makeup water pump house-12.9 acres, stage-I township-75 acres).

Present status of the compliance:

As per the submitted reply, it has been observed that the PAs have acquired land for both stages, which has also been mentioned in the EIA report, not in the preamble/condition of EC dated 2011. Besides, as per the submitted break of land for stage I and II, it has been observed that the total land area acquired for Stage I is 1111.2 ha. (2745.835 Acre), which is still more than the land mentioned in the EC condition i.e., 1100 acres (445.15 ha).

Not Complied

ii It is required to submit the breakup of the plant, fly ash area, coal yard, etc.

PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:

SN	Particulars	Area under possession (Ha)		Area of green Belt within the stated land use (in Ha)	Additional Area proposed to be acquired for Stage-II (in Ha)	Total area (in Ha) (Available and to be acquired)	Remarks
		Area under Stage-I (in Ha)	Area under Stage-II (in Ha)				
1	Main Plant	144.2	183.8	10	0	328	
2	Township	85		22	0	85	Common for Stage-I & Stage-II
3	Ash Pond	262			110	372	Stage-I: 1320MW Stage-II: 2400MW Total: 3720MW
4	Water Reservoir	75			0	75	Common for Stage-I & Stage-II
5	Railway Siding	171		44	4	175	
6	Make up water pump house	5.22			0	5.22	
7	Green belt (existing)	87		87	0	87	
8	Green belt (proposed)	130		130		130	
9	Miscellaneous	151.78				151.78	Includes roads for public use, Dry fly as silo area, etc
Total Land		**1295.00**		**293**	**114**	**1409.00**	

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10	Additional degraded forest area (not to be acquired) identified for green belt development outside plant premises		271.5			
	Grand Total of green belt area inside and outside plant area		564.5			

Further, the constructed area of stage-I is 1071.6 acres (Plant 356.3 acres, ash dyke 442.07, Reservoir-185.33 acres, makeup water pump house-12.9 acres, stage-I township-75 acres).

Present status of the compliance:

It has been found that the PAs have yet not submitted the break of the land allocated to this project. Besides, PAs have submitted a breakup of the land for stage I and stage II. And land breakup of the land for stage I on 10.12.2024, does not match.

Submitted on 10.12.2024			Submitted on 24.9.2024		
Stage-I	In Acres	In Ha	Stage-I	In ha	In acres
Main Plant	356.3	145.40	Main Plant	144.2	356.32
Ash Pond	442.0	178.90	Ash Pond	262	647.42
Reservoir	185.33	77.00	Water reservoir	75	185.33
Makeup water	12.9	5.22	Makeup water	5.22	12.9
Township	75	30.35	Township	85	210.04
			Railway siding	171	422.55
			Green belt (exiting)	87	214.98
			Green belt (Proposed)	130	321.24
			Miscellaneous	151.78	375.05
Total	**1071.53**	**436.87**	**Total**	**1111.2**	**2745.83**

As per the land breakup submitted by PP, it has been observed that the total land area acquired for Stage I is 1111.2 ha. (2745.835 Acre), which is still more than the land mentioned in the EC condition.

Not Complied

iii. It has been found that the COC of the plant is of 2.5 to 3 against the 5, recommended in EC. Therefore, it is required to take suitable measures to achieve 5 COC at the earliest.

PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:

At MUNPL Meja, the chloride content in the make-up water (from river Ganga)varies significantly. For the period Jan'21 to Aug'24, Chloride content in make up water was in the range of 27-100 ppm. The chloride content in the circulating water system, at 5 COC shall be in the range of 160-500 ppm (5 times the chloride content of the make-up water).

The Condenser tube material at MUNPL, Meja is SS-304 for which permissible chloride limit in circulating water is 200 ppm. (High chloride content in circulating water can have

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	several detrimental effects on Stainless Steel (SS) condenser tubes like pitting and stress corrosion cracking which may lead to Condenser tube failures).The range of COC from Jan'21 to Aug'24 varies from 3.3 to 5.3, with average value of 4.11depending upon the quality of inlet water from river Ganga. Suitable measure has been taken for use of Sodium Molybdate in circulating water system, a corrosion inhibitor, due to which the COC has been raised toan optimal range of around 5.0. Since August 16, 2024, the average COC has been 4.9, occasionally exceeding 5.0. Moving forward, we will maintain the COC around 5.0 as per design specifications. **Present status of the compliance:** As per the submitted document now the COC of the plant is ranging in between 4.5 to 5. It is required to be maintained regularly. **Being Complied**
iv	PAs have also changed their coal linkage from SECL to CCL and NCL in 2021. However, no EC amendment has been taken so far, which is required as per the Ministry Office Memorandum no. J-13012/8/2009-IA.II (T) dated 11.11.2020. **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** MoEF&CC has issued an OM dated 11.11.2020 (file no.J-13012/8/2009-IA.II(T)) and OM dated 06-12-2023, regarding "Amendment in environmental clearance for change in coal source by thermal power plant -reg" (copy of OM's attached as annexure IV-1). As per OM point no. 7 "all the thermal power plants (including captive power plants) having Environmental Clearance can change the coal source (from imported to domestic, domestic to domestic and domestic to imported) including lignite, directly through e-auctions /short-term linkage / long-term linkage / other linkage options of Ministry of Coal or any organization recognized for allotting coal linkage, **without seeking the amendment in Environment Clearance** subject to the following conditions and thereby making earlier condition in the EC regarding coal source redundant The compliance report of the conditions mentioned in point no. 7 of the above OM's are attached as Annexure IV-2 **Present status of the compliance:** Based on the submitted document, It has been observed that the Ministry issued OM vide letter no. J-13012/8/2009-IA.II (T) dated 11.11.2020 with six additional conditions. However, PAs have changed coal sources in the year 2021, further, the Ministry issued OM vide letter no. J-13012/8/2009-IA.II (T) dated 06.12.2023 gives cushion to such thermal powers who have changed their sources with the same additional condition, imposed vide OM dated 11.111.2020, including modified conditions as "project shall achieve 100% fly ash utilization within four years of the commissioning of the plant", which is not comply by this project so far. **Not Complied**
v	As informed, 4 number of check dams had been constructed in surrounding villages namely Jhariyahi, Isauta, Patai Dandi & Kohdar. It is required to submit a copy of the state government permission for construction of the above check dams to be submitted to this office. **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** Check dams were constructed through a government agency, UP Jal Nigam,on demands of

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	the Gram Sabhas of Kohdar and Esauta (*Patai Dandi is under the Gram Sabha-Esauta*). Copies of Rehabilitation Action Plan (RAP) - I, कार्वाही रजिस्टर- Kohdar and Esauta, and the Purchase Order are enclosed as annexure V-1, V- 2 and V-3 respectively, for ready reference. Under Sl. No. "D" of Annexure- V-1 of RAP-I, a provision of Rs.100 lakh was allocated for other need-based works as emerges or as consented by Village Development Advisory Committee (VDAC). Further, RAP-I was duly signed by Collector, Allahabad (enclosed as annexureV-1). And the check dams were constructed under the PURA (Provision of Urban Amenities in Rural Areas) scheme of the Government of India. These check dams play a crucial role in supporting sustainable water management, agricultural productivity, and the overall socioeconomic development of the area **Present status of the compliance:** As per the submitted documents it has been found that the copy of permission from the concerned state government department relatedto the construction of the Check damp has not been produced so far. Besides, PAs stated that the above work was done by a government-approved vendor and wetted by UP Jal Nigam. **Not Complied**
vi	It has been found that the ground water level analysis report has not been submitted so far. **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** Ground water analysis in nearby villages is being carried out regularly by third-party IITR Lucknow-CSIR. Groundwater quality report is being submitted regularly with SPCB, CPCB / MoEF&CC. Latest groundwater level data taken from UP JAL Nigam is attached at annexure-VI. Ground water level changes shall be monitored at specified intervals through borewell / dugout wells in identified nearby villages. **Present status of the compliance:** It has been found that the PAs have yet not submitted third-party groundwater level analysis report to this office. PAs have only submitted third-party groundwater quality analysis reports to this office, which has already been mentioned in the issued monitoring report. It is again requested that a third-party groundwater level analysis report be conducted by MOEF&CC or NABL-accredited laboratory to this office. **Not Complied**
vii	It has been found that the reply to this condition is not properly addressed in the submitted report, it is required to submit detail reply to the EC condition "Minimum required environmental flow suggested by the competent authority of the state Govt. shall be maintained in the channel / Rivers (asapplicable) even in the lean season." **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** As per GoUP water allocation letter ref.no.78/08-27-sep 0460(w)/07 dated 10.07.2008, point no.5 (attached as annexure VII, point no.5, page no. 2), water storage for minimum 15 days water requirement needs to be ensured to maintain the minimum flow in the river during lean period. MUNPL, Meja has a reservoir with a total capacity of approximate 29 lac cubic meter to cater water requirement of 30.5 days on 100% PLF for both the units. The condition mentioned in the GoUP water allocation letter for minimum water requirement of 15days

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	is being met through reservoir storage. In lean season, Irrigation dept, GoUP maintains minimum environmental flow in Ganga river and MUNPL regulates its water drawl based on the directions of Irrigation dept., GoUP **Present status of the compliance:** As per the submitted reply, it has been observed that the Irrigation Department, the Government of U.P. Maintains minimum environmental flow in the Ganga river. **Complied**
viii	It is required to submit the source of water meeting requirements during the lean season to this office. **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** As per the GoUP water allocation letter ref. no. 78/08-27-sep 0460(w)/07 dated 10.07.2008, point no.5 (attached as annexure VII, point no.5, page no. 2), water storage for minimum 15 days water requirement needs to be ensured to maintain the minimum flow in the river during lean period. MUNPL, Meja has a reservoir with a total capacity of approximate 29 lac cubic meter to cater water requirement of 30.5 days on 100% PLF for both the units. The water requirement during the lean season is being made through the reservoir. In lean season, Irrigation dept, GoUP maintains minimum environmental flow in Ganga river and MUNPL regulates its water drawl based on the directions of Irrigation dept., GoUP **Present status of the compliance:** As per the submitted reply, it has been observed that the Irrigation Department, the Government of U.P. Maintains minimum environmental flow in the Ganga river. **Complied**
ix	It has been found that the PAs have yet not submitted fly ash returns to this office. It is required to submit fly ash returns to this office regularly. **PP Reply on dated 14.09.2024., 27.11.2024 and 10.12.2024:** The fly ash return for the financial year 2023-24 is attached as annexure IX. The monthly report regarding the generation, utilization and disposal of fly ash is being submitted to CPCB every month regularly. The submission of fly ash return to MOEF&CC and its regional office on regular basis shall be ensured.

Financial year	Ash generation in MT	Ash utilization in MT	Fly Ash Utilization
2021-2022	1824149	1320738	70.40 %
2022-2023	1573606	981851.3	62.39%
2023-2024	1784617	1263085	70.78%

Present status of the compliance:
PAs have assured to submit fly ash returns to this office regularly. As per the submitted report, it has been found that the fly ash utilization of this project is as follows:

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Financial year	Fly Ash Utilization
2021-2022	70.40 %
2022-2023	62.39%
2023-2024	70.78%
2024-2025 (up to August)	90.2%

Based on the submitted report, it has been observed that the fly ash utilization of the above is less than 100%, which is contradictory to Fly ash notification dated 14.09.1999, 27.08.2003, 03.11.2009, 25.01.2016, 31.12.2021 & 30.12.2022. These orders stated that the project is to achieve 100% fly ash utilization within four years of the commissioning of the plant. Besides, PAs have also submitted a draft for 5 five-year plans for Ash utilization.

Not Complied

Sincerely,

16/12/24

(डा0 ए. के. गुप्ता)
अतिरिक्त निदेशक(वै0)

Copy to:

1. M/S MejaUrja Nigam (P) Ltd. P.O. Kohdar, Tehsil Meja, District- Prayagraj, U.P.-212301
   Email:anandprakash@ntpc.co.in ,achatterjee02@ntpc.co.in .

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भारत सरकार
Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
क्षेत्रीय कार्यालय, लखनऊ
Regional Office, Lucknow

केन्द्रीय भवन, ग्यारवां तल, सेक्टर एच, अलीगंज, लखनऊ–226024
Kendriya Bhawan, 11th Floor, Sector H, Aliganj, Lucknow-226024, Phone No : 0522-2326696
Email : rocz.lko-mef@nic.in, goimocfrulko@gmail.com

पत्र संख्याः IV/ENV/UP/TH-41/319/2010/340 दिनांक–04.09.2024

सेवा में,

मेसर्स मेजा ऊर्जा निगम (प्रा०) लिमिटेड
पोस्ट–कोहडर, तहसील–मेजा
जिला. प्रयागराज यू०पी०–212301
ई–मेल: anandprakash@ntpc.co.in
achatterjee02@ntpc.co.in

विषयः– 2x660 MW Super Critical Technology Coal based Meja Thermal Power Project reg.

सन्दर्भः– EC no. J-13012/03/2008- IA.II (T) dated 10.01.2011 and various amendment dated 21.07.2017, 08.01.2018, 28.03.2019, 08.08.2019, 25.09.2020

महोदय,

मुझे यह सूचित करने का निदेश हुआ है कि इस कार्यालय द्वारा दिनांक 6-7/08/2024 को उपरोक्त परियोजना की मानीटरिंग की गई इस सन्दर्भ में अनुपालन की प्रमाणित प्रति आप के आवश्यक कारवाई हेतु संलग्न की जा रही है।

संलग्नक यथोक्तः (3 पेज)

भवदीय,

4/9/24

(डा० ए० के० गुप्ता)
अतिरिक्त निदेशक

Copy to:

- Compliance Monitoring Division (CMD) cell, Ministry of Environment and Climate Change Indra, Paryawaran Bhawan, Aliganj, Jorbagh Road New Delhi-110003, Email: morfcc-monitoring@gov.in

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भारत सरकार
Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
क्षेत्रीय कार्यालय, लखनऊ
Regional Office, Lucknow

केन्द्रीय भवन, ग्यारवां तल, सेक्टर एच, अलीगंज, लखनऊ–226024
Kendriya Bhawan, 11th Floor, Sector H, Aliganj, Lucknow-226024, Phone No : 0522-2326696
Email : rocz.lko-mef@nic.in

Monitoring Report

S.N.	Items	
1.	परियोजना का नाम Name of Project	2x660 MW Super Critical Technology Coal-based Meja Thermal Power Project
2.	परियोजना प्राधिकरण का पता Address of project authorities	M/S MEJA URJA NIGAM (P) LTD. P.O. Kohdar, Tehsil Meja, District- Prayagraj U.P.-212301
3.	पर्यावरणीय स्वीकृति पत्र सं0 एवं तिथी Env. Clearance letter no. & Date	EC no. J-13012/03/2008-IA.II (T) dated 10.01.2011 • Amendment dated 21.07.2017 for coal transportation by road. • Amendment dated 08.01.2018 for EC validity extension • Amendment dated 28.03.2019 for coal transportation by road • Amendment dated 08.08.2019 for EC validity extension and waive off CSR recurring expenditure stipulation • Amendment dated 25.09.2020 for EC validity extension
4.	क्षेत्रीय कार्यालय पत्र सं0 Regional Office File no.	IV/ENV/UP/T H-41/319/2010
5.	स्थल दौरा तिथी Date of site visit	6-7/08/2024
6.	परियोजना की स्थिति Status of Project	Operational

7. स्थलदौरा के दौरान अवलोकन / Observations made during the site visit:

During monitoring of the project various officers were present including : Shri Kamlesh Soni, CEO; Shri A Chatterjee, CGM/TS, Shri Anil Kumar , Additional General Manager (TS), Shri Saurabh Kumar Pathak, Senior Manager (EMG) etc were available during visit.

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As per the record, PAs have aquired around 2762.63 acres of land for the above project for setting up the 2 X 660 MW super critical thermal Power plant. As per the information, the COD of the first plant was done on 30.04.2019 and the second on 30.1.2021. PAs have taken various EC amendments from the ministry, which are tabulated below:

Date of EC Amendment	Details of Amendment	Condition Report in page no.
21.07.2017	Permission for road transportation of 2 Lakh Tons of coal by road for a temporary period of one year or till the commissioning of railway siding whichever is earlier.	21-23
08.01.2018	The Ministry hereby extends the validity of EC dated 10-01-2011 for a further period of one year i.e. till 09-01-2019	23
28.03.2019	Ministry hereby extends the temporary permission of transportation of 5,220 MT/day Coal by road for a temporary period of 31.03.2019 w.e.f.21.07.2018 and also extends the validity of EC dated 10-01-2011 for a further period of six months, i.e. from 10.1.2019 to 09.07.2019.	23-24
08.08.2019	The hereby extends the validity of EC dated the EC dated 10-01-2011 for further period of one year, w.e.f. 10-07-2019 till 09-07-2020 (total 9 and ½ years) .	24-27
25.09.2020	The Ministry hereby extends the validity of the EC dated 11-01-2011 for a further period of six months, i.e. w.e.f. 10-07-2020 till 09-01-2021	-

As per the submitted report the plant load factor (PLF) during the period of April, 2023 to March, 2024 was 71.37, average ash content in coal is 37.37%. Ash generated 1436634 metric ton per annum and bottom ash generated 347983 metric ton per annum. PAs having three HCSD silos (525 MT X 3) and four DAES silos (4 X 1200 MT) is found under construction. Fly ash utilization during April, 2023 to March, 2024 was 70.78%. PAs have obtained Consent to operate (CTO) under both Act Rel no. 17215586 dated 29.07.2022, which is valid from 01.08.2022 to 31.07.2025. PAs having 30 beds hospital have obtained Bio-Medical Waste Management and handling (BMW) Authorization no. 20627770 dated: 18.04.2023, which is valid up to 17.04.2026. PAs have also obtained hazardous waste authorization vide letter no. 10138/UPPCB/Allahabad (UPPCBRO)/HWM/Allahabad/2019 dated 26.04.2020, which is valid up to 25.04.2025. PAs have also obtained PESO licions vide letter no. P/HQ/UP/15/5031 (P394555) dated 07.03.2017, valid up to 31.12.2024 and P/HQ/UP/15/5032 (P382629) dated 30.03.2017, valid up to 31.12.2024. PAs have also changed their coal linkage from SECL to CCL and NCL in 2021. ToR of the expansion project has been granted by Ministry vide letter no. 13012/03/2008-IA.II (T) dated 14.12.2023 and PAs has requested Regional Office Lucknow for issuance of the CCR vide letter no. MUNPL-EMG: 1: 2024 dated 27.07.2024.

Project authorities have complied or are in the process of complying with the environmental conditions stipulated for this project (Condition-wise compliance status enclosed). In this context, information/action plans have been sought on the following points:

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1. As per the Specific condition no. II "Land requirement shall be restricted to 1100 acres (including ash pond)" However, it has come to notice that PAs have acquired around 2762 acres of land, which is 1762.63 acres more as mentioned in the EC.
2. It is required to submit the break-up of the plant, fly ash area, coal yard, etc.
3. It has been found that the COC of the plant as of now is ranging between 2.5 to 3 against the 5, recommended in EC. Therefore, it is required to take suitable measures to achieve 5 COC at the earliest.
4. PAs have also changed their coal linkage from SECL to CCL and NCL in 2021. However, no EC amendment has been taken so far, which is required as per the Ministry Office Memorandum no. J-13012/8/2009-IA.II (T) dated 11.11.2020.
5. As informed, 04 number of check dams had been constructed in surrounding villages namely Jhariyahi, Isauta, PataiDandi & Kohdar. It is required to submit a copy of state government permission for the construction of the above check dams to be submitted to this office.
6. It has been found that the ground water level analysis report has not been submitted so far.
7. It has been found that the reply to this condition is not properly addressed in the submitted report, it is required to submit a details reply to the EC condition "Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season".
8. It is required to submit the source of water meeting requirements during the lean season to this office.
9. It has been found that the PAs have yet not submitted fly ash returns to this office. It is required to submit fly ash returns to this office regularly.

8.निर्णयलिया) यदिकोई/ **(Action taken (if any):** A letter has been issued to PAs to take corrective measures on the above non-compliance issues.

Sincerely,

(डा० ए. के. गुप्ता)
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SN	Specific Condition	Compliance Status
1	Primary survey of flora and fauna in the study area shall be carried out and a report submitted to the Ministry within six months.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that the Primary Survey Of Flora and Fauna At Meja Thermal PowerPlant was carried through the Center For Social Forestry And Eco-Rehabilitation, (ICFRE-Dehradun) Allahabad from November2011-April 2012. **Complied**
2	A wildlife conservation plan (especially about Black Buck) shall be prepared in consultation with the Office of the Chief Wildlife concerned and reputed wildlife expert/institute and submitted to the ministry within six months along with a road map for implementation. The plan shall specify the budget earmarked for activities to be undertaken. The conservation plan shall be implemented before the commissioning of the power plant and the status of implementation shall be submitted to the Regional Office of the Ministry from time to time.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the Wildlife Conservation Plan was prepared and submitted by the forest department. The work as per the Wildlife Conservation Plan has been completed and DFO-Allahabad has submitted a Utilization Certificate dated 14.03.2016. **Being Complied**
3	Land requirement shall be restricted to 1100 acres (including ash pond).	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been it has come to notice that PAs have acquired around 2762.63 acres of land, which is 1762.63 acres more as mentioned in the EC. **Not Complied**
4	Provision for installation of FGD shall be provided for future use.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the commissioning of FGD for stage one has already been completed in Feb 2024. However, commissioning for stage two has been expected in August 2024 against the cutoff date of Dec'26 in line with MOEF &CC gazette notification GSR 628(E) dated 5th Dec 2022.

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		ng Complied
5	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the Electrostatic precipitators (ESP) found operational and PM emission is maintained within 30 Mg/NM³. Adequate dust extraction systems and water spray systems have also been provided in CHP and ash handling areas to control fugitive emissions. **Being Complied**
6	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5% and 34% respectively at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to MOEF for suitable amendments to environmental clearance conditions wherever necessary.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have conducted sulfur and ash analysis regularly. As per the submitted analysis report values of sulphur are reported within the limit. However, ash content may vary from 23 to 40.49% from time to time. It is required to take suitable measures for controlling of ash content in coal. **Coal Sample no.** / **Concentration** Sulphur in Coal / 0.22 in % by wt Ash (%) / 23.37 to 40.49 **Partially Complied**
7	Stack height of 275 m height shall be installed and provided with continuous online monitoring equipment for SO_x, NO_x and $PM_{2.5}$ & PM_{10}. Exit velocity of flue gases shall not be less than 22 m/sec Mercury emissions from stack may also monitored on periodic basis.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the height of the stack is 275 meters with continuous online monitoring for SO_x, NO_x, and PM. The exit velocity of Flue gas is maintained at more than 22m/sec. **Being Complied**

J-13012/03/2008-IA.II (T) dated 10.01.2011

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Stack Emission Report ESP outlet		
Particulars	**Unit-1 (660MW)**	**Unit-2 (660MW)**
Height of sampling port from ground (m)	88	88
Diameter of stack (m) at the sampling point	7.685	7.685
Diameter of sampling port (cm)	12.5	12.5
Load during monitoring (MW)	654	470
Type of Fuel used	Coal	Coal
Quantity of Fuel used (T/hr)	486	296
Ambient Temperature (K)	298	298
Stack Temperature(K)	381	385
Atmospheric Pressure (mm of Hg)	744	744
Flue gas exit velocity (m/sec)	23.1	22.4
Sampling Period (minutes)	35	40
Flue gas exhaust volume (Nm^3/hr)	2877932.3	2570903.5
Concentration of Pollutants (mg/Nm^3)		
SPM at 6%O_2	42.9	38.9
SO_2 at 6%O_2	784.5	750.7
NO_x at 6%O_2	447.8	401.5

Analytical Report on Mercury in Stack Vapour from Emission Phase -1 Date 12-07-2024		
Boiler no	**Generation Capacity MW**	**Concentration ($\mu g/m^3$)**
1	660	1.321
2	660	1.625

8	Existing de-generated water bodies (if any) in the study area shall be regenerated at the project proponent's expense in consultation with the state govt.	As per the discussion held during the monitoring of the project and report submitted by PAs, It has been informed, that the 04 nos. of check dams had been constructed in surrounding villages namely Jhariyabi, Isauta, Patai Dandi & Kohdar, and Ponds had been restored in Salaiya Kala & Mai Kala villages. It is required to submit a copy of state government permission for the construction of the above check dams to be submitted to this office. **Partially Complied**
9	Detailed hydro-geological study shall be conducted (including sustainability of water source study) by an institute of repute and	As per the discussion held during the monitoring of the project and report submitted by PAs, It has been noted that the Hydro-geological study for the sustainability of

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	report submitted to the Regional Office of the ministry. Further hydro- geological study shall be reviewed annually from an institute/ organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case and deterioration is observed specific mitigation measures shall be undertaken and reports/ data of water quality monitored regularly and maintained shall be submitted to the RO of the Ministry.	...r resources has been carried out by MNIT, Prayagraj. Presently hydro-geological ...being carried out by the National Institute of Hydrology (NIH), Roorkee to assess the impact of surface water and ground regime. Besides, Third-party analysis of the surface water analysis is being conducted by M/s CSIR-Indian Institute of Toxicology Research, Lucknow, a NABL-accredited laboratory. As per the submitted analysis report dated July 2024 data values of all parameters are found within the limit. **Being Complied**

Parameter in Unit	Surface Water Quality					
	SW-1 Tone River (Up stream)	SW-2 Tons Stream (Down stream)	SW-3 (Ganga River)	SW-4 (Reservoir -1)	SW-5 (Reservoir - 2)	SW-6 (Natural Drain)
Physico-Chemical Analysis						
pH	8.0	7.8	8.1	8.0	8.6	8.0
Conductivity - µmhos/cm	222	171	533	481	209	553
Temperature in °C	34	33	34	33	34	33
TSS in mg/l	80	70	119	79	64	120
TDS in mg/l	118	131	284	156	112	293
Dissolve Phosphate in mg/l	0.06	0.14	0.23	0.07	0.03	0.01
Oil & Grease in mg/l	2.2	2.5	1.6	1.3	1.0	1.1
BOD at °C	1.7	1.8	4.2	4.8	4.2	1.9
COD in mg/l	20	16	16	20	29	41
Total Hardness in mg/l	98	68	70	84	107	136
Metal Concentration						
Fe in mg/l	1.78	1.42	2.23	1.322	1.161	1.437
Zn in mg/l	0.022	0.018	0.143	0.026	0.049	0.025
Cu in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Pb in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cr in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cd in mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
As in mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hg in mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

10	Source of water for meeting the requirement during the lean season shall be specified and submitted to the Regional Office of the Ministry within three months.	PAs have neither informed nor submitted any reply on this condition. PAs are requested to submit the source of water meeting requirement during the lean season to this office. **Not Complied**
11	No ground water shall be extracted for use in operation of the power plant even in lean season.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated

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		that the PAs have not used groundwater within the project site. **Complied**
12	No water bodies (including natural drainage system) in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that no natural water body near to project is available. **Not Applicable**
13	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	As per the discussion held during the monitoring of the project and report submitted by PAs. No report has been submitted on the above line. It is required to submit the desired report to this office at the earliest. However, the Water allocated for the power plant is 44Cusec. However, the average water consumption is less than 44Cusec. **Not Complied**
14	COC of 5.0 shall be adopted. The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not do not get mixed. A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	As per the discussion held during the monitoring of the project and the report submitted by PAs. It has been stated that the Closed-cycle cooling system is designed for 5.0 COC (Cycle of Concentration). However, PAs have achieved only 2.6 to 3 COC, which is much below the assigned target. Besides, PAs have ETP and STP for the treatment of the Industrial and domestic effluent separately. Industrial effluents are being treated & recycled for further reuse. There is no discharge from all plant premises except during the monsoon sewage period. Proper arrangements have been made so that effluents and storm water do not get mixed. The Sewerage treatment plant (STP) based on MBBR technology has been installed (2200 KLD) and treated STP effluents are being reused in horticulture, green belt development etc. **Not Complied**
15	Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	As stated earlier the project is under operational stage. This condition is not applicable during this stage of the project. **Not Applicable**

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16	Utilisation of 100% Fly Ash generated shall be made from 4th year of operation. The status of implementation shall be reported to the Regional Office of the Ministry from time to time.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have only 70.78 % fly ash utilization so far. As COD of the plant was done on Jan, 2021. Besides PAs having 04 nos. of dry fly ash silo and 2 nos. HCSD silos are found operational. No such report has been received by this office. It is required to submit fly ash returns to this office regularly. **Partially Complied**
17.	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the project having 04 nos. dry fly ash silo is Commissioned and 2 nos. However, PAs also have HCSD silos, which are operational. **Analytical Report on Heavy Metal in Ash Sample** **Phase -I Date 14-07-2024** **Parameter** / **Concentration in µg/g** **Fly Ash** / **Bottom Ash** Pb: 2.21 / 1.25 As: 0.26 / 0.35 Hg: 0.31 / 0.15 **Being Complied**
18	Ash pond shall be lined with HDP/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	As per the discussion held during the monitoring of the project and reports submitted by PAs. It has been found that the PAs have used the Bentonite layer in Bottom ash lagoons and HCSD slurry layering in other lagoons. **Being Complied**
19	Disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have yet not disposed of bottom ash in the abandoned mine. **Not Applicable at this moment**

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	Control Board well in advance before undertaking the activity.	
20	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 width is not possible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 75%.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have developed a significant green belt within the project site. As per the record, PAs have developed a green belt, which covers an area of 163.1 ha, and planted around 3, 73,750 plant saplings so far. Besides, PAs have also planted various plants outside of the project boundary. **Being Complied**
21	The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that the PAs have provided safe drinking water facilities to the villages in the vicinity. Some of the activities under this domain are mentioned below: • More than 130 hand pumps have been installed in project-affected villages. • A drinking water distribution system through pipe along with a storage facility in the overhead tank in 2 self-resettlement colonies in villages, New Basti Salaiya kala & New Basti Jhariyahi, has been made operational. • Drinking water has been supplied from time to time through tankers to all project-affected villages and some nearby villages to provide relief during the summer season. • Construction of one Blast Well completed in village Salaiya kala. In addition, Water Filters were distributed to Home Stea Oustees (HSOs) of village Salaiya Kala and other affected villages. • Solar-powered RO water systems have been installed in 09 primary schools of the associated villages to ensure a clean drinking water facility for the young students. • Solar Powered Mini water scheme has been implemented in the neighboring villages. Out of the total 18 allocated units, 18 units have been made operational till date. 01 unit is expected to benefit around 25-30 families. **Being Complied**

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22	Further an amount of Rs 37.10 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs 7.40 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six month along with a road map for implementation.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that for community development (CD) works, as per RAP I (main plant) and RAP II (supplementary RAP), Rs. 3672 lakhs were approved and till 31.03.2024, Rs. 3399 lakhs have been utilized for the various Community Developmental works at the associated villages. For FY 2024-25, Proposals for need-based CD activities have been approved for the balance amount of Rs. 273 lakhs (out of 3672 lakhs). Recurring expenditure condition, amended in amendment dated 08.08.2019 and mentioned in additional condition no. vii mentioned below in this compliance report. **Being Complied**
23	While identifying CSR activities it shall be ensured that need based assessment for the nearby villages within study area shall be conducted to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people shall be undertaken. Development of folder Farm, Fruit bearing orchards, vocational training etc. can form a part of such programmes. Company shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self-employment and jobs shall be imparted to identified villagers free of cost.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that the need-based assessment survey along with the Social Economic survey and Socio Impact Evaluation Study were undertaken in the year 2022. Based on the reports submitted by the external agency, CD/CSR plans are devised. Under the approved CD Budget as well as the annual CSR budget, CSR/CD activities had been undertaken focusing on infrastructure building, increasing employability & overall uplifting the standard of living of the villages in the vicinity. Some of the activities undertaken under the CD/CSR phase are as follows: • Boundary wall constructed at Primary Schools, Mai Kala, SalaiyaKhurd and Jhariyahi. • Tools/Equipment/ Furniture worth 30 Lakhs provided to Govt ITI, Naini. Electrification work of self-resettlement areas of Jhariyahi New Basti and Salaiya Kala New Basti facilitated. One 100KVA and one 20KVA DG sets were provided at Govt ITI, Naini. Internal/ approach roads constructed at Govt. ITI, Naini and World Bank ITI, Katra. 5 classrooms and 5 workshops have been constructed at Govt. ITI, Naini. • 05 numbers of community centers have been constructed in SalaiyaKhurd, Salaiya Kala, Jhariyahi, Kohdar and Bijaura villages.

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		• Approximately 15 km construction of approach/ internal roads is being undertaken in project surrounding villages. • Distribution of saplings of fruit bearing trees is being carried out regularly. To improve the water retention in villages, three nos. of check dams have been constructed. • 06 nos. of rain sheds have been constructed. 02 nos. of ponds have been restored and deepened. • Through MOU with the state Govt. of UP, 20 % of seats in 8 trades have been reserved for PAPs/ their wards at Govt. ITI, Naini since session 2010-11. Income generating activities like the deployment of vehicles with the company on a hire basis have been provided to PAPs. • Welfare activities like Medical Camps, Cataract operation camps, Veterinary camps, and Distribution of relief material to people affected by natural calamities like floods, fire, etc. are being taken up regularly. 150 solar lighting provided in nearby and associated villages. • Skill development training for youth (males and females) of the nearby villages have been conducted on: Mobile repairing, Assembly of CFL lights, Training on LED lighting & solar electrical system, Plumbering, Repairing of automobiles (two-wheelers), Basic Beauty & Hairdressing, Jute bag designing, Tailoring and stitching, Machine operator plastic processing training to 25 youths with 100% placement. • Distribution of Artificial limbs to the 08 nos. 'Specially abled individuals' of the associated villages of MUNPL. Distribution of Aids and assistive devices like hearing aids, walking sticks, and crutches to 18 nos. needy individuals of the associated villages. • Conducted 'GIRL EMPOWERMENT MISSION- RESIDENTIAL WORKSHOP- 2022, 2023 & 2024' for a total of 117 girls studying in the primary schools of the associated villages. This 04 weeks Residential Workshop is conducted annually and focuses on the

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		overall personality development/ empowerment of the girls. • Distributed 500 benches in rural schools. • Implementation of 2 smart classes in rural schools. • 14. Chain fencing of Gaushalas in 2 locations. **Being Complied**
24	It shall be ensured that an in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be grit done from the nearest government institute of repute in the region. The project proponent shall also submit the status of the implementation of the scheme from time to time	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs having separate departments (R&R) headed by an executive at the level of SM is monitoring R&R t works. R&R works are further reviewed and monitored at different levels of Management, periodically. First Socio-Economic Survey The first social audit of surrounding villages was completed, and the report has already been submitted. The second social audit by GB Pant Social Science Institute, Jhunsi (GBPSSI) for the period Nov-12 to Mar-14 has been submitted. Third-social Audit for activities undertaken from April 2014 Mar 2016 has been completed and the Final report has been submitted by GBPSSI Social Impact Evaluation Study (SIES) has been undertaken by M/s GBPSSI Jhunsi for July – 19 to Mar-21 & report has been submitted. **Being Complied**
General Condition		
1	A well designed rainwater harvesting shall be put in place before commissioning of the plant. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology/design within a period of three months from the date of this clearance and details shall be furnished.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have constructed a water reservoir spread over an area of 75 ha and has a rainwater harvesting potential of 6865Lakh.Ltrs/annum. In addition, there are two Rainwater water harvesting pits and two rainwater recharge pits. Further, a study is being carried out through NIH Roorkee for potential assessment of rainwater harvesting of plants and townships. Draft report submitted by NIH, Roorkee. After the submission of the final report by NIH, Roorkee, it shall be submitted to CGWB for vetting and according to implementation shall be carried out at the site.

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		Being Complied
2	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in the coal yard, especially during the summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have proper arrangements for controlling the coal fire. Garland of water sprinklers is installed to quench spontaneous fires in the coal yard, especially during the summer season.A Garland of water sprinklers is installed to quench spontaneous fires in the coal yard, especially during the summer season. To minimize fire hazards in coal wagons pre-wetting facility is available in both the wagon tipplers as a safety precaution and also for suppressing dust at the source. Dry Fog Dust Suppression (DFDS) systems are available at the header end of the coal transfer points. A total of 82 Fire Water Sprays along the Coal Stock Yard (CSY) are present to check/ minimize spontaneous fires in a coal yard. **Being Complied**
3	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	As per the discussion held during the monitoring of the project and report submitted by PAs. PAs have also obtained PESO licheis vide letter no. P/HQ/UP/15/5031 (P394555) dated 07.03.2017, valid up to 31.12.2024 and P/HQ/UP/15/5032 (P382629) dated 30.03.2017, valid up to 31.12.2024 **Being Complied**
4	Regular monitoring of groundwater level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out, particularly for heavy metals (Hg,Cr,As,Pb), and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data to ensure that the groundwater quality is not adversely affected due to the project.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have installed a total of 18 nos. piezometers in Ash dykes. Third-party analysis of the groundwater analysis is being conducted by M/s CSIR-Indian Institute of Toxicology Research, Lucknow, a NABL-accredited laboratory. As per the submitted analysis report dated July, 2024 data values of all parameters are found within the limit. However, it has been found that the ground level analysis report has not been submitted so far. **Partially Complied**

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Parameter in Unit	Ground water Quality							
	SW-1 Tone River (Up stream)	GW-2 Tons Stream (Down stream)	GW-3 (Ganga River)	GW-4 (Reser-1)	GW-5 (Reser-2)	GW-6 (Natural Drain)	Gw-7	[illegible]
Physico-Chemical Analysis								
pH -	7.4	7.8	7.8	7.7	7.8	7.5	7.0	7.2
Conductivity - µmhos/cm	695	954	780	980	413	646	625	650
Temperature in 0C	30	28	30	29	27	28	29	29
TSS in mg/l	20	23	26	22	30	29	26	17
TDS in mg/l	568	812	610	529	-	-	-	-
Dissolve Phaphate in mg/l	0.06	0.04	0.08	0.05	219	275	804	245
D O in mg/l	1.1	1.0	1.3	1.2	1.5	1.0	1.3	1.1
BOD at 20 0C	1.4	1.3	1.2	1.5	1.2	1.0	1.3	1.5
COD in mg/l	12	10	15	12	16	20	16	20
Total Hardness in mg/l	110	126	167	130	106	118	122	146
Total Caliform MPN	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Metal Concentration								
Fe in mg/l	2.038	1.045	1.847	0.349	0.894	3.358	1.360	1.372
Zn in mg/l	1.646	0.536	2.344	0.047	0.025	3.542	0.035	0.025
Co in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Pb in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cr in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cd in mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
As in mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hg in mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

5	Monitoring surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have installed a total of 18 nos. piezometers in Ash dykes. Third-party analysis of the groundwater analysis is being conducted by M/s CSIR-Indian Institute of Toxicology Research, Lucknow, a NABL-accredited laboratory. As per the submitted analysis report dated July, 2024 data values of all parameters are found within the limit. **Being Complied**

Parameter in Unit	Surface Water Quality					
	SW-1 Tone River (Up stream)	SW-2 Tons Stream (Down stream)	SW-3 (Ganga River)	SW-4 (Reservoir -1)	SW-5 (Reservoir -2)	SW-6 (Natural Drain)
Physico-Chemical Analysis						
pH -	8.0	7.8	8.1	8.0	8.6	8.0
Conductivity - µmhos/cm	222	221	533	484	209	533
Temperature in °C	30	33	34	31	34	31
TSS in mg/l	80	70	119	70	61	130
TDS in mg/l	158	121	284	156	117	245
Dissolve Phaphate in mg/l	0.06	0.11	0.13	0.07	0.07	0.03
Oil & Grease in mg/l	2.7	2.5	1.6	1.3	1.0	1.1
BOD at °C	3.7	1.8	4.2	4.8	4.2	3.9
COD in mg/l	20	16	16	20	29	41
Total Hardness in mg/l	91	48	70	81	107	126
Metal Concentration						
Fe in mg/l	1.71	1.42	2.13	1.432	1.165	1.437
Zn in mg/l	0.027	0.058	0.143	0.026	0.049	0.025
Cu in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Pb in mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cr in mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Cd in mg/l	<0.000	<0.020	<0.020	<0.020	<0.020	<0.020
As in mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hg in mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

6	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during the construction phase.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have sufficient first-aid facilities with a 30 bed hospital within the project. **Being Complied**
7	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dB. For people working in the noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc.shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the workers engaged in noisy areas are provided with earplugs/earmuffs. For such workers, periodical e-audiometric examination is carried. **Being Complied**
8	Regular monitoring of ambient air ground level concentration of SO_2, NO_x, $PM_{2.5}$ & PM_{10} and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	As per the discussion held during monitoring of the project and report submitted by PAs, It has been found that the PAs have commissioned 4 Nos. AAQMS stations and online data is being transmitted to CPCB. Regular monitoring of ambient air ground level concentration of SO_2, NO_x, $PM_{2.5}$, PM_{10} and Hg is being carried out and a report is submitted to regulatory authorities regularly. Besides, Third-party analysis of the various parameters is being conducted by M/s CSIR-Indian Institute of Toxicology Research, Lucknow, a NABL accredited laboratory. As per the submitted analysis report dated July, 2024 data values of all parameters are found within the limit except, $PM_{2.5}$ and PM_{10}, which is high at the plant area site. It is required to take suitable measures including proper use of water sprinklers, road sweeping machines, green belt development, and checking of bag filters etc. **Partially Complied**

Ambient Air Quality

Parameter (µg/m³)	Result				
	Kohdar village	Sonbarsi village	Maikalan village	Township	Plant Area
$PM_{2.5}$	59.7	45.5	40.0	40.0	61.9
PM_{10}	98.2	71.4	67.0	51.7	100.7
SPM	122.0	140.0	118.0	120.9	181.9
SO_2	6.7	6.3	6.0	6.5	7.7
NO_2	13.7	12.4	12.0	17.7	24.7

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	Hg	ND	N	ND	ND	ND
9	Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.			It stated earlier that the project is in the operational stage. **Not Applicable**		
10	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in.			As per the discussion held during the monitoring of the project and report submitted by PAs, It was published in United Bharat, Amar Ujala, Dainik Jagran newspapers on 18.1.2011, and Times of India on 15.1.2011. **Complied**		
11	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZilaParisad / Municipal Corporation, urban local Body the Local NGO, if and any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.			**Complied**		
12	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate seniority and qualification It shall be ensured that the head of the Cell shall directly report to the head of the organization.			As per the discussion held during the monitoring of the project and report submitted by PAs, It has been found that the PAs have already created EMC cells within the project with qualified personnel with very good laboratory facilities. **Being Complied**		
13	The Proponent shall upload the status of compliance of the stipulated environmental			As per the discussion held during the monitoring of the project and report submitted by PAs, It has been found		

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	clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM ($PM_{2.5}$ & PM_{10}, SO_2, NO, (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	that the PAs have displayed six monthly compliance reports on the company website https://mmpl.co.in/environment-management. Besides, PAs have submitted six monthly compliance reports to this office. **Being Complied**
14	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	As per the discussion held during the monitoring of the project and report submitted by PAs. PAs have displayed Environmental statement compliance reports on the company website https://mmpl.co.in/environment-management. **Being complied**
15	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have submitted six monthly compliance reports to this office. **Being complied**
16	Regional Office of the Ministry of Environment & Forests will monitor the	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found

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	implementation of the stipulated conditions. A complete set of documents including the Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. Criteria pollutants levels including NO$_x$ (from stack & ambient air) shall be displayed at the main gate of the power plant.	the project provides full support during the monitoring of the project. **Being Complied**
17	Separate funds shall be allocated for the implementation of environmental protection measures (EMP) along with item-wise break-up. These costs shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have submitted fund allocated under EMP and expenditure made under it. Year wise expenditure has not been submitted so far. **Being Complied**

	Issues Raised	Action Plan Proposed	Compliance status
1	Proper compensation be paid for the land acquired for the proposed project and resettlement of displaced families to be fully ensured.	Compensation for land is decided by State Govt. For displaced families, a Rehabilitation and Resettlement Plan is being prepared by the project proponent in consultation with State Govt. and representatives of the displaced persons. **Cost Provision: As decided by State Govt.**	Total R&R Package+CD sanctioned is Rs. 5181.37 Lakh and **Expenditure is Rs. 4831.69 Lakh.** Budget utilization for Resettlement Grant is 100% (Rs. 158.72 Lakh) and Rehabilitation Grant is 84.59% (Rs.1142.53 Lakh). *RG is not paid due to family dispute.* Utilized percentage of Community Development is 96.14% (Rs.3530.44 Lakh) and balance to be completed by Sep'24.
2	As per proposal, green-belt on 33% of the total area be developed.	100-meter-wide green belt shall be provided all around the main plant area, except switch yard side. In addition, plantation shall	The approximate length of the total plant boundary is 10 KM. As per the action plan proposed, the total green belt area, all around the plant is **10 Ha** (10km X 100 meters), and the total no. of tree plantation to be carried out,

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		be undertaken at all available spaces in plant and township. **Cost Provision: Rs. 2.0 Crores**	considering 2500 saplings per hectare comes as **2,50,000.** Till FY 2023-24, greenbelt is developed in **163.1 Ha** land and total no. of **3,73,750** plantations were carried out. Further plantation shall be carried out continually, in a phased manner. **Cost incurred till date: 5 cr. (approx.)**
3	Setting up of high-efficiency ESPs for control of air pollution as per proposal within a maximum emission of 100 mg/cum of SPM.	High-efficiency ESPs to control the emission of particulate matter to 100 mg/Nm^3 have already been envisaged. The same shall be provided. **Cost Provision: Rs. 220.9 Crore**	Electrostatic precipitators (ESP) have been provided and made operational to control the PM emission within 30 mg/Nm3. **Cost Incurred: Rs.233.23 Crore**
4	Construction of 275 m high chimney to control gaseous emissions in the project.	275 meters high Chimney has already been envisaged. The same shall be provided. **Cost Provision: Rs. 60.4 Crores**	275 meters high Chimney has been installed and in service. Total expenditure made in the installation of chimney is**Rs.100 Crore** FGD chimney is also installed. Total Cost incurred **is Rs.70 Crore**
5	Adequate arrangements be made in coal crushing, coal handling plant to control air pollution.	Coal dust suppression and extraction systems have been envisaged for the project and the same shall be provided. **Cost Provision: Rs. 4.0 Crores**	Dust Extraction system, Dry Fog Dust Suppression (DFDS) system and Sprinklers system in coal yard are installed and kept in service. **Cost Incurred: 2.41 Crores**
6	Provision of adequate sprinklers at the Ash Pond to control fugitive emissions and water generated from ash pond should be reused in the Ash Handling and should not be discharged into Ganga and its tributary rivers.	Ash pond shall be provided with water cover over the entire area to prevent emission of fugitive dust. The ash water shall be recycled for further use in ash handling within the plant. **Cost Provision: Rs. 322.8 Crores**	Lagoon I, II and III are constructed for disposal of ash generated. Ash dust suppression measure Lagoon II and Lagoon III are water covered. Water sprinklers of 50no's are made available in Lagoon I. In addition to the above measures, a portable HDPE pipeline is also available to suppress fugitive dust emissions in ash pond. All the lagoons are in operation. Decanted ash water from the lagoons is pumped back to the plant and reused for ash disposal through a dedicated Ash Water Recirculation System (AWRS). **Total Cost incurred is Rs. 322 Crore (Rs.125 for Ash pond and AWRS. Balance is land cost for Ash pond)**

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7	Effluent Treatment Plant for control of water pollution and Sewage Treatment Plant for domestic waste should be set up. Treated water be used in the development of proposed green-belt. Facilities for reuse of treated effluent to the extent possible be developed.	Effluent treatment plant and sewage treatment plant have been envisaged and the same shall be provided. As far as possible, treated wastewater shall be used in the development of green belt. **Cost Provision: Rs. 10 Crores.**	Plant effluents are treated in ETP. Treated ETP water is reused in the plant for dust. Sewage effluent is treated in STP and treated STP water is reused for the development of horticulture and green cover areas. **Total Cost incurred is Rs.08 Crore.**
18	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	As per the discussion held during the monitoring of the project and report submitted by PAs. PAs have assured to comply. **Assured to Comply**	
19	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/SPCB who would be monitoring the compliance of environment status.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the project provides full support during the monitoring of the project. **Being Complied**	
Additional EC Conditions added in EC amendments:			
EC conditions added vide letter dt 21-07-2017			
1	Air and water quality equipment shall be set up for periodic environment monitoring	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have four ambient air quality monitoring stations (AAQMS), and effluent quality monitoring stations (EQMS), which were found working during the monitoring of the project. **Being Complied**	
2	Global Positioning System GPS positioning system to be installed on all the truck carrying coal	As per the discussion held during the monitoring of the project and report submitted by PAs. Now all coal transportation has been going through the coal. Therefore, this condition is not applicable at this moment. **Not Applicable**	

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3	MOEF & CC notification S.O. 3305(E) dated 7/12/2015 and subsequent notification issued time to time shall be implemented with respect to specific Erection & commissioning works of FGD is water consumption zero liquid discharge and emission standards.	As per the discussion held during the monitoring of the project and report submitted by PAs. Electrostatic precipitators (ESP) have been provided and made operational. PM emission is maintained within 30 Mg/NM^3.It has been found that the commissioning of FGD for stage one has already been completed in Feb 2024. However, commissioning for stage two has been expected in August, 2024 against the cutoff date of Dec'26 in line with MOEF &CC gazette notification GSR 628(E) dated 5th Dec 2022. Low Nox burners are installed and in use. Specific water consumption for FY 23-24 is 2.56 (Std. 3.0 m3/KwHr). All effluents are treated & recycled for further reuse. There is no discharge from plant premises except during the monsoon period. **Being Complied**
4	Trucks shall be covered with tarpaulin and properly stamped to ensure that tarpaulin is property tied with help of rope and truck is fully covered so that there is no slippage of coal and/or emission of dust during transportation	As per the discussion held during the monitoring of the project and report submitted by PAs. Now all coal transportation has been going through the coal. Therefore, this condition is not applicable at this moment. **Not Applicable**
5	Water sprinkling to be carried throughout Compiled the route for control of fugitive dust emission.	As per the discussion held during the monitoring of the project and report submitted by PAs. Now all coal transportation has been going through the coal. Therefore, this condition is not applicable at this moment. **Not Applicable**
6	Railway siding shall be constructed Complied before the expiry of validity of EC that is before 09.01.2018	As per the discussion held during the monitoring of the project and report submitted by PAs. Amendment in this EC condition was granted vide 21.07.2017 and further extended from 24.09.2018 till 31.03.2019. The railway side was completed within the timelines provided. **Complied**
7	Treated sewage water shall be used if there are any sewage treatment plants located within 50-kilometre distance from this project	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been noted that in Naini there are 2 STP's (42MLD & 80MLD) which are located within 50 km radius of Meja TPP. As per the preliminary study conducted for the use of treated sewage water of Naini STP in Meja TPS, the Ministry of

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		Power in the office memorandum dated 10.01.2023 recommended that "Meja TPS may be exempted from linking with the STP" based on the fact that Naini STP water would be used in Bara TPS which is located closer to Naini STP than Meja and further Meja TPS is located across the river from Naini STP. Whereas Bara TPS and Nain STP are on the same side of the River. **Exempted by Ministry Of Power**
EC Amendment dated 08-01-2018		
1.	Once the units will achieve COD the revised emission standards as per the ministry is notification date 07.12.2015 and subsequent amendments notified from time to time shall be complied with in case the plant is ready for commissioning and not meeting revision revised emission norms operation shall be stopped.	As per the discussion held during the monitoring of the project and report submitted by PAs, Electrostatic precipitators (ESP) have been provided and made operational. PM emission is maintained within 30 Mg/NM³.It has been found that the commissioning of FGD for stage one has already been completed in Feb, 2024. However, commissioning for stage two has been expected in August 2024 against the cutoff date of Dec'26 in line with MOEF &CC gazette notification GSR 628(E) dated 5th Dec 2022. Low Nox burners are installed and in use. Specific water consumption for FY 23-24 is 2.56 (Std. 3.0 m3/KwHr). **Being Complied**
EC Amendment dated 28.03.2019		
1	Regular sweeping and water sprinkling is to Complied be carried out by the project proponent The cost of these activities shall be borne by the project proponent.	As per the discussion held during the monitoring of the project and report submitted by PAs. Now all coal transportation has been going through the coal. Therefore, this condition is not applicable at this moment. **Not Applicable**
2	Ambient air quality and Noise monitoring at Complied project site Rampur and Nainivillages is to be carried out once in a month to assess the incremental impacts Transportation, if any.	As per the discussion held during the monitoring of the project and report submitted by PAs. Now all coal transportation has been going through the coal. Therefore, this condition is not applicable at this moment. **Not Applicable**
3	The trucks used for transportation of coal Complied. Coal are being transported shall be in compliance with the latest vehicular emission norms.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the Coal are being transported through railway rakes

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		only. Therefore, this condition is not applicable at this moment. **Not Applicable**
FC Amendment dated 08.08.2019		
1	The extension of environment clearance is only for continuing the construction activities of the unit 2. However, the operation of both units shall be started only when new pollution control equipment is installed and made ready to meet the revised emission norms issued vide dated 7.12.2015. Otherwise an extension from the CPCB shall be obtained and submitted to the Ministry	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the new pollution control equipment is being installed to meet the revised emission norms. Electrostatic precipitators (ESP) have been provided and made operational. PM emission is maintained within 30 Mg/NM3. It has been found that the commissioning of FGD for stage one has already been completed in Feb, 2024. However, commissioning for stage two has been expected in August 2024 against the cutoff date of Dec'26 in line with MOEF &CC gazette notification GSR 628(E) dated 5th Dec 2022. Low Nox burners are installed and in use. **Being Complied**
2	The average weekly emissions of flue gas for PM SO_2 and NO, shall be submitted as a part of the compliance report. Further the as annexure V, mercury emission report shall also be submitted	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have submitted average weekly emission of flu gas for PM, SO_2 and NOx. **Being Complied**
3	The progress of the installation of FGD, De No_x systems along with financial expenditure shall be submitted along with six monthly compliance report.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the new pollution control equipment is being installed to meet the revised emission norms. Electrostatic precipitators (ESP) have been provided and made operational. PM emission is maintained within 30 Mg/NM3. It has been found that the commissioning of FGD for stage one has already been completed in Feb, 2024. However, commissioning for stage two has been expected in August, 2024 against the cutoff date of Dec'26 in line with MOEF &CC gazette notification GSR 628(E) dated 5th Dec 2022. Low Nox burners are installed and in use. Besides, a total financial expenditure of amount Rs 519 Cr has been made to date for the installation of the FGD system. **Being Complied**

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4	Specific condition no. (xii) Bi flue stack of 275 m height with flue gas velocity not than 22 metre per second shall be installed and provided with continuous online monitoring equipment for Sox, Nox and PM	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that PAs have commissioned 275 high Stack is provided with continuous online monitoring for Sox, NO_x, PM. Ex velocity of Flue gas shall be maintained at more than 22 m/sec. **Being Complied**
5	While commissioning the proposed unit the compliance of revised emission norms issued wide notification dated 07.12.2015 shall be achieved along with specific water consumption as per notification dated 28.06.2018. The FGD system and NOx control measures such as SCR/SCNR/De-Nox burner shall be installed to achieve the revised emission norms.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been found that the PAs have installed Electrostatic precipitators (ESP) and found operational. PM emission is also maintained within 30 Mg/NM^3. It has been found that the commissioning of FGD for stage one has already been completed in Feb, 2024. However, commissioning for stage two has been expected in August, 2024 against the cutoff date of Dec'26 in line with MOEF &CC gazette notification GSR 628(E) dated 5th Dec 2022. Low Nox burners are installed and in use. Besides, Specific water consumption for FY 23-24 is 2.56 (Std 3.0 m^3/Kw Hr). All effluents are treated & recycled for further reuse. There is no discharge from plant premises except during the monsoon period. **Being Complied**
6	As per revised tariff policy notified by the Ministry of power vide dated 28.01.2016, the project proponent shall explore the use of treated sewage water from the sewage treatment plant of Municipality/Local bodies/ similar organization located within 50 km radius of the proposed power project to minimize the water source from surface water bodies. The detail of sewage treatment plants located within 50kilometres along with the capacities shall be submitted.	As per the discussion held during the monitoring of the project and report submitted by PAs. In Naini there are 2 STPs (42MLD & 80MLD) which are located within a 50 km radius of Meja TPP. As per the preliminary study conducted for the use of treated sewage water of Naini STP in Meja TPS, the Ministry of Power in the office memorandum dated 10.01.2023 recommended that "Meja TPS may be exempted from linking with the STP" based on the fact that Naini STP water would be used in Bara TPS which is located closer to Naini STP than Meja and further Meja TPS is located across the river from Naini STP. Whereas Bara TPS and Nain STP are on the same side of the River. **Exempted by Ministry Of Power**

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7	With respect to the capital expenditure on CER/CSR activities as one time amount should be in-line with the ministry circular dated 01.05.2018 or the amount stipulated in the EC whichever is higher project proponent has to submit the revised/latest project cost, calculate the one-time CER expenditure based on the revised project cost compare with the stipulated in the EC and adopt the highest amount. The detail in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that the in Section 135 of the Companies Act, 2013, the total amount allocated for CSR for FY 2024-25 is Rs. 4.63 crores (2% of the average net profit. of 03 preceding FYs). Implementation of the activities planned is under progress. **Being Complied**
8	With respect to the recurring CSR expenditure any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring amount shall be in line with section 135 of companies act, 2013 which states that companies shall spend (in every financial year) at least 2% of the average net profit of the company made during the 3 immediately preceding financial years, in pursuance of its corporate responsibility policy social responsibility policy.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that the in Section 135 of Companies Act, 2013, the total amount allocated for CSR for FY 2024-25 is Rs. 4.63 crores (2% of the average net profit. of 03 preceding FYs). Implementation of the activities planned is under progress. **Being Complied**
10	The details of average net profit made during the last 3 years to be submitted including the amount earmarked for CSR activities at least 2%) from this project and the detail of various activities undertaken along with expenditure, extent of village covered, benefitted population, the proximity to the project area etc. as a part of EC compliance report (October to March on 1st June and April to September on 1stdec) on the ministry and its regional office.	As per the discussion held during the monitoring of the project and report submitted by PAs. It has been stated that the annual profit and budget allocated for CSR is enclosed below: **Year** / **Net Profit (in lacs)** 2021-22 — 27901.46 2022-23 — 9181.18 2023-24 — 32400.00 CSR Budget (2% avg of the 03 FY) — 463.21

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		Being Complied

Conclusion: Project authorities have complied or are in the process of complying with the environmental conditions stipulated for this project (Condition-wise compliance status enclosed). In this context, information/action plans have been sought on the following points:

1. As per the Specific condition no. III "Land requirement shall be restricted to 1100 acres (including ash pond)" However, it has come to notice that PAs have acquired around 2762.63 acres of land, which is 1762.63 acres more as mentioned in the EC.
2. It is required to submit the break-up of the plant, fly ash area, coal yard, etc.
3. It has been found that the COC of the plant as of now is ranging between 2.5 to 3 against the 5, recommended in EC. Therefore, it is required to take suitable measures to achieve 5 COC at the earliest.
4. PAs have also changed their coal linkage from SECL to CCL and NCL in 2021. However, no EC amendment has been taken so far, which is required as per the Ministry Office Memorandum no. J-13012/8/2009-IA.II (T) dated 11.11.2020.
5. As informed, 04 number of check dams had been constructed in surrounding villages namely Jhariyahi, Isauta, Patai Dandi & Kohdar. It is required to submit a copy of state government permission for the construction of the above check dams to be submitted to this office.
6. It has been found that the groundwater level analysis report has not been submitted so far.
7. It has been found that the reply to this condition is not properly addressed in the submitted report, it is required to submit a details reply to the EC condition "Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season".
8. It is required to submit the source of water meeting requirement during the lean season to this office.
9. It has been found that the PAs have yet not submitted fly ash returns to this office. It is required to submit fly ash returns to this office regularly.

(डा० ए. के. गुप्ता)
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Meja Urja Thermal Power Plant Photos













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भारत सरकार
Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
क्षेत्रीय कार्यालय, लखनऊ
Regional Office, Lucknow

केन्द्रीय भवन, ग्यारवां तल, सेक्टर एच, अलीगंज, लखनऊ-226024
Kendriya Bhawan, 11th Floor, Sector H, Aliganj, Lucknow-226024, Phone No : 0522-2326696
Email : roez.lko-mef@nic.in, goimoefrolko@gmail.com

पत्र संख्या:- IV/ENV/UP/TH-41/319/2010/194 दिनांक:- 04.09.2024

सेवा में,

M/S MEJA URJA NIGAM (P) LTD.
P.O. Kohdar, Tehsil Meja,
District- Prayagraj, U.P.-212301
Email: anandprakash@ntpc.co.in
achatterjee02@ntpc.co.in

विषय: 2x660 MW Super Critical Technology Coal-based Meja Thermal Power Project reg.

सन्दर्भ: EC no. J-13012/03/2008- IA.II (T) dated 10.01.2011 and various amendment dated 21.07.2017, 08.01.2018, 28.03.2019, 08.08.2019, 25.09.2020

Sir,

I am directed to state that above project was monitored by this office on 06-07.08.2024 to review the status of implementation of environment safeguards stipulated in the Environment Clearance letter as referred above. PAs are comply or complying various stipulation made under Environmental clearance. Besides, various non-compliances were observed which are as follows, necessary action taken report may submit to this office at earliest.

1. As per the Specific condition no. III "Land requirement shall be restricted to 1100 acres (including ash pond)" However, it has come to notice that PAs have acquired around 2762.63 acres of land, which is 1762.63 acres more as mentioned in the EC.
2. It is required to submit the break-up of the plant, fly ash area, coal yard, etc.
3. It has been found that the COC of the plant as of now is ranging between 2.5 to 3 against the 5, recommended in EC. Therefore, it is required to take suitable measures to achieve 5 COC at the earliest.
4. PAs have also changed their coal linkage from SECL to CCL and NCL in 2021. However, no EC amendment has been taken so far, which is required as per the Ministry Office Memorandum no. J-13012/8/2009-IA.II (T) dated 11.11.2020.
5. As informed, 04 number of check dams had been constructed in surrounding villages namely Jhariyahi, Isauta, Patai Dandi & Kohdar. It is required to submit a copy of state government permission for the construction of the above check dams to be submitted to this office.
6. It has been found that the groundwater level analysis report has not been submitted so far.
7. It has been found that the reply to this condition is not properly addressed in the submitted report, it is required to submit a details reply to the EC condition "Minimum required

environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season".

8. It is required to submit the source of water meeting requirement during the lean season to this office.
9. It has been found that the PAs have yet not submitted fly ash returns to this office. It is required to submit fly ash returns to this office regularly.

Sincerely,

4/9/24

(डा0 ए. के. गुप्ता)
अतिरिक्त निदेशक (वै0)

Copy to:

- Compliance Monitoring Division (CMD) cell, Ministry of Environment and Climate Change Indra, Paryawaran Bhawan, Aliganj, Jorbagh Road New Delhi-110003, Email: moefcc-monitoring@gov.in

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ANNEXURE I-A: The land requirements for both the stages were projected in the aforementioned report

(7) The steam, after passing through the turbines, is condensed back into water in condensers and the same is re-used as a boiler feed water for making steam. The reasons for condensing and reusing the steam are following: -

- The cost of boiler feed water is very high as it is very pure demineralised water hence reuse is economical.
- The use of condenser lowers the temperature at the exit end and hence increases the efficiency of the turbine.

(8) The condenser contains tubes through which cold water is constantly pumped. The steam passing around the tubes of condenser looses heat and condenses as water. During this process, the steam gets cooled while cooling water gets heated up (by about 10°C). This hot water is cooled in a cooling tower and recycled for cooling. However, in order to control dissolved solids, a certain amount of blow down is required from the cooling towers, which is used in the plant for other usages such as service water, coal dust suppression etc.

The units under Meja TPP (2x660 MW) shall be based on super critical boiler parameters, which has higher thermal efficiency as compared to conventional pulverised coal fired units based on sub-critical boiler parameters. The increase in efficiency results in lower coal consumption as well as lower generation of ash and gaseous emissions.

2.2 PROJECT COMPONENTS

2.2.1 Land

For Meja TPP about 2500 acres of land was proposed to be acquired which included land requirement for main plant, green belt, raw water reservoir, township and other areas for ultimate stage (4x660 MW) but the land requirement for ash disposal area for stage-I (2x660 MW) only. However, after detailed topographical survey, based on actual site conditions and detailed layout design, the land requirement increased to about 2873 acres, as per following break-up

Category	Land Requirement	Remarks
Main Plant	748 Acres	For Stage-I & II
Green Belt	130 Acres	For Stage-I & II
Ash Disposal Area	831 Acres	For Stage-I only
Raw Water reservoir	305 Acres	For Stage-I & II
Railway siding & others	669 Acres	For Stage-I & II
Township	190 Acres	For Stage-I & II
Total	2873 Acres	

It is pertinent to mention here that the land requirement has increased due to irregular plant boundary and the fact that a significant part of land acquired is left unused because of Nallah crossings. Further, the land identified for Meja TPP is

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mostly barren, rocky and highly undulating terrain to the tune of 10 to 15 meters and not prone to flood. Govt. of UP has accorded in-principle clearance for availability of 2500 acres of land vide letter dated 06.12.2007. However, due to the infertile nature of land, the private land owners were willing to transfer their land to MUNPL.

2.2.3 Coal

2.2.3.1 Source, Requirement and Availability

For Meja TPP, raw coal is proposed to be used as a base fuel. Likely coal source for the project is Central Coalfields Ltd (CCL). Application for Long Term Coal Linkage has been submitted to Ministry of coal, Govt. of India on 21.06.2007. Based on recommendation of Ministry of Power for long term coal linkage, Ministry of Coal has authorised Coal India Limited to issue the LOA. The LOA is expected shortly.

The daily coal requirement for Meja TPP shall be about 22,828 tonnes based on gross calorific value of 3400 Kcal/Kg, 100% plant load factor and 2450 Kcal/kWh unit heat rate. The annual coal requirement would be about 7.34 MTPA considering 90% PLF.

2.2.3.2 Coal Transportation

The envisaged mode of coal transportation from the coal mines to the power plant is by Indian Railways BOX-N rakes. The rakes shall be unloaded by wagon tipplers. For bringing the coal and material to the powerhouse through railway system, a permanent railway siding shall be constructed.

2.2.3.3 Coal Quality

The expected coal characteristics for Meja TPP are presented in Table 2.2.1.

Table 2.2.1: Expected Coal Characteristics for Meja TPP

Parameter	Unit	Characteristics
Ash	%	38% - 46%
GCV	Kcal/kg	3000-3800
Sulphur	%	0.3-0.5

2.2.3 Water

2.2.3.1 Source, Requirement and Availability of Water

The source of water for the project shall be Ganga river which flows at a distance of about 22 kms from the project site. Make up water requirement for this project would be about 4990 m^3/hr with ash water re-circulation system and about 7515 m^3/hr with once through ash water system. Govt. of Uttar Pradesh vide dated

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ANNEXURE I-B: Meja Urja Nigam Private Limited (MUNPL) and Uttar Pradesh Power Corporation Limited (UPPCL) on 05.01.2011

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उत्तर प्रदेश UTTAR PRADESH X 474210

POWER PURCHASE AGREEMENT FOR

MEJA THERMAL POWER STATION STAGE-II (2X660 MW)

BETWEEN

MEJA URJA NIGAM PRIVATE LIMITED

AND

UTTAR PRADESH POWER CORPORATION LIMITED

THIS POWER PURCHASE AGREEMENT hereinafter called the "Agreement" entered into at ..... Lucknow ..... on the ..5th.....day of January...Two Thousand Eleven (..05../..01../2011) between **Meja Urja Nigam Private Limited**, a Company incorporated under the Companies Act, 1956 having its registered office at NTPC Bhawan, Core 7, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi – 110003 (hereinafter called '**MUNPL**' or '**the Seller**') which expression shall unless repugnant to the context or meaning thereof include its successors and assigns as party of the first part; and

Uttar Pradesh Power Corporation Limited, having its Registered/Head Office at Shakti Bhawan, 14, Ashok Marg, Lucknow-226001 (hereinafter referred to as '**UPPCL**' or '**the Procurer**') which

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expression shall unless repugnant to the context or meaning thereof include its successors and Permitted Assigns as party of the second part. Each of the parties of the first and second above is individually referred to as a **"Party"** and collectively as the **"Parties"**.

WHEREAS MUNPL or the Seller is a Generating Company as defined under Section 2(28) of the Electricity Act, 2003 and is a joint venture company equally held between **NTPC Limited** and **Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited.**

AND WHEREAS the Seller is setting up a coal fired power station named as **Meja Thermal Power Station Stage-I** (capacity of 2X660 MW), and subject to techno-economic feasibility, expanding the same as Meja Thermal Power Station Stage-II (2x660 MW) at Meja in Allahabad district of Uttar Pradesh State hereinafter specifically referred to as **"Meja TPS Stage-II"** and generally be referred to as **"Station"** to be owned and operated by the Seller.

AND WHEREAS UPPCL or **'the Procurer'** is desirous of purchasing electricity from Meja TPS Stage-II and the Seller is willing to sell electricity from Meja TPS Stage-II to the Procurer from the date of commissioning of Unit –I of Meja TPS Stage-II on mutually agreed terms and conditions mentioned hereunder.

Now, therefore, in consideration of the premises and mutual agreements, covenants and conditions set forth herein, it is hereby agreed by and between the Parties as follows: -

1.0 DEFINITIONS

(a) The words or expressions used in this Agreement but not defined hereunder shall have the same meaning assigned to them by the Electricity Act, 2003 as amended from time to time, the Rules framed there under and Regulations issued by CERC from time to time.

(b) The words or expressions mentioned below shall have the meanings respectively as assigned hereunder:

i)	Act 2003	The Electricity Act, 2003 as amended or modified from time to time, including any re-enactment thereof.
ii)	Availability	As defined in the CERC (Terms and Conditions of Tariff) Regulations, 2009 as amended or replaced from time to time
iii)	Billing Centre	The office / RHQ as intimated by the Seller to the Procurer from where the bills will be raised on them.

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iv)	Bulk Power Customer(s)	Bulk Power Customer(s) in relation to the Station shall mean the person(s) including the Procurer to whom capacity is contracted from the station.
v)	Busbars/Ex Bus	Busbars of the Station to which outgoing feeders are connected.
vi)	CEA	Central Electricity Authority
vii)	CERC	Central Electricity Regulatory Commission
viii)	CTU	Central Transmission Utility.
ix)	Capacity Charges	Capacity Charges are Fixed Charges as determined by CERC or any other competent authority and shall be paid in proportion to the Contracted Capacity from time to time.
x)	Charges for Supply of Electricity	Mean and include all charges including the Tariff to be paid by the Procurer /Bulk Power Customer(s) in respect of supply of electricity to them from the Station in accordance with the provisions of this Agreement.
xi)	Commercial Operation Date	'Date of Commercial Operation' or 'COD' in relation to a unit means the date declared by the Seller after demonstrating the Maximum Continuous Rating (MCR) or Installed Capacity (IC) through a successful trial run after notice to the Bulk Power Customer(s) and in relation to the generating station the date of commercial operation means the date of commercial operation of the last unit or block of the Station
xii)	Contracted Capacity	Capacity contracted under this agreement by the Procurer /Bulk Power Customer(s) under Article 2.2
xiii)	Due Date	30 days from the date of presentation of bill(s)
xiv)	Effective Date	means the date of signing of this Agreement
xv)	GOI	Government of India
xvi)	IEGC	Indian Electricity Grid Code, as notified by CERC or any other competent authority and as amended from time to time.
xvii)	Incremental Receivables	The amount of the Receivables in excess of the amounts which have been charged or agreed to be charged in favour of the Procurer's Financing Parties by way of a legally binding agreement, executed prior to the 'Effective Date', i.e., the date of signing this PPA, provided such charge of the Procurer's Financing Parties shall be limited to the extent of their outstanding exposure (including commitments for exposure) as on the 'Effective Date'.

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xviii)	Infirm Electricity	means electricity generated prior to commercial operation of the Unit (s) /Block(s) of the Station
xix)	LC	Irrevocable Revolving Letter(s) of Credit.
xx)	Main and Check Meter	Meter for measurement and checking of import/export of energy on the outgoing feeders of the Station Busbars for Energy Accounting.
xxi)	Monthly Bill	Monthly Bill as raised by the Seller as per REA in line with the CERC Regulation as amended from time to time. Provided that periodicity of billing may change as per CERC regulation from time to time.
xxii)	Party/Parties	Shall have the meaning ascribed thereto in the recital to this Agreement
xxiii)	Permitted Assigns	Have the meaning as per Article 12 of this agreement
xxiv)	Powergrid	Power Grid Corporation of India Ltd.
xxv)	NRLDC	Northern Regional Load Despatch Centre.
xxvi)	NRPC	Northern Regional Power Committee established under Section 2(55) of the Electricity Act, 2003.
xxvii)	Regional Energy Account (REA)	Periodic Energy Account issued by NRPC/ NRLDC / UPSLDC including amendments thereof.
xxviii)	Scheduled Generation	Scheduled Generation as defined in the CERC (Terms and Conditions of Tariff) Regulations, 2009 as amended or replaced from time to time
xxix)	SLDC	State Load Despatch Centre
xxx)	Station	Have the meaning as given in the recital
xxxi)	STU	State Transmission Utility
xxxii)	Supplementary Bill	Have the meaning under the Article 6.1.3
xxxiii)	Target Availability	Availability of the Station for recovery of full Capacity (Fixed) Charges on annual basis
xxxiv)	Transmission Licensee	Having the meaning as per Electricity Act 2003
xxxv)	Tariff	Tariff shall constitute Capacity Charges, Energy Charges, Incentive and other charges viz taxes/cess etc for supply of electricity from the Station as determined by CERC or any other Competent Authority
xxxvi)	Third Party(ies)	Any person other than the person to whom electricity is contracted under this Agreement
xxxvii)	Unit	Each Unit of the Station
xxxviii)	UI	Unscheduled Interchange as defined in the CERC (Unscheduled Interchange charges and related matters) Regulations, 2009 as amended or replaced from time to time

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2.0 GENERAL

2.1 Installed Capacity:

2.1.1 The capacity of Meja TPS Stage-II is proposed to be 1320 MW, subject to change after placement of orders for the main plant equipment.

2.1.2 The Station is being developed as Mega Power project under Mega Power Policy of Govt. of India. One of the conditions of such Mega Power Policy is that the electricity be supplied only to the Bulk Power Customer(s) which agree to comply with the terms and conditions of the Mega Power Policy. In line with the Mega Power Policy, Govt. of UP undertakes to ensure compliance with the provisions of Mega Power Policy.

2.2 Allocation of Capacity

2.2.1 Uttar Pradesh has requested for minimum 75 % allocation of power from the Station subject to approval of the Govt. of India. NTPC would take up allocation of power from the Station, as above, with the Govt. of India. However, Allocation of Capacity from the Station to the State of Uttar Pradesh shall be as decided by GOI.

2.2.2 Fifteen Percent (15%) of the installed capacity of the station corresponding to equity participation by NTPC shall be kept unallocated at the disposal of Govt. of India and shall be subject to allocation among the Bulk Power Customers from time to time as per the decision of Ministry of Power, GOI. Out of this unallocated capacity, balance if any, after such allocation by GOI shall be deemed to have been allocated to various Bulk Power Customers in proportion to their allocated shares.

2.2.3 The allocation made from the Station by GOI or any other competent authority in favour of the Procurer(s) shall be subject to signing of this Agreement, opening of LC and providing appropriate payment security mechanism as provided at Article 6.2 in this Agreement. The Procurer shall draw electricity against the above Contracted Capacity limited to the amount of LC opened and maintained by it. The Seller shall intimate UPSLDC/NRLDC from time to time regarding the quantum of capacity the Procurer is eligible to draw.

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3.0 TRANSMISSION / WHEELING OF ELECTRICITY

3.1 Sale of electricity shall be at the busbars of the Station. MUNPL shall be responsible for making arrangements upto the terminal gantries of power evacuating line bays including outdoor carrier PLCC equipments within the power station switchyard. Thereafter it shall be the obligation and responsibility of the Procurer to make the required arrangement for evacuation of electricity from such delivery points of the Seller.

3.2 Charges for utilisation of transmission system(s) owned by the Powergrid/other Transmission Licensee for wheeling of the electricity beyond busbar of the Station, shall be paid directly by the Procurer to the Powergrid or the Transmission Licensee as the case may be. The Seller shall not be responsible for payment of such charges.

4.0 SCHEDULING, METERING AND ENERGY ACCOUNTING

4.1 Scheduling

It is understood and agreed by and between the parties that the Seller shall operate the Station as a base load station as per the manufacturers' guidelines, applicable grid operating standards, directions of the CERC and relevant statutory provisions, as applicable from time to time. Methodology of generation scheduling shall be as per IEGC and the decisions taken at NRPC forums.

All charges/fees related to scheduling and despatch of electricity shall be borne by the Procurer(s). The Seller shall make declaration of the capacity at the busbars of the Station after taking into account the capability of the Station to deliver Ex-Bus which shall be considered while calculating Declared Capability (DC).

4.2 Declared Capability

Declared Capability or 'DC' means the capability of the Station to deliver Ex-Bus electricity in MW declared by the Station in relation to any period of the day or whole of the day, duly taking into account the availability of coal as per the procedure laid down in IEGC.

Notwithstanding the following, Station shall be deemed as available to the extent of DC declared by the Station for any time period:

a. Failure on account of Bulk Power Customer(s) to transmit and wheel electricity from the Station Ex-Bus.

b. Any other reason not attributable to the Seller restricting scheduling and despatch of capacity at the Station ex-Bus.

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4.3 **Metering**

4.3.1 A set of Main and Check Meters of 0.2S accuracy class, as per CEA (Installation & operation of meters) Regulations 2006/IEGC as applicable, shall be installed by CTU/STU on all outgoing feeders of the Station. The Procurer shall make all necessary arrangements for installation of meters of required accuracy and specifications, at all its drawal points.

4.3.2 The Main and Check Meters shall be checked jointly at the time of installation as per the CEA (Installation & Operation of Meters) Regulations 2006.

4.3.3 Data shall be downloaded from the meters at regular intervals as decided by NRPC/NRLDC for preparation of the REA/UI Account.

4.3.4 Regular cross checking and analysis of meter readings and meter failure or discrepancies shall be reckoned as per CEA (Installation & Operation of Meters) Regulations 2006. If the Main Meter is found to be not working at the time of meter readings or at any other time, the Seller shall inform the CTU/NRLDC of the same.

4.3.5 In case of failure of meters, energy/UI accounting for the period shall be as per procedure laid down by CERC or as per the mutually agreed procedure in NRPC. In case of absence of any such procedure, the following procedure shall be followed:

In case of failure of Main Meter, readings of Check Meter for the corresponding period shall be considered for energy/UI accounting. If both the Main and Check Meter(s) fail to record or if any of the PT fuses is blown out, energy shall be computed based on standby meters. In case of dispute, the decision of Member Secretary of the NRPC would be final and binding.

4.3.6 Periodic testing of both Main and Check Meters shall be carried out in the presence of representatives of the Seller and the Procurer as per procedure laid out in CEA (Installation & Operation of Meters) Regulations, 2006. For any testing and/ or replacement, notice of seven (07) days will be given

4.4 **Energy Accounting**

4.4.1 Both the Parties agree to facilitate issue of Regional Energy Accounts by 1st day of every month.

4.4.2 Regional Energy Account issued by NRPC /NRLDC/ UPSLDC or any other Competent Authority shall be binding on all the parties for billing and payment purposes

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4.4.3 Any change in the methodology of Regional Energy Account shall be done only as per the decisions taken in the NRPC forums and both the Parties agree to abide by the methodology so finalised

5.0 TARIFF

5.1 Terms And Conditions:

5.1.1 The Tariff for the electricity supplied from the Station would be as determined by CERC or any other Competent Authority from time to time.

5.1.2 Tariff for sale of electricity from the Station shall comprise of Capacity Charge, Energy Charge, Incentive, and all other taxes/charges.

5.1.3 Adhoc Tariff

The Seller shall approach CERC or any other Competent Authority for determination of Provisional Tariff before Commercial Operation Date of any unit of the station. In case this Tariff is not determined for any reason by CERC or such other competent authority prior to commencement of commercial operation of such unit of the Station, billing shall be done on adhoc basis as per the proposal of the Seller submitted to CERC for Provisional Tariff and the Parties agree that the Buyer shall duly make 95% of such adhoc tariff pending determination of such Tariff by CERC or any other competent authority, subject to adjustment based on applicable rate as per CERC Regulations as and when such Tariff is determined by CERC or any other competent authority.

5.2 Sale of Infirm Electricity:

Infirm electricity, i.e., sale of electricity prior to commercial operation of the unit, will be treated by the Seller based on methodology as notified by CERC or any other competent authority from time to time.

5.3 Taxes, Levies, Duties, Royalty, Cess Etc.:

5.3.1 Tax on Income:

Tax on the income derived from generation of electricity shall be treated as per regulations of CERC or any other competent authority as applicable from time to time.

5.3.2 Other Taxes, Levies, Duties, Royalty, Cess Etc.:

Statutory taxes, levies, duties, royalty, cess or any other kind of levies imposed/charged by any Government (Central/State) and/or any other local bodies/authorities on generation of electricity including auxiliary consumption or any other type of consumption including water, environment

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protection, sale of electricity and/or in respect of any of its installations associated with the Station payable by the Seller to the authorities concerned shall be governed by the Regulations/ Orders of CERC/ Appropriate Govt./ Local Bodies from time-to-time.

6.0 BILLING AND PAYMENT

6.1 Billing:

The Charges for Supply of Electricity under this Agreement shall be billed by the Seller as determined from time to time by Central Electricity Regulatory Commission and/or any other Competent Authority and the same shall be paid by the Procurer in accordance with the following provisions:

6.1.1 The Seller shall present the bills for electricity supplied to the Procurer from the Station for the previous month based on Regional Energy Account issued by NRPC/ NRLDC/UPSLDC or any other Competent Authority.

6.1.2 Billing Centre of the Seller shall carry out billing and associated functions. The Seller would submit the bills to the Officer nominated by the Procurer.

6.1.3 The Monthly Bill for the Station shall include the Charges for Supply of Electricity under this Agreement, income tax, other taxes, duties, cess etc including additional bill (s) for the past period(s) on account of orders of CERC/Appellate Tribunal for Electricity/Other Courts/other Competent Authority(ies).) If for any reasons some of the charges which otherwise are in accordance with this Agreement, cannot be included in the main Monthly Bills, such charges shall be billed as soon as possible through Supplementary Bill(s).

6.1.4 The Procurer shall arrange payment of such Monthly Bill(s)/Supplementary Bill(s) raised as per orders / regulations of CERC or such other competent authority, promptly on presentation through electronic fund transfer or other mutually acceptable instrument(s) at the designated account of the Seller. The date of transfer of fund to the Seller account shall be considered as the date of payment for computation of rebate or late payment surcharge in respect of such payment. The bill(s) of the Seller shall be paid in full subject to the condition that–

i) there is no apparent arithmetical error in the bill(s)

ii) the bill(s) is/are claimed as per the notified/agreed tariff

(ii) they are in accordance with the Regional Energy Accounts issued by NRPC/NRLDC/UPSLDC or any other Competent Authority.

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6.1.5 In case the Procurer disputes any amount even then, it shall pay 95% of the disputed amount forthwith and file a written objection with the Seller within 30 days of presentation of the bill, giving following particulars.

i) Item disputed, with full details/data and reasons of dispute

ii) Amount disputed against each item.

Provided that non-acceptance of tariffs determined/approved by CERC or any other Competent Authority shall not be a valid ground for dispute.

6.1.6 The amount of excess/shortfall with respect to the said 95% payment based on finally determined amount in line with Article 7 shall be paid/ adjusted with the applicable interest from the date on which the amount in dispute was payable/refundable.

6.1.7 Rebate And Late Payment Surcharge

Rebate and Late Payment Surcharge shall be as per Terms and Condations of Tariff issued by CERC or any other competent authority as applicable from time to time. No rebate shall be payable on the bills raised on account of taxes, duties, royalty / cess etc., but subject to orders of the Competent Authorities.

6.2 **Establishment Of Letter Of Credit(LC) And Payment Security Mechanism:**

6.2.1 The Procurer shall establish an irrevocable revolving Letter of Credit (LC) in favour of the Seller with a public sector / scheduled commercial bank [as per list supplied by the Seller] at least one month prior to the commencement of electricity supply from the Station.

6.2.2 The LC shall cover 105% of one month's estimated billing in respect of electricity supplied from the Station to the Procurer. This shall be in addition to the obligation of the UPPCL to establish similar letters of credit for supply of electricity to the Procurer from all other generating Stations of the Seller, if any.

6.2.3 The amount of LC shall be reviewed each half-year commencing April and October in each financial year on the basis of the average of billing of previous 12 months and the LC amount shall be enhanced/reduced accordingly not later than 1st July and 1st January.

6.2.4 The LC shall be established for a minimum period of one year. The Procurer shall ensure that LC remains valid at all times during the entire/extended validity of this Agreement. LC shall be renewed not later than 30 days prior to expiry.

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6.2.5 LC shall specify the manner and dates when Monthly and Supplementary Bill(s) can be presented to Bank by the Seller. The bills raised as per orders/ regulations of CERC or such other competent authorities, so presented by the Seller to the Bank shall be promptly paid on their presentation through Electronic Fund Transfer or other mutually acceptable instrument(s). In case of non receipt of any part of Monthly and Supplementary Bill(s) on Due Date, LC shall be operated on the same day for unpaid portion of Monthly and Supplementary Bill(s).

6.2.6 All costs relating to LC including opening, maintenance and negotiation charges, shall be borne by the Procurer.

6.2.7 In case of drawal of the LC amount by the Seller in accordance with the terms of this Article, the LC shall be reinstated before next Due Date.

6.2.8 On the Effective Date, the Procurer and the Seller shall execute separate **'Default Escrow Agreement'** (referred as "Escrow Agreement") for the establishment and operation of an Escrow Account in favour of the Seller, through which the revenues of the Procurer shall be routed and used as per the terms of the Escrow Agreement. The Procurer and the Seller shall contemporaneous with the execution of the Escrow Agreement enter into a separate **'Agreement to Hypothecate Cum Deed of Hypothecation'**, whereby the Procurer shall agree to hypothecate, to the Seller, effective from sixty (60) days prior to the scheduled date of commercial operation of the first Unit, the Incremental Receivables to the extent as required for the Letter of Credit as per Article 6.2.2 and 6.2.3 routed through the Escrow Account in accordance with the terms of the Agreement to Hypothecate Cum Deed of Hypothecation.

Provided that the Procurer shall ensure that the Seller has first ranking floating charge with superior charge for the banker issuing LC in favour of the Seller on the revenues routed through the Escrow Account on the 'Incremental Receivables' in accordance with the terms of the Agreement to Hypothecate Cum Deed of Hypothecation.

If the LC is insufficient to pay for the due payments to the Seller or is not replenished as per the Clause No. 6.2.7 then from the date such shortfall in the Letter of Credit occurs, then the Letter of Credit shall be replenished in the manner specified in the Escrow Agreement.

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6.2.9 Third Party Sales

In case of a default in payment and or establishment of LC as required under this Agreement or non-restoration of Escrow arrangement for the requisite amount for whatsoever reason as per Article 6.2.8, the Seller shall be entitled to, without prejudice to its other rights, exercise the option to sell whole or any part of the capacity allocated to the Procurer to Third Party/Parties at the risk and cost of the Procurer immediately thereafter in the manner herein below;

In case payment is not made by 30 days after the Due Date either directly or through LC, the Seller shall have the right to regulate with effect from the date worked out as per prevailing order of CERC on Generic Procedure for Regulation of Power Supply and sell up to 25% of the allocated capacity to third party/parties, and increase the same by 25% for each week of default thereafter.

Sale to Third Party/Parties would be subject to the following conditions;

The surplus revenue recovered over Energy Charge., Incentive, Taxes, Duties and other administrative charges attributable to such electricity sold shall be adjusted as under:

a) The surplus upto the Capacity Charges for the corresponding period shall be used towards extinguishment of the subsisting outstanding capacity charge payment liability of the Procurer towards the Seller; and

b) The surplus, if any, above the Capacity Charges for the corresponding period shall be retained and appropriated by the Seller.

Provided that supply to the procurer will be restored within fifteen (15) Days from setting right the default.

It is clarified that the above arrangement shall not be construed as relieving the Procurer of any of its obligations to the Seller including obligation of payment of Capacity Charges to the extent not coverec under above mentioned Article 6.2.8 and arrears, if any.

For the removal of any doubt it is clarified that in case of default, the Procurer shall continue to be liable to pay the Capacity Charges in proportion to its Contracted Capacity during the period of regulation / diversion of capacity or till the capacity is re-allocated to other Bulk Power Customer(s)/ Third Party(ies), subject to the adjustment as per Clause No. 6.2.9(a) and (b).

7.0 SETTLEMENT OF DISPUTES

7.1 All differences or disputes between the parties arising out of or in connection with this Agreement shall be mutually discussed and resolved within 90 (ninety) days.

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7.2 Arbitration

7.2.1 In the event that the parties are unable to resolve any dispute, controversy or claim relating to or arising under this Agreement, as stated above, the same shall be dealt as per the provisions of the Electricity Act, 2003.

8.0 FORCE MAJEURE

Neither party shall be liable for any claim for any loss or damage whatsoever arising out of failure to carry out the terms of the Agreement to the extent that such a failure is due to force majeure events such as war, rebellion, mutiny, civil commotion, riot, strike, lock-out, forces of nature, accident, act of God or any other such reason beyond the control of concerned party. Any party claiming the benefit of this clause shall reasonably satisfy the other party of the existence of such an event and give written notice within a reasonable time to the other party to this effect. Generation/drawal of power shall be started as soon as practicable by the parties concerned after such eventuality has come to an end or ceased to exist.

9.0 IMPLEMENTATION OF THE AGREEMENT

All discretions to be exercised and directions, approvals, consents and notices to be given and actions to be taken under these presents unless otherwise expressly provided herein, shall be exercised and given by the signatories to this Agreement or by the authorised representative(s) that each party may nominate in this behalf and notify in writing to the other party by Registered Post. Any other nomination of authorised representative(s) shall be informed likewise in writing to/by the Procurer within one month of signing of the Agreement. Notwithstanding any nomination, the 'Chief Executive Officer, Meja Urja Nigam Private Limited, NTPC Bhawan, Core-7, Scope Complex, Institutional Area, Lodi Road, New Delhi – 110003' or their authorised representatives shall be authorised to act severally for and on behalf of the Seller.

10.0 NOTICE

All notices required or referred to under this Agreement shall be in writing and signed by the respective authorised signatories of the parties mentioned herein above, unless otherwise notified. Each such notice shall deemed to have been duly given if delivered or served by registered mail/speed post of Department of Posts with an acknowledgement due to the other parties in terms of **IMPLEMENTATION OF THE AGREEMENT** at Article 9 above.

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11.0 EFFECTIVE DATE AND DURATION OF AGREEMENT

11.1 The agreement shall come into effect for all purposes and intent from the date of signing of the Agreement. Subject to the establishment and continuation of Payment Security as envisaged under Article 6.2, this Agreement shall remain operative upto completion of twenty five (25) years from the date of commercial operation of last unit of the station, unless it is specifically extended on mutually agreed terms.

11.2 Notwithstanding anything contained in this agreement upon occurrence of the following events as enumerated below, the Seller shall have the right to terminate this agreement with immediate effect by delivering a notice of Termination:

if (a) any petition for winding up of the Procurer has been admitted and ordered to be published in accordance with Company Court Rules or a resolution is passed for the winding up of the Procurer; or

b) a receiver is appointed or attachment is levied on the whole or a material part of the assets of the Procurer and the same is not removed within a period of ninety (90) days from the date of the order appointing such receiver, or the date attachment is levied, as the case may be.

11.3 In the event of Termination of the Agreement under 11.2, the liability of the Procurer to make payment for capacity charges shall cease forthwith except for the liabilities accrued up to the effective date of such termination.

12.0 SUCCESSORS AND PERMITTED ASSIGNS

In case the functions of the Procurer are reorganised and/or this Agreement is assigned to other organisation(s)/agency(ies), partly or wholly, the Agreement shall be binding mutatis mutandis upon the successor Distribution/Trading organisation(s)/agency(ies)/entities and shall continue to remain valid with respect to the obligations of the successor organisation(s)/ agency(ies)/entities.

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UPPCL shall ensure that the agreements namely 'Escrow Agreement' and 'Agreement to Hypothecate Cum Deed of Hypothecation' as mentioned at Article under 6.2 **Establishment Of Letter Of Credit(LC) And Payment Security Mechanism** are signed by the assignee before assignment of this Agreement failing which the Seller shall have the right to terminate this Agreement. In the event of termination of this Agreement the Procurer shall be liable and continue to pay the Capacity Charges each month till firm arrangement for sale of the Procurer's share with alternate customers substituting the Procurer is tied up.

IN WITNESS WHEREOF the parties have executed these presents through their Authorised Representatives on the date mentioned above.

For and on behalf of the Procurer,
Uttar Pradesh Power Corporation Limited
(नन्द लाल)
निदेशक (वाणिज्य)
उत्तर प्रदेश पावर कारपोरेशन लि०
शक्ति भवन, 14-अशोक मार्ग, लखनऊ

For and on behalf of the Seller. VINOD SHARMA
Meja Urja Nigam Private Limited
विनोद शर्मा /Vinod Sharma
मुख्य कार्यपालन अधिकारी / C.E.O.
मेजा ऊर्जा निगम प्रा. लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Allahabad
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

WITNESS
1. R. K. Tomar
GM (PPA)

WITNESS
2. S. K. Agnihotri
AGM-Comm, NTPC
Lucknow.

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ANNEXURE I-C: Subsequently the capacity of stage II was changed from 2x660 to 3x800 MW as per Ministry of Power office memorandum dated 25.10.2023

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No. 7/1/2018(Part-1)-P&P
Government of India / Bharat Sarkar
Ministry of Power / Vidyut Mantralaya
(P&P Desk)

Shram Shakti Bhawan, New Delhi-110001,
New Delhi, Dated the 25th October, 2023

OFFICE MEMORANDUM

Sub: Minutes of the Meeting held under the Chairmanship of Hon'ble Minister of Power & NRE on 27.09.2023 at 05:00 PM to review capacity addition upto 2031-32 - reg.

The undersigned is directed to refer to the subject mentioned above and to forward herewith the copy of Minutes of the Meeting held under the Chairmanship of Hon'ble Minister of Power & NRE at 5:00 PM on 27.09.2023 at Shram Shakti Bhawan, Rafi Marg, New Delhi to review Capacity Addition upto 2031-32 for information and further necessary action please.

2. This issues with the approval of Hon'ble Minister of Power & NRE.

25.10.2023

(Kushwant Kumar)
Assistant Director
Email: kushwant.007@gov.in

To,

1. Chairperson, CEA, Sewa Bhawan, New Delhi (with a request to share the minutes of the meeting to concerned States/ States Utilities for information and necessary action please).
2. JS (Hydro),
3. JS (Thermal),

Copy to:

1. PS to HMOP
2. APS to HMoSP
3. PS to Secretary (P),
4. Sr. PPS to AS (AT)
5. PPS to EA, MoP

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Minutes of the Meeting held under the Chairmanship of Hon'ble Minister of Power & NRE on 27.09.2023 at 05:00 PM to review capacity addition upto 2031-32.

A meeting was organized under the chairmanship of Hon'ble Minister of Power & NRE to review "**Capacity addition up to 2031-32"**. The meeting was attended by Secretary (Power) and other senior officials of the Ministry, CEA, CPSEs under MoP and State Govt. Officials. **List of Participants is given at Annexure.**

2. Hon'ble Minister of Power stated that energy security of country is the national priority and to ensure adequate and reliable power supply to the consumers in the country, sufficient coal-based capacity needs to be installed by 2030. Accordingly, CEA has made projections (with different scenario) for requirement of additional thermal capacity addition which is scheduled to be operationalized by 2032.

3. CEA informed that as per National Electricity Plan, Thermal Generation Capacity Requirement by 2032 is 261.5 GW in alternate Scenario whereas in stressed scenario likely thermal generation capacity requirement is 275.5 GW and 282.7 GW by the year 2030 and 2032 respectively. Currently 212 GW thermal capacity is available, and 1.8 GW thermal capacity likely to be retired by 2030. Therefore at least 72 GW additional thermal capacity is required by 2032.

4. It was informed that 27,180 MW capacity is under construction and includes Central Sector (12,720 MW), State Sector (12,860 MW) *& Private Sector (1,600 MW)* and is likely to be commissioned between years *2023*-2030.Further, 31,000 MW thermal capacity is under various stages of development out of which 11,960 MW capacity is already under bidding process. It was brought out that the planned 31 GW capacity includes primarily the pit head projects and projects within 500 km radius from coal source. However, due to the rapidly increasing demand for power in the country, there is an urgent need to add capacity quickly. One way to achieve this is by adding new units to existing power plants, as the necessary land, water, infrastructure for fuel transport, transmission lines, etc. are already available at the existing power plant site. Therefore, the Ministry is supporting the States to construct additional units even if they are located more than 500 kilometers away from the nearest coal source. Further, since the plant is located near the load center, there will be less congestion on the ISTS.

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5. It was further mentioned that in addition to the candidate thermal capacity of 31 GW as mentioned above, about 28,400 MW Additional Thermal Candidate capacity has been tentatively identified. Out of 28,400 MW Capacity, Central Sector (12,000 MW), UMPP Sites (6,400 MW), Private (7,000 MW) & Stress project capacity (3,000 MW) is identified and planned for construction & likely to be commissioned between years 2028-2032.

6. Hon'ble Minister of Power enquired about the thermal capacity addition plan and its tentative award schedule. It was stressed that all the under construction/planned units should be expedited to the extent feasible and the timelines should be adhered to, without any slippages, so that the units are operationalized as per the declared commercial operation date (COD).

7. The discussion points on plant wise Capacity addition program (2026-32) are provided below:

A) Thermal power projects

7.1 Under Construction Thermal Power Projects

The under-construction coal/lignite projects were discussed. It was informed that 27,180 MW (38 units) thermal capacity from Central (12,720 MW, 18 units), State Sector (12,860 MW, 18 units) and Private Sector (1,600 MW, 2 units) are under construction and all the 'Units' are likely to be commissioned, as per schedule by FY 2028-29.

8. Sector-wise Thermal Power Projects under construction were discussed as mentioned below:

8.1 State Sector-Thermal Power projects under construction.

i) North Chennai STPP, Stage-III, Unit-1 (1 X 800MW):

It was informed that overall progress of 'Unit-1' is 94% and is targeted for commissioning in Jan’2024.

TANGEDCO apprised that there were delays in completion of AHP & CHP works but now the works are in progress. FGD installation work is in initial stages hence, Unit COD shall be done without FGD. Steam blowing to be completed by Oct’2023.

BHEL informed that COD will take place 60 days after completion of Steam blowing activity. Unit COD will likely take place in Jan-2024.

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ii) Ennore SEZ STPP, Unit- 1 & 2 (2x660 MW):

It was informed that overall progress of Unit-1 is 65% and Unit-2 is 66% and the trial run is scheduled in Apr'25 and July'25 respectively. The status was noted.

BHEL informed that coal stock yard clearance is to be provided by TANGEDCO to start the work as there is a hold by Hon'ble NGT on account of water supply line and coal conveyer passing through mangroves in the coastal area. BHEL stated that they require '25 months' time to complete the work once the stay is vacated by Hon'ble NGT. TANGEDCO informed that in external coal handling plant area, erection of structure for 1.5 KM is held up due to Hon'ble NGT Order and they will be able to get the approval of Hon'ble NGT in another 1 months' time.

iii) Udangudi STPP, Unit- 1&2 (2x660 MW):

It was informed that overall progress of Unit-1 is 72% and Unit-2 is 69% and the trial run is scheduled in Sep'24 and Jan'25 respectively. The status was noted.

TANGEDCO informed that due to re-tendering of CHP/AHP package there is a delay in the project. It was further informed that GIS switch yard work has slow progress. BHEL informed that civil agency has been replaced and readiness of switchyard will be aligned with boiler light up schedule.

BHEL further informed that in view of the upcoming thermal capacity addition plan, there is an urgent need to develop/ increase CHP/AHP vendor base as very few vendors are available.

Hon'ble Minister directed CEA to undertake CHP/AHP vendor development exercise.

iv) Jawaharpur STPP, Unit - 1&2 (2x660 MW):

It was informed that overall progress of Unit-1 is 92% and Unit-2 is 87%, trial run schedule for Unit-1 & Unit-2 indicated as Sep'23 and Jan'24 was revised to Nov'23 and Apr'24 respectively. The status was noted.

UPRUVNL informed that U#1 coal synchronization successfully completed on 22-09-2023 and likely to achieve full load in Oct'23.

v) Obra-C TPP, Unit- 1 & 2 (2x660 MW):

It was informed that overall progress of Unit-1 is 92% and Unit-2 is 78%, trial run schedule for Unit-1 & 2 indicated as Jun'23 and Jan'24 was revised to

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Oct'23 and Apr'24 respectively. The status was noted.

UPRVUNL informed that generation from Unit-1 will start from Oct'23. However, Turbine Generator installation of unit-2 is yet to start, and the issue is being resolved with GE for achieving the committed timelines. **UPRVUNL assured that Unit-2 will come in Jun'24**.

vi) Panki TPP Ext., Unit- 1 (1x660 MW):

It was informed that overall progress of Unit-1 is 79%, trial run schedule for Unit-1 indicated as Mar'24 was revised to Sep'24. The status was noted. CEA apprised that there is a slippage in **commissioning of U#1 of Panki TPP Ext**.

UPRVUNL informed that due to delay in material supply, readiness of AHP/CHP package is hampering. Boiler light up planned in Jul'23 was revised to **Oct'23**

UPRVUNL submitted that the performance of BHEL's sub vendor DCPIS who is executing the AHP is not adequate, and work is stopped since last 6 months. The work progress in DM plant is not satisfactory. Further, the Manpower mobilization of BHEL is inadequate.

BHEL informed that Generator Transformer supply is a major issue and they are expecting to dispatch 3 GTs by end of November'23. Thereafter, 3 Months time is required to complete unit for synchronization. Hence Unit shall be ready for Oil Synchronization by **Feb'2024**. Further, the SCR works are yet to be completed due to delay in SCR confirmation and therefore, all coal mills cannot be taken into service till the SCR erection is complete. Unit will be ready **for coal synchronization by March 2024** however, maximum load up to 200 MW may only be achieved. For achieving full load **SCR erection** has to be completed which is planned for completion in Jun 2024 and **Commissioning of the unit is targeted by Sept' 2024.**

BHEL further intimated that balance works shall take 4 months to complete. In AHP, BHEL is supporting the vendor financially and work has started. The system shall be ready by **March 2024**.

vii) Dr. Narla Tata Rao TPS, Unit- 8 (1x800 MW):

It was informed that overall progress of Unit-8 is 86% and the trial run scheduled on Jul'23 was revised to **Jan'24**. The status was noted.

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APGENCO apprised that the **coal firing** has been done in **June'23**. Due to fire accident in panels further progress has been delayed. APGENCO further intimated that the progress of AHP and CHP vendor is not up to the mark.

BHEL informed that Boiler and Turbine is in the scope of BHEL and BoP is awarded to BGR by APGENCO. Due to fire accident in control room, 6 ***DCS*** panels were damaged and need full replacement. The firefighting arrangement was not ready as it comes under the scope of BoP vendor. BHEL informed that replacement of panels may take 60 days.

The unit was coal synchronized in June 2023 with half coal mills and achieved 240 MW. Coal input for remaining mill has been recently provided to BHEL by CHP Vendor and it will take time up to Dec 2023 for **all** coal mill readiness for full load operations. **The Unit has been targeted for commissioning in Jan'2024.**

viii) Yadadri TPP, Unit- 1,2,3,4&5 (5x800 MW):

It was informed that overall progress of Unit-1 is 86%, Unit-2 is 87%, Unit-3 is 79%, Unit-4 is 82% and Unit-5 is 78% and trial run is scheduled in **Dec'23, Dec'23, Sep'24, Aug'24 and Apr'25** respectively. The status was noted.

TSGENCO informed that project is progressing well, Unit- 1 & 2 will come by **Dec' 23**. However, in compliance of Hon'ble NGT order while disposing PIL filed by an NGO, fresh EC is required for the plant. They have applied for the same through PARIVESH portal, however, MoEF&CC has not issued additional TOR till date and hence EC is pending.

CEA apprised that Environment Clearance has been challenged by an NGO due to change in source of coal i.e. from 50:50 Domestic-Imported coal to 100 % Domestic Coal. Such change in coal source will also lead to other structural changes like increased ash dyke area owing to higher ash content in domestic coal. Besides, the plant is also nearer to a wildlife sanctuary. Therefore, NGT directed MoEF&CC in Sept 2022 to reassess the environmental impact and to give a separate term of reference and complete the study in 9 months. **Due to EC under challenge, only construction is permitted and commissioning activities are not allowed.**

TSGENCO apprised that Unit -1 & 2 are scheduled for Dec 2023 trial run and if NGT issue is settled then the trial run shall be done as scheduled. Boiler, AHP and CHP is designed to handle 50:50 imported and domestic/

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up to 100% domestic coal. TSGENCO requested for TOR from MoEF&CC so as to enable them to apply in PARIVESH portal for further processing. The environmental studies are ready but as the ToR is not granted TSGENCO is not able to apply for further process.

Additional Secretary **MoEF&CC** apprised that their Policy Division has examined the matter as per their OM dated 11.11.2020 on Coal Linkages and have recommended for some additional studies in Nov 2022. Meanwhile, the OM itself has been challenged in NGT wherein Hon'ble NGT has **directed** to revisit the aforesaid OM. Accordingly, the OM under question is being examined by MoEF&CC. **It was further informed that term of reference for Yadadri plant and examination of aforesaid OM issue are likely to resolve within 1 month time.**

ix) Bhusawal SCTPP, Unit- 1 (1x660 MW) :

It was informed that overall progress of Unit-1 is 90% and the trial run scheduled in Oct'23 was revised to **Dec'23**. The status was noted.

MAHAGENCO informed that Steam blowing & Synchronization to be completed by **Oct'2023** and there is slow progress observed in AHP and CHP area.

MAHAGENCO apprised that the coal synchronization is planned for Oct 2023 and it will require another 30-40 days for full load Operation. **Accordingly, COD is targeted for Dec' 2023 as CHP and AHP shall be fully ready by that time only. FGD shall be ready by March 2024**.

x) Sagardighi TPP, St-III, Unit- 1 (1x660 MW):

It was informed that overall progress of Unit-1 is 53% and the trial run scheduled in Sept'24 was revised to **Jan'25**. The status was noted.

WBPDCL informed that there is problem of material supply from BHEL side. BHEL informed that they have committed to supply the material by Sept 24. They informed that the dispatch plan has been shared with WBPDCL and assured that they will not deviate from the timeline.

8.2 Central Sector-Thermal Power projects under construction.

(i) **Barh STPP, Stage-I, Unit-3 (660MW):**

It was informed that overall progress of 'Unit-3' is 88%and is targeted for commissioning in **July'2024**.

NTPC informed that Unit#1 and Unit#2 are already under commercial

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operation.

NTPC briefed the work progress of U#3 and apprised the issue of availability of Generator Stator for commissioning of Unit#3. It was also informed that to save the execution time work has already started with the Dummy stator diverted from NTPC Sipat Station.

Based upon latest assessment of availability of said Stator at Barh site, target for Unit#3 commissioning by **Aug'24** was **decided**. The status was noted.

(ii) Telangana TPP, St-I, Unit-1&2(2x800 MW):

It was informed that overall progress of 'Unit-2' is 96% and is targeted for commissioning in **Nov'2023**.

NTPC informed that Unit#1 was already commissioned on 05.09.2023 and will start commercial operation from 28.09.2023.

Regarding U#2, NTPC informed that Repair work of **FRH/FSH** in Unit#2 is in progress and same shall be completed by **Oct'2023** and commissioning by **Nov'2023.**

BHEL also confirmed that the Progress is as per the requirement for **full load operation in Oct'2023** and Unit Commissioning by Nov'2023. The status was noted.

(iii) NTPC -North Karanpura, *Unit-2&3 (2x660 MW)*

It was informed that overall progress of 'Unit-2' is 92% and 'Unit-3' is 81% and is targeted for commissioning in **Nov'2023 and Jun'2024** respectively. The status was noted.

NTPC informed that the progress is in line for meeting the commissioning requirement of Unit#2 in **Nov'2023**.

NTPC informed that subsequent to visit of Secretary (Power), GoI, there is considerable progress in CCL land issue and NTPC is working on the available fronts provided by CCL.

Readiness of ATS for the project was also discussed. CEA informed that evacuation of 02 units will not be any bottleneck and readiness of NK-Gaya line will be matching with Unit#3 commissioning.

NTPC informed that regarding North Karanpura TPP's land issue, there is delay in handing over of encumbrance free balance 32.5 acres land by

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NTPC for the construction of external CHP. NTPC further, informed that for 21 acres of forest land, stage-1 clearance was received in Nov-2021 for which NOC is yet to be obtained from **District Collector** for 7.38 acres. CCL has to resolve the issue with land owners for handing over the land to NTPC.

(iv) Patratu TPP, Unit- 1, 2 & 3 (3x800 MW) :

It was informed that overall progress of Unit-1 is 67%, Unit-2 is 64% and Unit-3 is 48% and the trial run is scheduled in **Jul'24, Dec'24** and **May'25** respectively. The status was noted.

NTPC informed that the project progress is being expedited. However, readiness of ATS is very critical for the project.

NTPC informed that major constraint for this project is construction of Transmission lines being executed by State Transco i.e. JUSNL. The Progress of 400 kV Patratu-Patratu line is slow due to forest clearance issue and it was also informed that Survey work has started on both the balance lines i.e. Patratu – Koderma and Patratu – Chandil, after the award in Jul'2023.

It was also informed that to evacuate power from Patratu-Patratu line, downstream Patratu-Latehar-Chandwa lines are also to be completed matching with Unit#2 schedule. It was apprised that to resolve the commercial issues between PGCIL and JUSNL a meeting will be held at the level of Secretary (Power).

NTPC informed that as of now, the project progress is as per targets. The status was noted.

(v) Talcher TPP, St-III, Unit- 1 & 2 (2x660 MW):

Trial run schedule for Unit-1 & 2 indicated as **Nov'26** and **May'27** respectively was noted.

NTPC informed that **work is progressing** as per schedule. However, immediate support from GoO is required on following issues:

- Closure of Road passing through Talcher Thermal stage III project (Jagannath-Anand Bazar Road) affecting Main Plant civil works.
- Completion of Railway Road over bridge (RoB) connecting NH 149 to the project by Roads & Bridges Department, GoO to facilitate material movement to Project site.

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- Relocation of Bi-weekly Haat from entrance gate of Project (Anand Bazar).

Secretary (Power) assured to take up the issues with Government of Odisha.

(vi) Lara STPP, St-II, Unit- 1 & 2 (2x800 MW):

NTPC informed that Lara-II (2x800 MW) project has been awarded in **Aug-2023**. Trial run schedule for Unit-1 & 2 indicated as **Dec'27** and **Jun'28** respectively was noted.

(vii) Buxar TPP, St-I, Unit- 1 & 2 (2x660 MW):

It was informed that overall progress of Unit-1 is 83% and Unit-2 is 71% and the trial run scheduled in Dec'23 and Mar'24 was revised to **Mar'24** and **July'24** respectively. The revised status was noted.

SJVNL informed that project is on track, however, there is problem in land acquisition for railway siding and hence alternate feasible route for coal transportation has been envisaged. The contingency plan has been made to achieve the target date of trial run of Unit-1.

(viii) Ghatampur TPP, Unit- 1, 2 & 3 (3x660 MW):

It was informed that overall progress of Unit-1 is 90%, Unit-2 is 79% and Unit-3 is 73% and the trial run scheduled in Jul'23, Oct'23 and Dec'23 was revised to **Nov'23, Feb'24** and **Apr'24** respectively. The status was noted.

NUPPL informed that initially there was slow work progress in BoP area but the same has been addressed and BoP works are progressing. As a result of that rolling & synchronization of Unit#1 has been planned by **end of Sept'23/early Oct'23**.

(ix) THDC, KHURJA STPP, Unit -1 & 2 (2x660MW)

It was informed that overall progress of Unit-1 is 73% and Unit-2 is 63% and the trial run scheduled in **Feb'24** and **Aug'24** respectively. The status was noted.

THDC apprised that switch yard and water linkage is ready and Turbine box-up completed in July-2023.Coal mine linkage is also in place. **Boiler light-up is planned for Nov'23. Synchronization is planned for Dec' 2023 and COD is planned for Feb- 2024.**

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8.3 Private Sector-Thermal Power projects under construction.

(i) **Adani- Mahan STPP, Stage-I, Unit 1 & 2 (2X800 MW)-**

It was informed that Mahan STPP (2x800 MW) project has been awarded in Aug-2023. Trial run schedule for Unit-1 & 2 indicated as **Apr'27** and **Sep'27** respectively was noted.

9. New Project-Candidate Capacity (Already planned)

The New Project- Candidate Capacity projects (Already planned) were discussed. CEA informed that 28,160 MW thermal capacity from Central (16,100 MW) and State Sector (12,060 MW) are under various stages of tendering and all the 'Units' are likely to be commissioned, as per schedule by FY 2029-30.

Sl. No.	Project Name	Issue/Status	Decision
Central Sector(16,100 MW)			
NTPC			
1	Singrauli -III, UP (2X800 MW)	• DPR- Ready • Coal available from NCL. • EC granted on 13.07.2020. Allocation of 48 Cusecs is available from Rihand Reservoir.	**The status was noted.** NTPC informed that NIT has been published on 02.09.2023 and Project is targeted for award by **Dec. 23** Commissioning- **U-1: Aug'2028** **U-2: Feb'2029**
2	Darlipali-II, Odisha (1x800 MW)	•DPR: Dec,2023 •ToR amendment Application submitted on 30.08.2023. Land-Partially Available Coal Linkage-,SLC (LT) 01/23 dt 10.04.2023 recommended for grant of coal linkage to NTPC Darlipalli Stage - II (1 x 800 MW) TPS underpara B(i) Shakti policy. •Award Mar'2024 •Commissioning- 2028-29	**The status was noted.** **Award Targeted by Mar-24.** • NTPC informed that Compensatory Afforestation (CA) land has been earmarked to NTPC and now FC application will be submitted on Parivesh. • NTPC informed that HLCA clearance is the mandatory requirement in

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Sl. No.	Project Name	Issue/Status	Decision
		About 296 Acres of land needs to be diverted / acquired. (Forest-161, Private-97, Govt Land - 38) 170 Acres of land for compensatory Afforestation has been identified and approval obtained from Tehsildar, Sundargarh. DFO has to accord acceptance for the same. After acceptance of DFO, the EC shall be applied. NTPC conveyed that 7 Cusecs surplus water is available from existing plant. Application for additional 17 cusec water allocation shall be submitted after HLCA clearance.	Odisha State and is critical for the project. In past cases, it took long time for HLCA clearance.
3	Sipat-III, Chhattishgarh (1x800 MW) Ultra Super Critical	NTPC informed following status of Project (USC): Land available. Coal linkage- SLC (LT) 01/23 dt 10.04.2023 recommended for grant of coal linkage to NTPC Sipat Stage-III (l x 800 MW) TPS under para B(i) Shakti policy •DPR- under approval. • ToR Approval- EIA report is finalized and shall be submitted shortly. •Award- Dec-23 •Commissioning: 2028-29 Water requirement could be met with existing water allocation.	**Award Targeted by Dec-23.** NTPC informed that NIT has been published on 11.09.2023. NTPC informed that Public hearing has been postponed which may affect the award target. JS (Thermal) informed that the matter was taken up with DM (Bilaspur). It was assured that New Date shall be informed shortly.

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Sl. No.	Project Name	Issue/Status	Decision
4	Obra –D, UP (2X800MW) JV	Land Available, Fuel and water will be Tied up.	**The status was noted.**
		NLC	
5	Talabira STPS, Sambalpur, Odisha 3x800 (2400 MW)	EC granted on 02.02.2021 Technical bid opened on 12.07.2022. Under evaluation. Award-On acquisition of land, March-2024 • **Comm. U-1: Feb.2028** • **Comm. U-2: Aug.2028** • **Comm. U-3: Feb.2029** Total Land recommended by IPICOL is 1694 acre. Total land applied for Acquisition so far is 1563.80 acre. As on date land acquired: 174 Acres (Govt. land). Balance land likely be available by Oct.,2023. Coal availability is from Talabira Mines. Water allocation is also available.	**The status was noted.** CMD, NLC stated that land for project is likely to be available by Oct- 2023 and Bid shall be opened as soon as land is available. **Award targeted by Oct 2023 was revised to March-2024**
6	TPS-II 2nd Expansion, Cuddalore District. 2x660 (1320 MW)	EC granted. Lignite based. Fuel Tie-up from basket of Mines in Neyveli •NIT issued in Oct.,2022 (Pre-bid meeting: 09.11.22) •Comm U-I: March-2028 •Comm U-II: Sept-2028 It was apprised that the project is brown field and hence land is available. TANGEDCO consented to	**CMD, NLC stated that this project is first of its kind Supercritical lignite based project.** **NLC informed that Bid submission by 04.10.2023** **Award is Targeted By - Jan' 2024.**

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Sl. No.	Project Name	Issue/Status	Decision
		acquire entire power. MoP has given the consent for the same. Water availability is also there.	
7	Meja-II,UP (3x800MW)	• Planned Project configuration changed from 2x660 to 3x800 MW • DPR: Sept 2023/Dec-2023, • Application forTOR: July 2023 • Award: Sep, 2024 Present linkage for Stage-I is from NCL / CCL. NTPC conveyed that Land is available and water allocation needs to be done. (30 Cusecs required with ACC and 5 Cusecs is available) Coal linkage available for 2x600. To be tied up for enhanced capacity. The feasibility of Coal movement needs is being explored presently. Thereafter, process of EC shall be taken up	**The status was noted.** **Award Targeted by Sep-24.** NTPC informed that the capacity for the project has been enhanced from 2x660 MW to 3x800 MW and the Feasibility Report for the project is under preparation. Project is as per schedule for award.
		DVC	
8	Ragunathpur, WB (2x660 MW)	•DPR: 28.10.2022 •NIT: 31.03.2023 •**EC: Nov'23** •**Award: Nov'23** •Coal Linkage: CCL Within 100 KM •U-1 Commissioning: Oct.27 •U-2 Commissioning: Apr.28. NTPC is appointed as consultant for preparation of DPR & Pre-award activities.	**The status was noted.** DVC informed that Report of Public Hearing submitted by WBPCB to MoEF&CC on 08.09.23. NTPC appointed as consultant for prep. of DPR & Pre-award activities Award Targeted by **Nov-2023**.

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Sl. No.	Project Name	Issue/Status	Decision
		Land is available and water allocation for all the 3 plants has been obtained from Damodar Valley River Regulation Committee (DVRRC). Coal Linkage of 4.3 MMT of CIL is available with DVC. Allocation of Mines is pending and is being followed up with CIL. Rail connectivity is also available for the plant	
9	Durgapur,WB (1x800 MW)	•DPR: 30.09.2023 •NIT: 30.04.2024 •EC: Aug-2024 •**Award: 01.09.2024** •Coal Linkage: ECL (75 km) •**Comm U-1.: March-28** •**Comm.U-2: Sept-28** DVC Conveyed that the dismantling of Decommissioned units need to be taken up. It was apprised that the Coal Linkage allocation is not in place.CIL has to be approached for allocation of coal. Also, DVC shall be participating in the coal mine auction.	**The status was noted.** Chairman, DVC informed that Dismantling and Scrap Disposal Contract awarded in Aug 2023. The dismantling work shall take around 15 months. **NIT for project shall be floated by April-24 & Award is Targeted by Sept 2024.**

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Sl. No.	Project Name	Issue/Status	Decision
10	Koderma, Jharkhand (2x800 MW)	•DPR: 25.04.2023 •NIT: 31.05.2023 •EC: Dec-23 •**Award: Jan-24** •CCL within 100-200KM •Comm U-1.: Feb-28 •Comm.U-2: Aug-28 Consultant appointed on 24.03.2023 for EC. DVC conveyed that Land is available and water allocation has been done by DVRRC.	**The status was noted.** Award to be targeted by **Jan-2024** NTPC appointed as consultant for preparation of DPR and Pre-award activities. Chairman, DVC informed that EPC Tender has been floated and contract shall be awarded as soon as EC is granted.
11	Chandrapura TPS Extn. (1X800MW):		Topography survey 75% complete. Engagement of Consultant for preparation Feasibility Study by Sept,2023
		SJVN	
12	Buxar ,Bihar 1*660 (extension)	•DPR: prepared under approval •NIT:31.10.2023 •EC: Dec.23 •Award: March 2024 •Commissioning- 2028-29 •250 acre land acquisition to be completed. SJVNL apprised that approx. 250 acre land is required for ash dyke which is difficult under new guidelines, remaining land is presently available.Coal linkage has been recommended in SLC (LT) on 16.06.2023. After EC cabinet has to be approached for investment Approval. Provision of water	SJVN informed that DPR is under approval. Ensuring availability of Land and water still under discussion stage. Award Targeted for Mar.,24

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Sl. No.	Project Name	Issue/Status	Decision
		availability needs to be taken from Ganga water authority.	
		State sector (12,060 MW)	
1	Super Critical Power Plant at Korba West, Korba 'Chhattisgarh **(2X660 MW)**	• It was apprised that Land is available. • Coal-CEA recommended coal linkage under Shakti B(i) • Water-No (Application to be submitted to GoCG after EC) • DPR- Ready • ToR Approval- TOR granted on 23.3.2023 • Consultant appointed for EIA study. • EC Status- Application submitted on 09.02.23. • EAC Sub-Committee visited plant on 19.05.2023 • Award- **Dec'2024** • Commissioning U-1: Mar-2029 • Commissioning U-2: Mar • 2030	**Award is targeted by Dec'2024** It was informed that Public Hearing (for EC) is planned on 26.10.2023 and required water (28 MCM) will be allocated to project by WRD, GoCG. It was informed that, NTPC is to be awarded consultancy contract. Bid is in process.
2	OPGC Expansion Project St- III (2x660 MW)	• Land-Available. • Coal-Available • Water-No (Application to be submitted for 2800 M3/hr) • DPR-Ready • ToR Approval-Aug'2023 • EIAReport-Feb'2024 • EC -April'2024. • **Award-May'2024** • Commissioning-U-1: **Mar' 2029** • Commissioning U-2: **Sept'2029**	**Award is targeted by May'2024**. It was noted that Team from MOEF&CC had visited plant in Aug'23 and Presentation to EAC completed, TOR is awaited. **LOI issued for Pre award to M/s NTPC consultancy on 11.09.2023.**

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Sl. No.	Project Name	Issue/Status	Decision
3	Godhna TPS, Champa, Karnataka (2X800MW)	• Land available (**1016.23 Acres Private land & 158.16 Acres Govt. Land),** Coal-Available • Water- Available	**The status was noted.** Tendering process will be decided after MoEF&CC clearance to the project.
4	Ukai Thermal Power Station (TPP) Tapi, U-7 Gujarat, GSCECL 1x800(800 MW)	• DPR-Ready • Tender document-Dec'23 • NIT-Jan'2024 • Bid submission-May'2024 • Award-July'24 • EC -Accorded • Commissioning-U-1: **July'2028**	Considering the rapidly growing power demand in the country there is an urgent need to add capacity at a fast pace. Adding new units to existing power plants enables this as the required land, water, infrastructure for fuel transport, transmission line etc are already available at the existing power plant site. Therefore, the Ministry is supporting the State to construct additional unit at Ukai TPP even through it is located more than 500 KMs away from the nearest coalmine. However, since the plant is located near the load center there will be less congestion on the ISTS.
5	**Koradi Project, Nagpur, Maharashtra, MSPGCL (2x660MW)**	• DPR- Ready • Tender document-Oct' 2023 • NIT-Nov'2023 • Bid submission-Jan'2024 • Award June'2024 • CommissioningU-1: Mar' 2028 • Commissioning U-2: Sep'2028 It was informed that public hearing has been completed on 29-05-2023. EC is under consideration	**The status was noted.** It was decided to issue tender is parallel with EC process and award the project as soon as EC is granted. **Award is targeted by June' 2024.**

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Sl. No.	Project Name	Issue/Status	Decision
6	Chandrapur Super Thermal Power Station, Maharashtra, MSPGCL **(1x660MW)**	DPR yet to be prepared, only feasibility study is carried out. It was informed that current Unit shall come in place of yet to be retired 210 MW units.	All details will be provided after DPR preparation, approval from GoM, MERC, etc.
7	Amarkantak Thermal Power Station, Anuppur Madhya Pradesh MPPCL (1x660 MW)	• DPR- Approved. • **Tender document-Oct'2023** • **NIT-Oct'2023** • Bid submission-Dec'2023 • **Award-Mar'2024** • **EC -accorded on 1st May'2023** • Commissioning-U-1:2027-28 Forest land of 6.171 Ha. within the MPPGCL's Plant Boundary, need to be acquired by MPPGCL. Revised Online Application has been submitted in Jan'22. Chief Conservator of Forest, Bhopal vide letter dated 24.04.2023 has recommended **to MoEF, Bhopal** for acquisition of balance 6.171 Ha forest land; situated within power house premises	It was informed that M/s NTPC has been appointed as Project Consultant. **Award to be Targeted- by March'2024.**
8	Satpura TPP U-12, Phase-V, Sarni, Madhya Pradesh MPPGCL (1x660 MW)	• DPR-Approved. • Tender document-Sept**'2023** • NIT-**Oct'2023** • EIA report-Report submitted • EC - Under process • **Bid submission-Nov'23** • **Award-Mar'24** • Commissioning-U1: FY 2027- 28.	It was informed that M/s NTPC has been appointed as Project Consultant. GLP is almost finalized, cost estimation being done by M/s NTPC **Award Targeted by March 2024**.

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Sl. No.	Project Name	Issue/Status	Decision
9	Singareni Thermal Power Plant (Stage-II), (1x800 MW)	•DPR- completed •NIT- 19-11- 2022 •EIA report-Completed • Bid opened- 02.03.2023 •Bid: Under Evaluation, Negotiations with L1 bidder M/s BHEL is under progress. •EC - Accorded •Commissioning-U-1: 50 Months from the date of investment approval or issuance date of letter of award (LOA) for main contract, whichever is earlier.	It was informed that due to higher pricing compared to recently awarded project, they are planning for rebidding. It was informed that M/s NTPC has been appointed as Project Consultant.
10	Extension Unit of DeenBandhu Chhotu Ram Thermal Power Project (DBCR-TPP), Yamuna Nagar, Haryana (1X800 MW)	It was apprised that • DPR-completed • NIT-16-01-2023 • **Bid submission-18.10.2023**	Given the rapidly increasing power demand in the country, there is an urgent need to augment capacity at an accelerated pace. The addition of new units to existing power plants facilitates this objective, as the necessary land, water, and infrastructure for fuel transport and transmission lines are already in place at the existing power plant site. Hence, the Ministry will support the State to construct an additional unit at DBCR-TPP, even though it is situated more than 500 kilometers away from the nearest coalmine. It was also noted that this project will replace the existing Panipat TPS unit which is going to be retired. Thus, the net additional requirement for coal will be less. The plant is also closer to the load center. **Award Targeted by Dec-2023.**

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Sl. No.	Project Name	Issue/Status	Decision
11	CHHABRA TPS U- 7 & 8 Rajasthan, (2X660 .MW)	It was apprised that •DPR- completed **•NIT-31.10.2023** **•Bid submission- 15.11.2023** **Commissioning- FY 28-29** It was informed that This Project is link with the captive coal mine (Parsa East Kanta Basan & Extension Coal Block). The distance from the linked mine is around 800 Kms	It is essential to increase capacity at a faster rate given the nation's constantly rising demand for electricity. This goal is made easier by the addition of new units to existing power plants because these plants already have the requisite land, water, and infrastructure for fuel transportation and transmission lines. Therefore, the Ministry will support the State to build two additional units at Chhabra TPS despite the fact that it is more than 500 km away from the closest coalmine. However, because of the plant's proximity to the load center, there will be less congestion on the ISTS. **Award Targeted by April'2024.** It was informed that Consultancy for Engineering services technical bid opened on 22.08.2023 and case for awarding of contract is under submission for approval
12	KALISINDH TPS Rajasthan, (lx800 MW)	•DPR- completed •ToR- Approved on 24-03-23. **NIT-31.10.2023** **•Bid submission- 15.11.2023** It was informed that This	**Award Targeted by Feb'2024.**

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Sl. No.	Project Name	Issue/Status	Decision
		project is linked with the captive coal mine (Parsa East Kanta Basan & Extension Coal Block). EIA study at site has been completed on14.06.2023 by M/s BHEL, PCRI Haridwar	

10. New Project- Candidate Capacity (In Planning)

CEA informed that 25,400 MW thermal capacity from Central (12,000 MW), UMPPs (6,400 MW) and Private Sector (7,000 MW) is under planning and all the 'Units' are likely to be commissioned, as per schedule by FY 2031-32.

10.1 The following NTPC brownfield projects are considered for expansion under candidate capacity (In planning) (9,600 MW)

- Telangana – II (3x800 MW)
- Patratu - II with ACC (2x800 MW)
- Nabinagar – II (3x800 MW)
- Gadarwara - II (2x800 MW). **It was decided to set-up 2x800 MW Ultra Super Critical Units instead of 1x800 MW Advanced Ultra Super Critical Unit (AUSC). AUSC shall be planned as a green field project at any other suitable site by NTPC.**
- Anpara E (2x800 MW) JV with UP Govt.

10.2 CMD NTPC requested MoP to take up issues related to coal linkage from SCCL for the Telangana-II project with the Ministry of Coal.

10.3 NTPC submitted that in view of concurrent execution of large number of projects and limited vendor base, the execution of projects may pose challenges.

10.4 Constraints due to availability of only 02 (two) bidders for EPC Package and limited availability of BoP vendors was discussed. CEA was advised to have discussions with other prospective bidders/vendors for EPC and BoP to ensure suitable participation and smooth execution of additional thermal capacity envisaged.

10.5 It was informed that NLC's brownfield capacity expansion is planned at Talabira STPS expansion, Sambalpur, Odisha 1x800 (800MW).
It was further informed that application for EC of St-II (1x800MW) will be filed after award of Stage-I (3x800 MW).

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10.6 CEA informed that there is a possibility to set-up 2 new TPPs on the already identified sites of UMPP (Odisha, Sundargarh*:(2,400+1,600) MW, Tamil Nādu, Cheyyur:(4,000MW) where land is available with respective SPV of Power Finance Corporation (PFC). It was further informed that Odisha site in Sundargarh District:(4,000) MW was envisaged for a domestic coal based power plant whereas the Tamil Nādu site in Cheyyur: (4,000MW) was envisaged for an imported coal based power plant. It was also informed that a subsidiary of Mahanadi Coal fields (MCL) ltd has proposed to set up a 1,600 MW TPP in Sundargarh district on the site mentioned above for which process of land transfer is going on.

10.7 Based on the discussions, **Hon'ble Minister directed that a thermal power plant of 4,000 MW capacity should be planned in Sundargarh District, Odisha State. Power Finance Corporation was further instructed to examine the possibility of establishing this 2,400 MW capacity plant in addition to 1,600 MW capacity planned by VIL/ MCL.**

10.8 CEA further informed that, 3,000 MW Stressed Project Capacity (Thaminapatnam-700 MW, Akaltara-1,800 MW, Utkal-350 MW and Shirpur-150 MW) is also likely to be commissioned in FY 31-32.

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B) Hydropower Power Projects

11. CEA made a detailed presentation on the Hydro-Electric Power Projects (under-implementation, Pump storage hydro project, Planned projects). It was informed that 15,253 MW- Hydro-Electric Power Project are under implementation and are likely to be commissioned by 2031-32. Apart from this, 2,780 MW of Pumped storage hydro projects are under implementation and likely to be commissioned by 2026-27. It was further informed that 50,588 MW of Hydro-Electric Power Projects are under planning stage and likely to be commissioned by 2026-32.

11.1 Hon'ble Minister enquired about Hydro Power Projects of Arunachal Pradesh of more than 11.5 GW recently handed over to Hydro PSUs.

11.2 CEA informed that total 12 Hydro power projects were handed over to Hydro CPSUs on 12th Aug-2023.Out of these 12 projects, five projects of 2,620 MW have been allocated to the NEEPCO, five projects of 5,097 MW to SJVN and the remaining two projects of capacity 3,800 MW to NHPC. The respective Hydro CPSUs have initiated the process of revalidation of TEC/ application for FC/EC etc. A monitoring committee chaired by Adviser to GoAP has been set up by GoAP.

11.3 CEA further informed that Dibang Multipurpose Project 12x240=2,880 MW, NHPC- (under initial stage of development),Subansiri Upper HEP (2,000 MW) and Subansiri Middle (Kamala) HEP 1,800 MW (both NHPC) are likely to be commissioned by Feb'32.

11.4 Hon'ble Minister instructed to CEA to review Subansiri Upper HEP (2,000 MW) and Subansiri Middle (Kamala) HEP 1,800 MW (both NHPC) project **and submit report to Ministry of Power within 1 month.**

11.5 Secretary (Power) stated that States are facing difficulties in allotment of PSPs under self-identified category as in most of the cases multiple agencies are filing application(s) for self-identified projects. **Hon'ble Minister instructed CEA to review** self-identified PSPs scheme and submit report to Ministry of Power in one (01) month time.

C) Nuclear Power Project-

12. CEA made a detailed presentation about the Nuclear Power Projects (under-implementation and Planned projects). It was informed that 8,000 MW- Nuclear Power Projects are under various stages of construction and likely to be commissioned by FY 24 to FY 30. It was further informed

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that 7,000 MW- Nuclear Power Projects accorded administrative approval and these projects are under various stage of development and likely to be commissioned by FY 32. It was also informed that KAKRAPARA A.P.S. UNIT 4 (700 MW, India's indigenous technology) is likely to be commissioned by May-24.

12.1 NTPC informed that, the JV company (NPCIL-NTPC) is developing two Pressurized Heavy-Water Reactor (PHWR) projects, Chutka Madhya Pradesh Atomic Power Project 2x700 MW and Mahi Banswara Rajasthan Atomic Power Project 4x700 MW, which were identified as a part of fleet mode nuclear projects. NTPC requested Ministry of Power for support of faster execution of these projects.

13. The action points that emerged during the meeting are summarised below:

(1) CEA to undertake CHP/AHP vendor development exercise.

Action: Chairperson, CEA

(2) A meeting to be held at the level of Secretary (Power) in order to resolve the commercial issues between PGCIL and JUSNL and expedite construction of Transmission lines for Patratu TPP, Unit- 1, 2 & 3.

Action: JS (Thermal)

(3) A meeting to be held between Secretary (Power) and Chief Secretary (Odisha) to resolve issues pertaining to Talcher TPP, St-III, Unit- 1 & 2.

Action: JS (Thermal)

(4) Government of Gujarat may be supported to construct the proposed additional Unit at Ukai Thermal Power Station (1x800 MW).

Action: Chairperson, CEA/ JS (Thermal)

(5) Government of Haryana may be supported to construct the proposed additional Unit at DeenBandhu Chhotu Ram Thermal Power Station (1x800 MW).

Action: Chairperson, CEA/ JS (Thermal)

(6) Government of Rajasthan may be supported to build the proposed two additional units at Chhabra Thermal Power Station (2X660 MW).

Action: Chairperson, CEA/ JS (Thermal)

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(7) NTPC to set up 2x800 MW Ultra Super Critical Units at Gadarwara instead of 1x800 MW Advanced Ultra Super Critical Unit (AUSC). AUSC shall be planned as a green field project at any other suitable site by NTPC.

Action: CMD, NTPC/ JS (Thermal)

(8) CEA to hold discussions with prospective bidders/vendors for EPC and BoP to ensure suitable participation and smooth execution of additional thermal capacity envisaged.

Action: Chairperson, CEA

(9) Power Finance Corporation to examine the possibility of establishing 2,400 MW capacity plant at Sundargarh District, Odisha in addition to 1,600 MW capacity planned by VIL/ MCL.

Action: CMD, PFC/ JS (Thermal)

(10) CEA to review Subansiri Upper HEP (2,000 MW) and Subansiri Middle (Kamala) HEP 1,800 MW (both NHPC) projects and submit report to Ministry of Power within one month.

Action: Chairperson, CEA

(11) CEA to review self-identified PSPs scheme and submit report to Ministry of Power in one month time. The mode of allocation of PSPs to private entities must be through transparent process.

Action: Chairperson, CEA

The meeting ended with vote of thanks to the Chair.

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Annexure

List of participants at the Meeting held under the Chairmanship of Hon'ble Minister of Power & NRE on 27.09.2023 at 05:00 PM to review capacity addition upto 2031-32.

Sl.No.	Name	Designation
Ministry of Power		
1.	Shri R.K. Singh	Hon'ble Minister for Power & NRE, in Chair
2.	Shri Pankaj Agrawal	Secretary (Power)
3.	Shri Piyush Singh	Joint Secretary (Thermal)
4.	Shri Mohmmad Afzal	Joint Secretary (Hydro)
5.	Shri Jithesh John	Economic Advisor
6.	Shri Arun Kumar Garg	Director (P&P)
7.	Shri Kushwant Kumar	Assistant Director (P&P)
CEA		
8.	Shri. Ghanshyam Prasad	Chairperson
9.	Shri. Praveen Gupta	Member (Thermal)
10.	Shri. M.P. Singh	CE (TPP&D)
11.	Smt. Ammi R. Toppo	Chief Engineer
12.	Shri. P.K. Shukla	Chief Engineer
13.	Shri. Manoj Tripathi	Chief Engineer
14.	Shri J.N. Prasad	Chief Engineer
15.	Shri. Shantanu Biswas	Director
16.	Shri Aman Khare	SA-Incharge (TPMD)
17.	Shri Ankit Khasa	Assistant Director
18.	Shri Asif Iqbal	Assistant Director
MNRE		
19.	Shri. Bhupinder Singh Bhalla	Secretary (MNRE)
MoEF&CC		
20.	Shri. Tanmay Kumar	Additional Secretary
PIB		
21.	Shri. Alok Mishra	ADG
NTPC		
22.	Shri. Gurdeep Singh	CMD
23.	Shri. U.K. Bhattacharya	Director (Projects)
24.	Shri. S.N. Tripathi	Executive Director
25.	Shri. M. K. Srivastava	
NHPC		

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Sl.No.	Name	Designation
26.	Shri. R.K. Vishnoi	CMD
27.	Shri. R. K. Chaudhary	Director (Technical)
28.	Shri. Deepak Saigal	ED (PMSG)
29.	Shri. Sanjay Darbari	ED (Planning)
	DVC	
30.	Shri R.N. Singh	Chairman
31.	Shri M. Raghuram	Member (Technical)
	THDC	
32.	Shri. R.K. Vishnoi	CMD
	SJVNL	
33.	Shri. N.L. Sharma	CMD
34.	Shri. V. Sankaranarayanan	ED
	REC	
35.	Shri. Vivek Kumar Dewangan	CMD
	PFC	
36.	Smt. Parminder Chopra	CMD
37.	Shri Rajiv Ranjan Jha	Executive Director
	NLC	
38.	Shri. Prasanna Kumar Motupalli	CMD
39.	Shri. M Venkatachalam	Director (Power)
	BHEL	
40.	Shri. Tajinder Gupta	Director (Power)
41.	Shri. R.P.S. Sisodia	General Manager
	NPCIL	
42.	Shri B.C. Pathak	CMD
43.	Shri Vineet Kumar Sharma	Director (Operations)
44.	Shri R. Sharan	Director (Projects)

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Representatives from States

State Thermal Utilities – Through VC	
WBPDCL	
Shri Asit Kumar Mukherjee,	Director (Projects & Planning)
UPRVUNL	
Shri Ajeet kumar Tiwari	Sr. Advisor, Technical
TANGEDCO	
Smt. N.Uma Devi	Director (Projects)
TSGENCO	
Shri. M Sachidanandam	Director/Projects
Shri P.V.Srinivas	Chief Engineer/TPC
Shri G.Srinivasa Rao	CE/Civil/Thermal
MAHAGENCO	
Shri Abhay Harne	Director (Projects)
APGENCO	
Shri Chandrashekhar Rao	Director (Thermal)
HYDRO (State & Private) – Through VC	
Jammu & Kashmir - **JKSPDC**	Managing Director
Himachal Pradesh - **BVPCL**	MD
Himachal Pradesh - **HPPCL**	MD/Director
Himachal Pradesh - **Statkraft IPL**	Country Head
JSW Energy Ltd	GM/Project Director
Uttarakhand - **UJVNL**	Director
Punjab - **PSPCL**	Chief Engineer
Assam - **APGCL**	Project Director
Kerala - **KSEB**	Chief Engineer
Tamil Nadu - **TANGEDCO**	CMD/Chief Engineer
Andhra Pradesh - **APGENCO**	Director hydel
Telangana - **TSNPDCL**	Director

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ANNEXURE IV-1: Amendment in environmental clearance for change in coal source by thermal power plant -reg”

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F. No. J-13012/8/2009-IA.II (T)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)
***

Indira Paryavaran Bhawan
2nd Floor, Vayu wing
Aliganj, Jor Bagh Road
New Delhi-110 003

Dated 06.12.2023

OFFICE MEMORANDUM

Sub: Amendment in Environmental Clearance for change in coal source by Thermal Power Plants - reg.

The Ministry has issued an Office Memorandum (O.M.) of even no. dated 11.11.2020, facilitating the change in coal source for thermal power plants subject to compliance of relevant notifications as mentioned therein and a procedure to be followed as described therein.

2. The Hon'ble NGT vide Order dated 24.05.2023 in Original Application No. 74 of 2021 directed the MoEF&CC to revisit the O.M. dated 11.11.2020. In order to ensure the compliance of the directions of the Hon'ble NGT, the matter was deliberated by the Expert Appraisal Committee (EAC), constituted by the Ministry to consider the Thermal Power Projects for grant of Environmental Clearance (EC) under the provisions of the EIA Notification, 2006, as amended, and the EAC has recommended certain amendments in O.M. dated 11.11.2020.

3. Based on recommendations of the EAC and subsequent approval of Competent Authority, the Ministry hereby make following amendments in the O.M. dated 11.11.2020 :

i. The Para 7 of the O.M. dated 11.11.2020 shall be read as follows:

7. In order to simplify the procedure for change in coal source, the Ministry lays down the following procedure:

All the Thermal Power Plants (including Captive Power Plants) having prior Environmental Clearance can change the following coal sources including Lignite, sourced directly through e-auctions/short term linkage/long term linkage/other linkage options of the Ministry of Coal or any organization recognized for allotting coal linkages, without seeking amendment in Environmental Clearance, subject to compliance with conditions (a) to (f) enumerated in Office Memorandum dated 11.11.2020:

a. from domestic to domestic,
b. from domestic to domestic (blended with imported coal up to 30% content of imported coal)

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c. from imported to imported (blended with domestic coal up to 10% content of domestic coal)
d. from imported to domestic (where the GCV of the domestic coal is of the same grade as of imported coal).

All the Thermal Power Plants (including Captive Power Plants) having Prior Environmental Clearance and going in for change in the coal source other than those falling in the aforementioned category of change in coal source shall approach the Ministry for amendment in environmental clearance along with a study on additional impact assessment and revised EMP based on the change in source of coal.

Further, condition no. (d) mentioned in Para 7 of the O.M. dated 11.11. 2020 shall stand substituted as follows:

(d) Additional ash pond shall not be permitted on account of increase in ash content in the raw coal due to change in coal source includng lignite other than the ash pond permitted and specified in the Prior Environmental Clearance. 100% fly ash utilization is to be achieved within 4 years in accordance with the extant provisions laid down in the Fly Ash notifications dated 14.09.1999, 27.08.2003, 03.11.2009 & 25.01.2016, 31.12.2021 and 30.12.2022 as amended from time to time.

4. This issues with the approval of the Competent Authority.

(L K Bokolia)
Director/ Scientist F

To,

1. All the Thermal Power Plants
2. The Chairman/Member Secretaries of all the Expert Appraisal Committees
3. The Chairman /Member Secretaries of all the SEIAAs /SEACs
4. The Chairman/Member Secretaries of all SPCBs /UTPCCs
5. The Deputy Director General of Forest of all ROs of MoEF&CC
6. All the Officers of I.A. Division

Copy for information to:

1. PS to Hon'ble Minister for Environment, Forest and Climate Change
2. PS to Hon'ble MoS (EF&CC)
3. PPS to the Secretary (EF&CC)
4. PPS to the AS (TK) / AS (NPG)
5. The Joint Secretary, Ministry of Coal,GoI
6. The Joint Secretary, Ministry of Power,GoI
7. Website of MoEF&CC/ Guard file

(L K Bokolia)
Director/ Scientist F

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F. No.J-13012/8/2009-IA.II (T)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi-110 003

Dated 11th November, 2020

Office Memorandum

Sub: Amendment in Environmental Clearance for change in coal source by Thermal Power Plants- reg.

The Environment Impact Assessment (EIA) Notification dated 14th September, 2006 under the Environment (Protection) Act, 1986 mandates the requirement of prior Environmental Clearance to the projects/activities listed in the schedule to the said Notification. The Environmental Clearances are granted for Thermal Power Projects as per the capacities mentioned in the Schedule of the EIA Notification, 2006.

2. The Environmental Clearance (EC) has been granted based on a specific coal source such as a specific coal mine (domestic coal), or imported coal, or blend of imported coal and domestic coal. The Environmental Clearance has stipulated a condition that an amendment in EC is to be sought from the Ministry in case of change in fuel source.

3. The Ministry has been receiving several proposals regarding change in coal source, viz. change in domestic coal due to change in fuel linkages/auctions, and switching from imported coal to domestic coal. The linkage period granted through short-term linkage and e-auctions vary from 3 months to 1 year, making Project Proponents to approach the Ministry for granting amendment in EC each time there is change in coal source. In each amendment process, new conditions are being stipulated by making old conditions redundant.

4. The Ministry of Power (MoP) vide Policy Advisory dated 28.4.2020 encouraged all the power generating companies who are using imported coal (part/full) to switch over to domestic coal to the extent possible. The MoP has also set up a mechanism to deal with difficulties faced by the power companies in obtaining required quantity, quality of domestic coal including logistic bottlenecks.

5. The present process of dealing with change in coal source is to apply at PARIVESH, subsequent appraisal by the Expert Appraisal Committee (EAC), processing of EAC recommendations and granting the amendment to the EC. The whole process would approximately take about 2-3 months.

6. The various environmental impacts due to change in coal source viz. increased ash quantity and its management, increased emissions, and impacts of transportation have already been addressed and adequate mitigation measures have been stipulated by the Ministry vide Notifications dated 7.12.2015, 28.6.2018 and 21.5.2020.

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7. In order to simplify the procedure for change in coal source and encourage Thermal Power Plants to use domestic coal, **the Ministry has decided the following procedure:**

All the Thermal Power Plants (including Captive Power Plants) having Environmental Clearance can change the coal source (from imported to domestic, domestic to domestic, and domestic to imported) including Lignite, directly through e-auctions/short term linkage/long term linkage/other linkage options of Ministry of Coal or any organisation recognised for allotting coal linkages, without seeking the amendment in Environmental Clearance, subject to the following conditions and thereby making earlier conditions in the EC regarding coal source redundant:

a) Details regarding change in source (location of the source, proposed quantity, distance from the power plant and mode of transportation), quality (Ash, Sulphur, Moisture content and Calorific value) shall be informed to the Ministry and its concerned Regional Office. The quantity of coal transported from each source along with the mode of transportation shall be submitted as part of EC Compliance Report.

b) The applicable flue gas emissions standards for Particulate Matter, Sulphur Dioxide, Oxides of Nitrogen and Mercury shall be complied inline with Ministry's Notification vide S.O. 3305(E) dated 7.12.2015 and subsequent emissions. A progress of implementation and its compliance shall be submitted as part of Compliance Report.

c) Ash content in the Coal and Coal transportation is governed by the Ministry's Notification vide S.O. 1561(E) dated 21.5.2020. As far as possible, Coal transportation shall be done by rail/conveyor or other eco-friendly modes. However, road transportation is allowed with tarpaulin covered trucks till the railway/conveyor belt infrastructure is made available. A progress (Physical and financial) of rail connectivity from nearest railway siding or conveyor connectivity to the power plant shall be submitted in the EC compliance report.

d) Additional ash pond is not allowed due to increase in ash content in the raw coal as against the ash pond permitted in the Environmental Clearance. The 100% flyash utilisation is to be achieved within 4 years in line with Flyash Notifications dated 14.9.1999, 27.8.2003, 3.11.2009 & 25.1.2016 and amended time to time or extant regulations on Fly ash Utilisation.

e) In case of exceptional circumstances, project proponents may approach the Ministry for seeking permission to use an emergency ash pond with cogent reasons, if any.

f) The details regarding monthly generation, utilisation and disposal of flyash (including bottom ash) shall be submitted to the Ministry and its Regional Office.

This issues with the approval of the Competent Authority.

(Dr. S. Kerketta)
Director, IA Division

To

1. All the Thermal Power Plants.

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2. The Chairman/Member Secretaries of all the Expert Appraisal Committees.
3. The Chairman /Member Secretaries of all the SEIAAs/SEACs.
4. The Chairman/Member Secretaries of all SPCBs/UTPCCs.
5. The Deputy Director General of Forest of all ROs of MoEF&CC.
6. All the Officers of I.A. Division.

Copy for information to:

1. PS to Hon'ble Minister for Environment, Forest and Climate Change.
2. PS to Hon'ble MoS (EF&CC).
3. The Joint Secretary, Ministry of Coal.
4. The Joint Secretary, Ministry of Power.
5. Sr. PPS to Secretary (EF&CC).
6. Sr. PPS to AS (RA) / AS (RSP).
7. Sr. PPS to JS (GM)/ JS (SKB)/JS (AKN).
8. Website of MoEF&CC/ Guard file.

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ANNEXURE IV-2: The compliance report of the conditions mentioned in point no. 7 of above OM's

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MEJA URJA NIGAM (P) LIMITED
(A JV of NTPC Ltd & UPRVUN Ltd)

Sl.	Description	Status as on 07.09.2024
01	Details regarding change in source (location of the source, proposed quantity, distance from the power plant and mode of transportation), quality (ash, sulphur, moisture content and calorific value) com to the ministry and its concern regional office. The quantity of coal transported from each source along with mode of transportation shall be submitted as part of EC compliance report.	Initially 5.49MMT coal was tied up for supply to MUNPL from SECL. 1. FSA of 1.903MMT was made with NCL on 03.02.21 which was later amended to 2.22MMT on 04.04.22. 2. FSA of 2.866MMT was made with CCL on 24.02.21.

Details regarding change in source of coal

S. No.	Description	SECL	NCL	CCL
1	**Location of Source**	Dipka, Kusmunda Gevra etc.	Duddichua, Jayant, Jhingurdah etc.	Magadh,Amrapali, Charhi etc.
2	**Proposed quantity (MMTPA)**	5.49	2.22	2.87
3	**Distance of power plant**	700-800 km (approx.)	250-350 KM (approx.)	500-600 Km (approx.)
4	**Mode of transportation**	Rail	Rail	Rail
5	**Quantity of coal transported the period Oct23- March24 (MMT)**	-	1.42	0.85

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MEJA URJA NIGAM (P) LIMITED
(A JV of NTPC Ltd & UPRVUN Ltd)

Sl.	Description	Status as on 07.09.2024

The quality of coal transported from the mines are given below.

Details regarding quality of coal before and after change in coal source

S. No.	Description	SECL	NCL	CCL
	Time period	June20 – Dec20	Feb21 – July21	
1	Ash content (%) (average)	35.72	34.01	36.65
2	Sulphur (%) (average)	0.59	0.46	0.51
3	Moisture content (%)(average)	12.35	13.86	10.71
4	Gross Calorific value Kcal/Kg (average)	3157	3595	3603

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MEJA URJA NIGAM (P) LIMITED
(A JV of NTPC Ltd & UPRVUN Ltd)

Sl.	Description	Status as on 07.09.2024
b	The applicable flue gas emission standards for particulate matter, Sulphur dioxide Oxides of nitrogen and Mercury shall be complied in line with ministry notification wide S.O. 3305(E) dated 7.12 2015 and subsequent emissions. A progress of implementation and it's compliance shall be submitted as a part of compliance report.	Electrostatic precipitators (ESP) have been provided and made operational. PM emission is maintained within 30 mg/Nm3. Erection & commissioning works of FGD is completed. The utility will be put in regular service from Oct'24 against cut off date of Dec'26 inline with MOEF &CC gazette notification GSR 628(E) dated 5th Dec2022. Low Nox burner are installed and in use. Being Complied
c	Transportation is governed by the Ministries notification wide S.O. 1561(E) dated 21.05.2020. As for as possible, coal transportation shall be done by rail /conveyor or other eco-friendly modes. However, road	Coal transportation is being done through railway rakes since 01.12.2018. Complied

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Sl.	Description	Status as on 07.09.2024
	transportation is allowed with tarpaulin covered truck till the railway/ conveyor belt infrastructure is made available. A progress (physical and financial) of rail connectivity from nearest railway siding or conveyor connectivity to the power plant shall be submitted in the EC compliance report.	
d	Additional ash pond is not allowed due to increase in ash content in the raw coal as against the ash pond permitted in the environment clearance. 100% fly ash utilisation is to be achieved within 4 years in line with fly ash notification dated	No additional ash pond is required due to change in coal source of Meja stage I (2x660 MW). Being Complied. 100% ash utilization as per direction shall be carried out in first four year cycle. Ash Utilization Plan from 2024 to 2034 is attached as Annexure D.

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Sl.	Description	Status as on 07.09.2024
	14.09.1999, 27.08.2003, 03.11.2009, 25.01.2016 31.12.2021, 30.12.2022 and amended time to time or extant regulation on fly ash utilization.	
e	In case of exceptional circumstances, project proponent may approach the Ministry for seeking permission to use an emergency ash pond with cogent reasons, if any.	Noted
f	The detail regarding monthly generation, utilisation and disposal of fly ash (including bottom ash) shall be submitted to the Ministry and its Regional Office.	The monthly report regarding generation, utilization and disposal of fly ash is being submitted to CPCB every month regularly. Last six months report is attached as annexure F. Henceforth, regular monthly report shall also be submitted to Ministry and its Regional Office.

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ANNEXURE D

Draft for 5-year plan for MUNPL (660*2 MW)

Specific coal considered: 0.67(as per EEMG). PLF 81.05% (as provided by EEMG for FY 2024-25)

Ash percentage considered: 35% of coal (as per EEMG)

Existing Stage 1 has installed capacity of 1320 MW.

Present Compliance cycle is of 04 years for stage 1 i.e.: FY 2022-2026. Avg ash utilization for compliance cycle must be 100% failing which will attract EC of Rs 1000/MT. For FY 2024-25 & 2025-26 target ash utilization is 135% respectively.

Considering next compliance cycle: 2026-30, target for FY 26-27,27-28,28-29 will be 105.6% respectively.

MUNPL 5 Year AU Plan with stage 1							
S.No	**Parameters**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**Remarks**
1	Generation (MU)	9372	9372	9372	9372	9372	
2	Coal Required (LMT)	58.11	58.11	58.11	58.11	58.11	
3	Ash Generation (LMT)	20.33	20.33	20.33	20.33	20.33	
4	DFA Generation (LMT)	16.27	16.27	16.27	16.27	16.27	
5	BA Generation (LMT)	4.07	4.07	4.07	4.07	4.07	
6	Cement Industry/RMC/Asbestos etc (Dry fly ash) through Road transportation (LMT)	* 14.64	**11.39	**11.39	**11.39	**11.39	**DFA offtake via road 90%* **DFA Offtake via road 70%.
7	Dry Fly ash transportation to Cement Industries via rail route (LMT)	1.53	**4.78	**4.78	**4.78	**4.78	*10% DFA offtake via rail route. **With commissioning of external silos for stage 1, 30% of DFA offtake will be carried out via rail route.
8	DFA Bricks manufacturing (LMT)	0.1	0.1	0.1	0.1	0.1	
9	Pond ash and bottom ash to Govt Road Construction projects (LMT)	11.18	11.18	5.19	5.19	5.19	Projection to supply Govt approved road projects up to radial distance of 300km.
	Total ash utilization (LMT)	27.45	27.45	21.46	21.46	21.46	
	Total AU %	135%	135%	*105.6%	*105.6%	*105.6%	*Considering AU for 29-30 as 91.35%

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Draft for 5-year plan for MUNPL (660*2+800*3 MW)

Specific coal considered: 0.67(as per EEMG). PLF considered: 75% (as per EEMG)

Ash percentage considered: 35% of coal (as per EEMG).

Existing Stage 1 has installed capacity of 1320 MW and addition of 2400 MW in stage 2.

Compliance cycle considered for FY: 26-30, 30-34.

MUNPL 5 Year AU Plan with coming stage 2							
S.No	**Parameters**	**2029-30**	**2030-31**	**2031-32**	**2032-33**	**2033-34**	**Remarks**
1	Generation (MU)	16556.4	24440.4	24440.4	24440.4	24440.4	Stage 2 Unit 1 Commissioning date taken 01/01/2029. Unit 2 is considered to get commissioned at a gap of 06 months from Unit 1 and unit 3 at a gap of 06 months from unit 2(as per PnS).
2	Coal Required (LMT)	110.93	163.76	163.76	163.76	163.76	
3	Ash Generation (LMT)	39.29	57.32	57.32	57.32	57.32	
4	DFA Generation (LMT)	31.07	45.84	45.84	45.84	45.84	
5	BA Generation (LMT)	8.23	11.47	11.47	11.47	11.47	
6	Cement Industry/RMC/Asbestos etc (Dry fly ash) through Road transportation (LMT)	* 22.78	**32.09	**32.09	**32.09	**32.09	**DFA Utilization via road transport is taken 77% through HCSD silos for unit 1 of stage 2 (last 03 years avg). No rail route for stage 2* **Considering Initial offtake through HCSD silos and Separate external silos for stage 2 will be fully commissioned by 01/01/30(70% DFA utilization via road transportation through external silos).
7	Dry Fly ash transportation to Cement Industries via rail route (LMT)	4.78	13.55	13.55	13.55	13.55	With commissioning of external silos for both stage 1&2, 30% of DFA offtake will be carried out via rail route for stage 1&2.
8	DFA Bricks manufacturing (LMT)	0.1	0.2	0.2	0.2	0.2	Considering 01 brick plant with stage 2.
9	Pond ash and bottom ash to Govt Road Construction projects (LMT)	8.23	11.48	11.48	11.48	11.48	Projection to supply Govt approved road projects up to radial distance of 300km.
	Total ash utilization (LMT)	35.89	57.32	57.32	57.32	57.32	
	Total AU %	91.35%	100%	100%	100%	100%	

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- All parameters are tentative in nature and may change with actual inception of unit.
- At present details and data with respect to number of HCSD pumps, number of HCSD silos number and capacity of external silos, rail route and ash brick plant are not available.
- It is assumed separate DFA transport through rail route and 01 brick plant will be provided with stage 2.

Calculation Sheet:

For year 2029-30

- For stage 1:

  Units Generated: (1320*365*24*0.75*1000)/1000000 = 8672.4 MU

  Total coal 1320*0.75*0.67*24*365= 58.10 LMT

  Total Ash: 58.10*0.35= 20.34 LMT

  DFA: 20.34*0.8 = 16.27 LMT

  Bottom ash: 4.07 LMT

  DFA via road: 16.27*0.7= 11.39 LMT

  DFA via rail: 16.27*0.3= 4.88 LMT

- For Stage 2: (Considering external loading silos will be available from 01/01/30 onwards)
- Unit 1

  Units Generated: (800*365*24*0.75*1000)/1000000 = 5256 MU

  Total coal 800*0.75*0.67*24*365= 35.22 LMT

  Total ash: 35.22*0.35= 12.33 LMT

  DFA: 12.33*0.8= 9.86 LMT

  Bottom ash: 2.47 LMT

  DFA via road: 9.86*0.77= 7.59 LMT

  Pond ash: 2.47+ 2.27= 4.74 LMT (HCSD+ Bottom)

- Unit 2

  Units Generated: {(800*365*24*0.75*1000)/1000000}/2 = 2628 MU

  Total coal (800*0.75*0.67*24*365)/2= 17.61 LMT

  Total ash: (35.22*0.35)/2= 6.615 LMT

  DFA: 6.615*0.8= 4.932 LMT

  Bottom ash: 1.683 LMT

  DFA via road: 4.932*0.77= 3.80 LMT

  Pond ash: 1.683+ 1.132= 2.815LMT (HCSD+ Bottom)

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For Year 2030-30 to 2033-34

- For stage 1:

  Units Generated: (1320*365*24*0.75*1000)/1000000 = 8672.4MU

  Total coal 1320*0.75*0.67*24*365= 58.10 LMT

  Total Ash: 58.10*0.35= 20.34 LMT

  DFA: 20.34*0.8 = 16.27 LMT

  Bottom ash: 4.07 LMT

  DFA via road: 16.27*0.7= 11.39 LMT

  DFA via rail: 16.27*0.3= 4.88 LMT

- For stage 2:

  Units Generated: (2400*365*24*0.75*1000)/1000000 = 15768 MU

  Total coal 2400*0.75*0.67*24*365= 105.65 LMT

  Total ash: 105.65*0.35= 36.98 LMT

  DFA: 36.98*0.8= 29.58 LMT

  Bottom ash: 7.4 LMT

  DFA via road: 29.58*0.70= 20.71 LMT

  DFA via rail route: 29.58*0.3=8.87 LMT

ANNEXURE F

MEJA URJA NIGAM (P) LIMITED
(A JV of NTPC Ltd & UPRVUN Ltd)

Monthly Abstract of Ash Generation and Utilization
(For the Period from 1st March 2024 to 31st August 2024)

Name of Power Utility: MUNPL
Name of Thermal Power Plant: Meja Thermal Power Plant
Installed Capacity (Total):1320 MW
PERIOD OF REPORT- 1st March,2024 to 31st August 2024

SI. No.	ASH GENERATION AND UTILIZATION (in LMT)						MODES OF ASH UTILIZATION AND UTILIZATION IN EACH MODE (in LMT)									
	Month	Coal consumed (in LMT)	Ash content of coal	Ash Generation (in LMT)	Ash Utilization (in LMT)	% Ash Utilization	In the making of Fly Ash based Bricks / Blocks / Tiles etc.	In the manufacture of Portland Pozzolana Cement	In the construction of Highways & Roads including Flyovers	Part replacement of cement in concrete	In Hydro Power Sector in RCC Dam Construction	In Ash dyke raising	In the reclamation of low lying Areas	In Mine filling	In Agriculture / Waste land Development	Others (Please specify) *
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1	March-2024	4.83193	35.68	1.724037	1.958963	113.62%	0.000000	1.468627	0.490335	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	APRIL-2024	4.44111	37.82	1.679626	1.263750	75.24%	0.000000	0.870770	0.39298	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	MAY-2024	5.58252	37.66	2.102375	1.486141	70.68%	0.000000	0.907941	0.5782	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	JUNE-2024	4.42924	35.74	1.583012	1.919004	121.22%	0.000000	1.051134	0.86787	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	JULY-2024	5.16072	33.42	1.724712	1.297927	75.25%	0.000000	0.822857	0.47507	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	AUGUST-2024	4.49043	34.72	1.559075	1.329625	85.28%	0.000000	0.916525	0.41310	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
TOTAL		**28.93595**	**35.84%**	**10.37284**	**9.25541**	**90.22%**	**0.000000**	**6.03785**	**3.21755**	**0.000000**	**0.00000**	**0.00000**	**0.00000**	**0.00000**	**0.00000**	**0.00000**

Note: (i) Ash means all types of ash including Fly Ash, bottom Ash, and Pond Ash etc.
(ii) Quantity of ash may be provided in Lakh Metric Ton (LMT) unto five decimal places.
(iii) Ash utilization in Column (6) shall be equal to summation of modes of ash utilization in each mode i.e., summation of column (8) to column (17)

Abbreviations: -
MW-Mega Watt
TPS- Thermal Power Station
KM- Kilometer
LMT- Lakh Metric Ton
Kcal- Kilocalories

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ANNEXURE V:-1

आदेश

एनटीपीसी लिमिटेड की "पुनर्वास एवम् पुर्नस्थापना नीति" के अन्तर्गत मेजा ऊर्जा निगम प्रा0 लिमिटेड द्वारा अधिग्रहीत भूमि से प्रभावित ग्राम मई खुर्द, इसौटा, पताई डाड़ी, कोहड़ार, सलैया कला, भगदेवा एवं सतैया खुर्द में 'पुनर्वास कार्यान्वयन योजना' को बनाने एवं उसको सुचारू रूप से चालने हेतु "ग्राम विकास सलाहकार समिति" हेतु अधोहस्ताक्षरी की ओर से श्री सुभाष उत्तम, अपर जिलाधिकारी, नजूल, इलाहाबाद को नामित किया जाता है जिसमें श्री उत्तम को निम्नलिखित अधिकारीगण सहयोग प्रदान करेंगे:-

1- प्रभागीय निदेशक, सामाजिकी वानिकी, इलाहाबाद।
2- विशेष भूमि अध्याप्ति अधिकारी(संयुक्त संगठन), इलाहाबाद।
3- उप जिलाधिकारी, मेजा, इलाहाबाद।
4- खण्ड विकास अधिकारी, कोरांव।

(राजीव अग्रवाल)
जिलाधिकारी, इलाहाबाद।

कार्यालय जिलाधिकारी, इलाहाबाद

संख्या 1846 /एस0टी0-09 दिनांक- 10 जून ,2009

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित:-

1- अपर जिलाधिकारी, नजूल, इलाहाबाद।
2- मुख्य कार्यकारी अधिकारी, मेजा ऊर्जा निगम प्रा0 लिमिटेड, इलाहाबाद।
3- विशेष भूमि अध्याप्ति अधिकारी(संयुक्त सगठन), इलाहाबाद।
4- उप जिलाधिकारी, मेजा, इलाहाबाद।
5- खण्ड विकास अधिकारी, कोरांव, इलाहाबाद।
6- प्रभागीय निदेशक, सामाजिकी वानिकी, इलाहाबाद।

(राजीव अग्रवाल)
जिलाधिकारी, इलाहाबाद।

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ग्राम विकास सलाहकार समिति, (मेजा थर्मल पावर प्रोजेक्ट) की बैठक की कार्यवाही का विवरण–

बैठक क्रमांक : 05

बैठक दिनांक : 09 फरवरी 2010

उपस्थिति :

क्रमांक	नाम	पद नाम	ग्रा० वि० स० स० के
1	श्री सुभाष चन्द्र उत्तम	अपर जिलाधिकारी (नजूल), इलाहाबाद	अध्यक्ष
2	श्री ओमप्रकाश श्रीवास्तव	उप जिलाधिकारी, मेजा	सदस्य
3	श्रीमती वन्दना त्रिपाठी	वि० भू० अ० अधिकारी, इलाहाबाद	सदस्य
4	श्री शिवप्रसाद	उप महाप्रबन्धक (पु० एवं पु०) मेजा इर्का निगम लि०	समन्वयक
5	श्री राकेश कुमार	ग्राम प्रधान, कोहडार	सदस्य
6	श्रीमती सुमन देवी	ग्राम प्रधान, सलैया खुर्द	सदस्य
7	श्रीमती रामरती देवी	ग्राम प्रधान, मई खुर्द	सदस्य
8	श्रीमती नीता निषाद	ग्राम प्रधान, डरौटा	सदस्य
9			
	आमन्त्रित सदस्य		
1	श्री मणिकान्त	मुख्य प्रबन्धक (एच आर), मेजा ऊर्जा निगम	
2			
3			

1DM

SDM

SMO

सुमन देवी

रामरती

नीता निषाद

09/2/10

DGM (R&R)
MUNPL

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ग्राम विकास सलाहकार समिति की दिनांक 20 जुलाई 2009, 27 अगस्त 2009, 04 अक्टूबर 2009, 14 अक्टूबर 2009 एवं 09 फरवरी 2010 की बैठकों में हुई चर्चा के अनुसार यह निर्णय लिया गया कि प्रस्तावित पुनर्वास कार्य योजना मूलतः निम्नलिखित योजनाओं पर आधारित होगी।

मैजा थर्मल पावर परियोजना हेतु पुनर्वास कार्य योजना–

- प्रभावित ग्रामों में एनटीपीसी की पुनर्स्थापना एवं पुनर्वास नीति 2006 के अनुसार आधारभूत सुविधाओं का विकास।
- स्वरोजगार योजना व आयवर्धक योजनाओं हेतु प्रशिक्षण की व्यवस्था।
- परियोजना परिसर में निर्मित दुकानों में भू–विस्थापितों को स्व–रोजगार हेतु एनटीपीसी की पुनर्स्थापना एवं पुनर्वास नीति 2005 के अनुसार दुकानों का आवंटन।
- अन्य कल्याणकारी गतिविधियों जैसे स्वास्थ्य, खेलकूद एवं सांस्कृतिक कार्यक्रमों हेतु प्रोत्साहन।

पुनर्वास कार्य योजना बैठक में यह सहमति हुई कि प्रभावित व्यक्तियों के लिए पुनर्वास कार्ययोजना एनटीपीसी की पुनर्वास एवं पुनर्स्थापना नीति 2005 के अनुसार लागू होगी।

1. **पुनर्वास और पुनर्स्थापना पैकेज के लिए निर्धारित तारीख–**

पुनर्वास एवं पुनर्स्थापना पैकेज का लाभ राज्य सरकार द्वारा प्रमाणित उन परियोजना प्रभावित व्यक्तियों की सूची के आधार पर होगा जिनकी भूमि, परिसम्पत्ति परियोजना हेतु अर्जित की गयी है अथवा अर्जित की जा रही हो और जिन्हें उस भू–अर्जन के कारण सरकार द्वारा मुआवजा राशि आवंटित हुई हो, मुआवजा की राशि प्राप्त कर चुके हो तथा धारा 4 (1) के प्रकाशन तिथि दिनांक 24.04.2006 के तीन वर्ष या उससे अधिक वर्षों से भूमि, परिसम्पत्तियों आदि का स्वामित्व रखते हैं। श्रेणी ई या एफ में आने वाले प्रभावित वे व्यक्ति इस योजना के अन्तर्गत लाभ के हकदार होंगे जो प्रभावित क्षेत्र में न्यूनतम तीन वर्ष या अधिक अवधि से निवास कर रहे है। एनटीपीसी की पुनर्वास एवम् पुनर्स्थापना नीति 2005 के अनुसार सभी श्रेणी के परियोजना प्रभावित व्यक्तियों की विधिवत प्रमाणित सूची पात्रतानुसार राज्य सरकार द्वारा उपलब्ध करायी जाएगी।

सुमन देवी

09.02.10

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2. पुनर्स्थापना पैकेज–

श्रेणी ए से जी के परियोजना प्रभावित व्यक्ति निम्नलिखित पुनर्स्थापना पैकेज के लिए हकदार होंगे। यदि कोई परियोजना प्रभावित व्यक्ति ए से जी तक के एक से अधिक श्रेणी के अधीन आता है तो वह केवल एक श्रेणी में पुनर्स्थापना पैकेज के लिए हकदार होगा।

2.1. **पुनर्स्थापना अनुदान –**

यह एक महत्वपूर्ण विषय है, ग्राम विकास सलाहकार समिति की बैठकों में विस्तृत चर्चा के उपरान्त यह सहमति हुई कि प्रति एकड़ भू हानि के आधार पर वास्तविक अधिग्रहीत भूमि या अधिकतम पाँच एकड़ भूमि के लिए, जो कम हो, एककालिक एवं एकमुश्त पुनर्स्थापना अनुदान का निस्तारण हो। तत्पश्चात् परियोजना प्रभावित व्यक्तियों का पुनर्स्थापना सम्बन्धी यह अन्तिम निपटारा माना जायेगा तथा इस सम्बन्ध में किसी भी प्रकार की अन्य दावेदारी मान्य नहीं होगी।

अधिग्रहीत भूमि की मूल मुआवजा राशि रू0 1,12,500 (रू0 एक लाख बारह हजार पाँच सौ मात्र) प्रति एकड़ (सोलेशियम एवं ब्याज को छोड़कर) है। तदनुसार इस मुआवजा राशि का 30 प्रतिशत, पुनर्स्थापना अनुदान रू 33,750/– प्रति एकड़ की दर से वास्तविक अधिग्रहीत भूमि के समानुपात में अधिकतम 5 एकड़ भूमि के लिए देय होगा। यह सुनिश्चित किया जायेगा कि भूमि अधिग्रहण के पश्चात जो व्यक्ति श्रेणी ए में आ गये हैं उन्हें न्यूनतम रू0 1,00,000/– (एक लाख मात्र) एवं श्रेणी बी से एक तक के व्यक्तियों को न्यूनतम रू0 75,000 का एककालिक पुनर्स्थापना अनुदान देय होगा। श्रेणी जी के परियोजना प्रभावित व्यक्ति को रू0 50,000/– का एककालिक पुनर्स्थापना अनुदान देय होगा। परियोजना प्रभावित व्यक्तियों की श्रेणीवार सूची राज्य सरकार द्वारा प्रमाणित एककालिक होगी।

2.2. **भूमि विकास एवं रजिस्ट्री व्यय –**

पुनर्स्थापना अनुदान के अतिरिक्त अगर कोई परियोजना प्रभावित व्यक्ति जमीन क्रय करना चाहता है तो इच्छुक क्रेता– इच्छुक विक्रेता के आधार पर उसे अधिग्रहीत भूमि के समानुपात में भूमि क्रय करने के उपरांत भूमि विकास हेतु रू0 12,500/–(बारह हजार पाच सौ रूपये मात्र) प्रति एकड़ राशि अधिकतम सीमा पाँच एकड़ तक देय होगी, इस प्रकार क्रय भूमि की रजिस्ट्री व्यय तथा स्टाम्प शुल्क प्रभार भी वास्तविक अधिग्रहीत भूमि के समानुपात में अधिकतम पाँच एकड़ तक क्रय भूमि के लिए देय होगा। श्रेणी इ एवं एफ के परियोजना प्रभावित व्यक्ति अधिकतम एक एकड़ भूमि क्रय कर सकते है जिसके लिए केवल रजिस्ट्री व्यय एवं स्टाम्प शुल्क ही देय होगा। इस लाभ हेतु परियोजना प्रभावित व्यक्ति को भूमि क्रय का अपेक्षित कागजात प्रस्तुत करना होगा।

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2.3 **जीवन निर्वाह अनुदान:**

प्रत्येक परियोजना प्रभावित व्यक्ति को सौ रू0 प्रतिदिन (प्रभावी न्यूनतम कृषि मजदूरी के हिसाब से) बीस दिन प्रति माह के आधार पर अधिकतम 250 दिनों की मजदूरी एक वर्ष के लिए देय होगी, जो कि रू 25,000/– (रूपये पच्चीस हजार मात्र) है।

2.4 **इच्छुक क्रेता –इच्छुक विक्रेता के अन्तर्गत भूमि क्रय की क्रियान्वयन प्रणाली:–**

- परियोजना प्रभावित विवाहित व्यक्ति बैंक में संयुक्त खाता खोलेंगे। इस खाते में पति एवं पत्नी दोनों बैंक के नियमानुसार संयुक्त खातेदार होंगे। अविवाहित अथवा विधवा/विधुर परियोजना प्रभावित व्यक्ति अपने स्वयं के नाम से बैंक में खाता खोलेंगे।
- परियोजना प्रभावित व्यक्ति भूमि क्रय के संदर्भ में मेजा ऊर्जा निगम (प्रा0) लिमिटेड को एक सहमति पत्र देंगे जिस पर भूमि क्रेता एवं विक्रेता दोनों का हस्ताक्षर होना आवश्यक है।
- खाता खोलकर परियोजना प्रभावित व्यक्ति मेजा ऊर्जा निगम (प्रा0) लिमिटेड के साथ करारनामा करेंगे जिसके अंतर्गत वे इस विकल्प को अपनाने हेतु अपनी सहमति प्रदान करेंगे। तत्पश्चात् परियोजना प्रभावित व्यक्तियों का पुनर्स्थापना संबंधी यह अंतिम निपटारा माना जाएगा तथा इस संबंध में भविष्य में किसी प्रकार की दावेदारी मान्य नहीं होगी।
- भूमि की पक्की रजिस्ट्री तथा संबन्धित कागजात की अभिप्रमाणित छाया प्रति मेजा ऊर्जा निगम (प्रा0) लिमिटेड को देने पर भूमि विकास राशि, रजिस्ट्री व्यय एवं स्टाम्प ड्यूटी क्रय भूमि की मात्रा अनुसार दी गयी सीमा के अन्तर्गत देय होगी।
- भूमि क्रय करने की समय सीमा मुआवजा राशि प्राप्त करने की तिथि से लेकर पुनर्स्थापना अनुदान जारी होने की तिथि से एक वर्ष की अवधि के अन्तर्गत तक होगी। इस योजना के क्रियान्वयन हेतु राज्य सरकार एवं मेजा उर्जा निगम उचित सहयोग प्रदान करेगा।

3. **पुनर्वास पैकेज (केवल श्रेणी "आई" के परियोजना प्रभावित व्यक्तियों के लिए):–**

ग्राम विकास सलाहकार की समिति की बैठक में विस्तृत चर्चा के उपरान्त यह सहमति हुई कि पुनर्वास पैकेज का निस्तारण एककालिक तथा एकमुश्त हो। तत्पश्चात् परियोजना प्रभावित व्यक्तियों का पुनर्वास संबंधी यह अंतिम निपटारा माना जाएगा तथा इस संबंध में भविष्य में किसी प्रकार की दावेदारी मान्य नहीं होगी।

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गृह विस्थापित स्व– पुनर्वास हेतु निम्नलिखित सुविधाओं के पात्र होंगे:

1. स्व– पुनर्वास अनुदान
2. पुनर्वास अनुदान
3. जीवन निर्वाह अनुदान
4. गृह सामग्री एवं जानवरों के विस्थापन में सहायता

अधिग्रहित मकानों, परिसम्पत्तियों को मेजा ऊर्जा निगम को सौंपने के पश्चात मुआवजा राशि के अलावा प्रत्येक गृह विस्थापित व्यक्ति को रू0 1,25,000 (एक लाख पचीस हजार रूपये मात्र) स्व– पुनर्वास राशि देय होगी। साथ ही "पुनर्वास अनुदान" के रूप में एकमुश्त राशि रू0 37,500 (सैंतीस हजार पाँच सौ रूपये मात्र) देय होगा। अन्य प्रभावितों की भाँति "जीवन निर्वाह अनुदान" के रूप में रू0 25,000 (पचीस हजार रूपये मात्र) देय होगा जो 20 दिन प्रतिमाह की दर से 1 वर्ष के लिए अधिकतम 250 दिन की न्यूनतम कृषि मजदूरी (24.04.2008 को प्रभावी दर 100 रू0 प्रति दिन) देय होगी। इनके अलावा गृह सामग्री एवं जानवरों को स्थानान्तरित करने के लिए सहायता प्रदान की जायेगी। भूमि व गृह अधिग्रहण दोनों से प्रभावित व्यक्ति को केवल एक ही बार "जीवन निर्वाह अनुदान" राशि देय होगी। उक्त अनुदान राशियों को जारी करने की प्रकिया क्रम संख्या 3.1 के अनुसार होगी।

पुनर्वास अनुदान निर्गत करने की प्रकिया –

- परियोजना प्रभावित विवाहित व्यक्ति बैंक में संयुक्त खाता खोलेंगे। इस खाते में पति एवं पत्नी दोनों बैंक के नियमानुसार संयुक्त खातेदार होंगे। अविवाहित अथवा विधवा/विधुर परियोजना प्रभावित व्यक्ति अपने स्वयं के नाम से बैंक में खाता खोलेंगे।
- परियोजना प्रभावित व्यक्तियों द्वारा पुर्नवास पैकेज की स्वीकृति हेतु मेजा ऊर्जा निगम(प्रा0) लिमिटेड के साथ लिखित करार करना जिसके अन्तर्गत परियोजना प्रभावित व्यक्तियों का पुनर्वास संबंधी यह अंतिम निपटारा माना जाएगा तथा इस संबंध में भविष्य में किसी भी प्रकार की दावेदारी मान्य नहीं होगी।
- परियोजना प्रभावित व्यक्ति द्वारा सभी ऋणग्रस्तताओं से मुक्त अधिग्रहीत भूमि एवं परिसम्पत्ति को मेजा ऊर्जा निगम (प्रा0) लिमिटेड को सौंपना।
- उपरोक्तानुसार खोले गये खाते में पुनर्वास अनुदान की राशि जमा की जाएगी ।

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4. **प्रभावित ग्रामों में आवश्यकतानुसार सामुदायिक विकास:**

मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा पुनर्वास कार्य योजना के अन्तर्गत किये जाने वाले सामुदायिक विकास कार्यों की विस्तृत सूची बैठक के ब्यौरे में संलग्न है। सूची में वर्णित कार्यों के अतिरिक्त ग्राम विकास सलाहकार समिति से समय-समय पर चर्चा के पश्चात मेजा ऊर्जा निगम (प्रा0) लिमिटेड आवश्यकतानुसार अन्य सामुदायिक कार्य भी करेगी।

सामुदायिक विकास कार्यों हेतु राज्य सरकार/ग्राम पंचायत द्वारा मेजा ऊर्जा निगम (प्रा0) लिमिटेड को सभी ऋणग्रस्तताओं से मुक्त भूमि उपलब्ध करायी जाएगी जिसके लिए मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा किसी प्रकार का भुगतान देय नहीं होगा। उपरोक्त कार्यों का निर्माण पूर्ण हो जाने के पश्चात् उन्हें राज्य सरकार/सम्बन्धित ग्राम पंचायत को सौंप दिया जाएगा जिसका संचालन, देख रेख एवं रख रखाव आदि की संपूर्ण जिम्मेदारी उन्हीं की होगी। संचालन, रख रखाव या अन्य किसी भी मद में मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा कोई व्यय नहीं किया जाएगा।

5. **स्वरोजगार योजना व आयवर्धक योजनाओं हेतु प्रशिक्षण:**

ग्राम विकास सलाहकार समिति की बैठक में रोजगार क्षमता एवं कौशल को बढ़ाने हेतु एनटीपीसी की पुनर्स्थापना एवं पुनर्वास नीति 2005 के अनुसार परियोजना से प्रभावित सभी पात्र व्यक्तियों (मुख्य संयत्र, रेलवे साइडिंग, पम्प हाउस इत्यादि के निर्माण हेतु अधिग्रहीत भूमि से सम्बन्धित व्यक्ति) अथवा उनके द्वारा नामित किसी एक आश्रित (पति/पत्नी/पुत्र/अविवाहित पुत्री) को पात्रता एवम् योग्यतानुसार निम्नलिखित सुविधाएं उपलब्ध कराने पर सहमति हुई।

(अ) रोजगार एवं प्रशिक्षण निदेशालय, लखनऊ, उत्तर पदेश शासन तथा मेजा ऊर्जा निगम (प्रा0) लिमिटेड के बीच पाँच वर्ष की अवधि के लिए हुये करार के अनुसार शैक्षिक वर्ष 20010-2011 से राजकीय आई.टी.आई. नैनी द्वारा संचालित निम्नलिखित पूर्णकालिक ट्रेड की कुल सीटों का 20 प्रतिशत परियोजना प्रभावित व्यक्तियों या उसके द्वारा नामित किसी एक पात्र आश्रित (पति/पत्नी/पुत्र/अविवाहित पुत्री) के लिए आरक्षित होगी। इस आरक्षण में सरकारी आरक्षण नीति बिन्दुओं का ध्यान रखा जायेगा।

ट्रेडों के नाम

1. वेल्डर 2. मशीनिस्ट 3. फिटर 4. इलेक्ट्रिशियन 5. इन्स्ट्रुमेन्ट मैकेनिक 6. हेयर एण्ड स्किन केयर 7. ड्रेस मेकिंग 8. फैशन टैक्नोलॉजी

इन पाठ्यक्रमों में प्रवेश हेतु आवेदक के पास व्यवसायिक परीक्षा उत्तर पदेश द्वारा निर्धारित अर्हताओं का होना अनिवार्य है एवं इस संदर्भ में कोई छूट देय नहीं होगी।

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राजकीय आई.टी.आई. नैनी द्वारा संचालित पूर्णकालिक व्यवसायिक पाठ्यक्रम में संचालित ट्रेड के प्रशिक्षण हेतु अनुमन्य अर्हकारी शैक्षिक योग्यता के आधार पर परियोजना प्रभावित व्यक्ति निम्नलिखित क्रमवार वरीयता के अनुसार प्रवेश हेतु पात्र होंगे।

मानक	वरीयता सिद्धान्त
वरीयता क्रम	1 2 3 4 5
पीएपी श्रेणी	आई ए बी सी डी
ट्रेड का आवंटन	• प्रवेश हेतु निर्धारित न्यूनतम अर्हकारी योग्यता की परीक्षा में प्राप्त अंक के मेरिट आर्डर (अंक) के अनुसार। • सरकार के आरक्षण प्रावधानों के अनुरूप।
आयु	अंको के समान होने की दशा मे जिसकी आयु अधिक है (परन्तु निर्धारित अधिकतम उम्र सीमा से कम)

प्रशिक्षण कार्यक्रम के उपरांत मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा किसी प्रकार के रोजगार उपलब्ध कराने की बाध्यता नहीं होगी।

(ब) परियोजना प्रभावित व्यक्तियों या उसके द्वारा नामित किसी एक पात्र आश्रित (पति/पत्नी/पुत्र/अविवाहित पुत्री) द्वारा किसी अन्य राजकीय आई.टी.आई. में व्यवसायिक पाठ्यक्रम हेतु प्रवेश पा जाने पर मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा प्रशिक्षण शुल्क वहन किया जायेगा।

(स) मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा परियोजना प्रभावित व्यक्तियों अथवा उनके आश्रित को पात्रता एवम् योग्यतानुसार रोजगारोन्मुखी प्रशिक्षण की व्यवस्था विभिन्न संस्थानों के सहयोग से करायी जायेगी ।

(द) उपरोक्त के अतिरिक्त समय समय पर अन्य रोजगारपरक प्रशिक्षण कार्यक्रमों की व्यवस्था भी मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा करायी जायेगी।

(य) उपरोक्त प्रशिक्षण कार्यक्रमों के उपरांत मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा किसी प्रकार के रोजगार उपलब्ध कराने की बाध्यता नहीं होगी।

6. **परियोजना प्रभावित व्यक्तियों को स्वरोजगार हेतु दुकान आवंटन –**

मेजा थर्मल पावर परियोजना के आवासीय परिसर में निर्मित दुकानों का अधिकतम 40 (चालीस) प्रतिशत आवंटन परियोजना प्रभावित व्यक्तियों को मेजा ऊर्जा निगम (प्रा0) लिमिटेड के दुकान आवंटन की शर्तों एवं नियमों के अनुसार किया जाएगा। इस संबंध मे आवंटी को मेजा ऊर्जा निगम (प्रा0) लिमिटेड के साथ एक एकरारनामा करना होगा। जिस परियोजना प्रभावित व्यक्ति को मेजा

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ऊर्जा निगम (प्रा0) लिमिटेड द्वारा दुकान आवंटित होगी, तो उक्त दुकान में आवंटी को स्वयं रोजगार करना होगा। यदि आवंटी किसी अन्य व्यक्ति को यह दुकान किराये पर देता है, तो उसके नाम से दुकान का आवंटन निरस्त कर दिया जायेगा।

7. **अन्य कल्याणकारी गतिविधियों जैसे स्वास्थ्य, खेलकूद हेतु प्रोत्साहनः**

परियोजना प्रभावित व्यक्तियों एवं उनके परिवार के सदस्यों के कल्याण हेतु प्रभावित ग्रामों में समय–समय पर निःशुल्क चिकित्सा शिविर आयोजित किये जाएँगे। प्रभावित ग्रामों के शारीरिक रूप से प्रभावित व्यक्तियों को आवश्यकतानुसार मेजा ऊर्जा निगम (प्रा0) लिमिटेड द्वारा उपकरण जैसे श्रवण यंत्र, ट्राई साईकल, व्हील चेयर आदि निःशुल्क उपलब्ध कराने की समुचित व्यवस्था की जायेगी। परियोजना प्रभावित व्यक्तियों को मेजा ऊर्जा निगम (प्रा0) लिमिटेड के आवासीय परिसर में प्रस्तावित अस्पताल में रियायती दर पर बहिरंग व अंतरंग चिकित्सा सुविधाएँ प्रदान की जाएगी।

परियोजना प्रभावित व्यक्तियों एवं उनके परिवार के सदस्यों हेतु विभिन्न अवसरों पर खेलकूद प्रतियोगिताओं के आयोजन में सहयोग दिया जाएगा।

8. **वाहन किराए पर लेनाः**

परियोजना समय–समय पर अर्थात निर्माण चरण, प्रचालन और अनुरक्षण चरण आदि पर परियोजना के विभिन्न विभागों के लिए वाहन किराए पर लेने की आवश्यकता का अनुमान लगाएगी। गाड़ी किराए पर लगाने हेतु परियोजना प्रभावित व्यक्तियों को नियमानुसार प्राथमिकता दी जाएगी।

8. **छोटे मोटे ठेके का कार्य देनाः**

परियोजना प्रभावित व्यक्तियों की सहकारी समितियों को छोटे–मोटे ठेके के कार्य मेजा ऊर्जा निगम (प्रा0) लिमिटेड के नियमानुसार देने में प्रोत्साहित किया जाएगा। इन समितियों की सदस्यता के लिए केवल परियोजना प्रभावित व्यक्ति ही पात्र होंगे। इन ठेको के लिए अग्रदाय राशि जमा करने की अपेक्षा नहीं होगी। लेकिन इन सहकारी समितियों को लागू सभी कानूनों और समय–समय पर उत्तर प्रदेश सरकार या केन्द्र सरकार द्वारा घोषित सम्बन्धित दिशा निर्देशों एवं पारित कानूनों का पालन करना होगा।

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10 प्रत्यक्ष रोजगार

मेजा उर्जा निगम की यह परियोजना विवेकीकरण के आधार पर नई एवं उच्च तकनीक पर आधारित होगी, अतः इस प्रकिया के फलस्वरूप परियोजना प्रभावित व्यक्तियों को प्रत्यक्ष रोजगार उपलब्ध कराना संभव नहीं होगा। यदि भविष्य में परियोजना में अकुशल एवं अर्धकुशल श्रेणी के अन्तर्गत प्रत्यक्ष रोजगार की उपलब्धता होती है तो ऐसी स्थिति में परियोजना प्रभावित व्यक्तियों को मेजा उर्जा निगम के दिशा निर्देश के आधार पर तय मापदंडो के अनुसार केवल इन श्रेणियों में यथा संभव प्राथमिकता प्रदान करने का प्रयास किया जाएगा।

समन्वयक द्वारा अध्यक्ष महोदय एवं सभी उपस्थितों का धन्यवाद ज्ञापन के साथ कार्यवाही समाप्त हुई।

(सुभाष चन्द्र उत्तम)
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मेजा उर्जा निगम (प्रा०) लिमिटेड

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ग्राम विकास सलाहकार समिति बैठक संख्या–05 दिनांक 09 फरवरी 2010 संलग्नक –1

पुनर्वास कार्य योजना

सामुदायिक विकास कार्य			
क्रमांक		मद	विवरण
(A) आधारभूत संरचना 1. निर्माण कार्य	a	ग्राम सलैया कलाँ, सलैया खुर्द एवं मड़ई कलाँ में स्थित स्कूलों में चहारदीवारी का निर्माण	400 मीटर
	b	एक नये जूनियर हाई स्कूल का निर्माण	सरकारी जमीन की उपलब्धता होने पर
	c	एक नये इण्टर कालेज का निर्माण	सरकारी जमीन की उपलब्धता होने पर
	d	सामुदायिक भवन का निर्माण	8 भवन
	e	पहुँच सड़कों का निर्माण	अनुमानित कुल लम्बाई 10 किमी.
	f	रैपुरी एवं रज्जब सिंह का पूरा में वैकल्पिक पहुँच सड़क की व्यवस्था	अनुमानित कुल लम्बाई 3 किमी.
	h	ग्राम पताई डाढ़ी के पास भूबन्धित क्षेत्र में पहुँच सड़क का निर्माण	अनुमानित कुल लम्बाई 5 किमी
	i	रेन शेड का निर्माण	15 शेड
	j	झरिगाही एवं सलैया कलाँ के स्वैच्छिक पुनर्वसन क्षेत्र	अनुमानित

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		में पहुँच सड़क का निर्माण	कुल लम्बाई 3 किमी	एक स्थान पर स्वैच्छिक पुनर्वास करने वाले परियोजना प्रभावित परिवारों की संख्या 25 या उससे अधिक हो
	k	झरियाही एवं सलैया कलाँ के स्वैच्छिक पुनर्वसन क्षेत्र के विद्युतीकरण	उत्तर प्रदेश पावर कारपोरेशन लिमिटेड के अनुमान के अनुसार	
	l	स्वैच्छिक पुनर्वसन क्षेत्र में आर सी सी/पी सी सी सड़क का निर्माण	अनुमानित कुल लम्बाई 3 किमी.	
	m	स्वैच्छिक पुनर्वसन क्षेत्रों में जल निकासी की व्यवस्था	5 किमी.	
	n	औद्योगिक प्रशिक्षण संस्थान नैनी से सम्बन्धित अधारभूत संरचना का विकास ➢ पाँच कक्ष एवं पाँच कार्यशालाए। ➢ औजार एवं उपकरण ➢ टी एस एल सब स्टेशन से औद्योगिक प्रशिक्षण संस्थान नैनी तक एक स्वतंत्र फीडर केबल या जनरेटर सेट		

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		➢ मुख्य गेट से प्रशासनिक भवन तक पी सी सी रोड ➢ विविध कार्य	
(2) संपर्क	a	प्रभावित ग्रामो मे आन्तरिक सड़क निर्माण	अनुमानित कुल लम्बाई 16 किमी
	b	पुलिया (कलवर्ट) का निर्माण	10 पुलिया
(3) पेय जल	a	हैंड पम्प की व्यवस्था	42 हैंड पम्प
(4) स्वच्छता	a	उचित जल निकासी की व्यवस्था	अनुमानित कुल लम्बाई 6 किमी, सरकारी जमीन की उपलब्धता होने पर
(4) अन्य सामुदायिक कार्य		साझा सम्पत्ति संसाधनों की व्यवस्था a. सुधारात्मक उपाय b. निर्माण/ विकास	
	a	**सुधारात्मक उपाय**	
	1	तालाब	3 संख्या
	2	कुआँ	2 संख्या, सरकारी जमीन की उपलब्धता होने पर
	b	**निर्माण/विकास**	
	1	तालाब	1 संख्या
	2	कुआँ	5 संख्या
	3	सामाजिक वानिकी/ वन रोपण	सरकारी जमीन की उपलब्धता होने पर
	4	मन्दिर/धार्मिक स्थल	1 संख्या, सरकारी जमीन

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			की उपलब्धता होने पर
(B) क्षमता संवर्धन	a	राजकीय औद्योगिक प्रशिक्षण संस्थान,नैनी में प्रशिक्षण	कुल 320 छात्र, 5 वैच
	b	दीर्घ अवधि व्यवसायिक कोर्सेज जैसे– नर्सिंग ,मिडवाईफरी, फैशन डिजाइनिंग, ब्यूटीशियन वगैरह	कुल 50 छात्र
	c	दक्षतापरक अल्पावधि व्यवसायिक प्रशिक्षण कार्यक्रम	कुल 300 छात्र ,प्रति वर्ष 60 छात्र
	d	महिला सशक्तीकरण	स्वयं सहायता समूहों का निर्माण एवं अन्य कार्य
	e	किसान मेला एवं कृषि क्लीनिक	
	f	शैक्षिक भ्रमण एवं विविध कार्य	
(C) कल्याणकारी गतिविधियाँ	a	**स्वास्थ्य सुविधाएं**	
	1	सामान्य स्वास्थ्य/नेत्र परीक्षण शिविर का आयोजन	3 सामान्य जांच शिविर प्रति वर्ष, एक नेत्र शिविर प्रति वर्ष
	2	विद्यालय में बच्चों हेतु सामान्य स्वास्थ्य शिविर	प्रत्येक वर्ष में एक बार
	3	टीकाकरण शिविर	आवश्यकतानुसार
	4	परिवार नियोजन शिविर	एक शिविर प्रति वर्ष
	5	शारीरिक विकलांग व्यक्तियों के लिए चिकित्सा उपस्कर और उपकरण इत्यादि की व्यवस्था	
	6	शारीरिक विकलांग एवं सुविधाहीन व्यक्तियों के लिए स्वरोजगार परक सहायता प्रदान करना	
	7	प्रभावित ग्रामों में क्लोरीन की गोली एवं ब्लीचिंग पाउडर छिड़काव की व्यवस्था	

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	8	मोबाइल क्लिनिक एवं एम्बुलेंस इत्यादि	1 संख्या
	9	पशु चिकित्सा शिविर	प्रत्येक वर्ष में एक बार
	b	विद्यालयों में किताबों, बस्तों, स्टेशनरी, एवं स्कूल/बच्चों सम्बन्धित अन्य सामग्रियों का वितरण	कुल 2500 बच्चों हेतु पांच वर्ष में
	c	सांस्कृतिक गतिविधियों को बढ़ावा देने सम्बन्धी कार्य	1 आयोजन प्रति वर्ष
	d	खेद –कूद सम्बन्धी आयोजन	1 आयोजन प्रति वर्ष
	e	कम्प्यूटर वितरण आदि	प्रत्येक विद्यालय को दो कम्प्यूटर
(D) विविध कार्य /अन्य		आवश्यकतानुसार अन्य विकास कार्य जिसके लिए ग्राम विकास सलाहकार समिति सहमति प्रदान करे।	आवश्यकतानुसार समय–समय पर आने वाले कार्य

सभापती

गीता निषाद

09/2/10

09/2/10

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भारतीय गैरन्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

उत्तर प्रदेश UTTAR PRADESH

AD 965753

07 JAN 2010

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING is made on this 30th day of December 2010 between the Directorate of Training and Employment, Government of Uttar Pradesh through Shri Hiramani Singh Yadav, Director, Training and Employment, Government of Uttar Pradesh having its office at Rozgar Bhawan, Guru Govind Singh Marg, Lucknow (hereinafter called **'THE FIRST PARTY'**, which term shall unless the context requires otherwise include its successors and assigns); and Meja Urja Nigam Private Ltd. (MUNPL) (A joint venture company of NTPC Ltd. & Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL)) having its registered office at NTPC Bhawan, Core-7, Scope Complex, 7, Institutional Area, Lodi Road New Delhi-110003 and corporate office at 5th Floor Sangam Place, Civil Lines Allahabad UP-211001 acting through Shri Vinod Sharma, Chief Executive Officer (CEO), MUNPL (hereinafter called **'THE SECOND PARTY'**, which term shall unless the context requires otherwise include its successors and assigns)

WHEREAS it has been the concern of both the parties to this MOU that in order to meet the requirement of Skilled / Semi-skilled work force in the industries, it is necessary to develop / enhance the technical skills of the local youths/students of

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areas in and around the thermal power project (s) of MUNPL for improving their employability in the industry or self employment.

THE FIRST and SECOND PARTIES have therefore, agreed to draw terms & conditions under this MOU for reserving 20 % of sanctioned seat in 8 (eight) trades in Govt. ITIs of Allahabad district.

THE PARTIES HERETO AGREE AS FOLLOWS:

SECTION A : ROLE OF THE FIRST PARTY

1. THE FIRST PARTY shall provide 20% of sanctioned seats for the prevailing academic year (rounded off to the nearest whole number) for admission of candidates recommended by THE SECOND PARTY, subject to their fulfilling the admission criterion, in Govt. ITIs in trades as given below.

S No	Trades	Gender	Sanctioned Seats for course duration (as on Aug 2009)	Course Duration (Years)	At Institute
1	2	3	4	5	6
1	Machinist	Male	84	02	ITI Naini
2	Electrician	Male	160	02	ITI Naini
3	Fitter	Male	176	02	ITI Naini
4	Instrument Mechanic	Male	32	02	ITI Naini
5	Welder	Male	36	01	ITI Naini
6	Hair & Skin Care	Female	16	01	World Bank Woman ITI Katra
7	Dress Making	Female	16	01	ITI Manda*
8	Fashion Technology	Female	32	01	ITI Naini & Manda*

** Presently being run at ITI Naini.*

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As & when the sanctioned strength of the courses are increased/decreased in ITIs, proportionate increase/decrease of seats for admission of said recommended candidates shall be made against seats approved for MUNPL, Allahabad.

2. THE FIRST PARTY through Principal, Govt. ITI, Naini shall arrange all necessary clearances from concerned authorities for construction of five no. class rooms and five no. workshops (as per approved Scheme & govt. norms), for the first five trades mentioned at point # 1 noted above. THE FIRST PARTY will permit construction of the same at earmarked location in Govt. ITI Naini Campus.

3. THE FIRST PARTY through Principal, Govt. ITI, Naini shall provide the list of tools & equipments and furniture (with necessary details) required for strengthening / up gradation of the five trades (namely Electrician, Machinist, Welder, Fitter & Instrument Mechanic) at Govt.ITI, Naini within one month from signing of this MOU. The total cost of the same shall be limited to Rs 30 lacs (Rupees thirty lakhs only). The procurement of these tools/equipments/furniture will be done by the FIRST PARTY through Principal, Govt. ITI, Naini as detailed out at point # 5 of Section B subject to that Technical Specification & vendors finalisation shall be done in consultation with SECOND PARTY.

4. THE FIRST PARTY through Principal Govt. ITI Naini shall provide MUNPL with necessary written permission /consent from M/S UPPCL (Uttar Pradesh Power Corporation Limited) for 11 Kv Power Connection and providing one number dedicated 11 Kv feeder and allowing MUNPL to lay 11 Kv underground cable / overhead line from 33 / 11 Kv TSL substation of M/S UPPCL up to Govt.ITI, Naini, limited to a maximum distance of 2 Kms. All necessary permissions, clearances and license fee, user charges etc. will be the responsibility of FIRST PARTY.

In case the FIRST PARTY is not able to provide the aforesaid permission, it will accept DG sets in lieu of the independent feeder as mentioned at point # 6 of Section B. The operation and maintenance of the DG sets will be FIRST

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PARTY's responsibility and recurring cost of operation & maintenance shall be borne by the FIRST PARTY itself.

5. THE FIRST PARTY through Principal, Govt. ITI, Naini shall give permission to MUNPL to lay down part PCC & part Bituminous road in Govt. ITI, Naini Campus as per their requirement up to a maximum length of 01 (one) kilometre and width up to 4.5 meters as per standard norms for construction of road.

SECTION B : ROLE OF THE SECOND PARTY :

1. THE SECOND PARTY shall recommend and sponsor the eligible candidates from the Project Affected Persons for admission in the designated eight Trades in the earmarked Govt. ITIs each year. They will submit the list of eligible candidates up to the last date of admission in ITI as notified for the year.

2. THE SECOND PARTY shall bear all training expenses of those students who are admitted as per this MOU (admission fee, monthly tuition fee, material cost etc.) and remit the same to Govt. ITI directly. The fee will be as per existing notification and material cost will be Rs 400/-p.m. for engineering stream and Rs 300/-p.m. for non-engineering stream.

3. THE SECOND PARTY shall construct five numbers of classrooms and Workshops as approved scheme & standard norms at a location in Govt. ITI Naini Campus earmarked by Principal. Walled area of each room and each workshop will not be less than 30 and 100 square metres respectively. The SECOND PARTY will also provide internal and external electrification work in the workshops and classrooms.

4. THE SECOND PARTY shall construct road up to a maximum length of 01 (one) kilometer with width up to 4.5 meters (part PCC and part bituminous) at location identified by the Principal (Govt.ITI, Naini) within the ITI campus.

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5. THE SECOND PARTY shall bear the expenditure of required equipments, tools and furniture for five said trades in accordance with details provided by FIRST PARTY. The total expenditure on these shall not exceed 30 lakhs lump sum. The FIRST PARTY shall procure the required tools/equipments/furniture by their existing procedure and shall submit the necessary documents to SECOND PARTY for release of funds upto a maximum amount of rupees Thirty lakhs (all inclusive). To facilitate release of fund by SECOND PARTY, the FIRST PARTY shall submit necessary documents required by the SECOND PARTY.

6. THE SECOND PARTY shall undertake to lay 11 Kv underground cable / overhead conductor from 33 / 11 Kv TSL substation to Govt. ITI, Naini (subject to point # 4 of section A). Readiness and overhauling of existing 11/0.4 Kv transformer shall be arranged by Govt.ITI, Naini. MUNPL will also provide and install 415 Volt LT distribution board near 11/ 0.4 Kv transformer.

   If the FIRST PARTY is unable to provide permission for 11 KV Power connection/11 KV feeder from appropriate authorities, one 100 KVA and one 20 KVA D.G. Set will be provided and installed by MUNPL. The Operation & Maintenance of the same shall be looked after by Govt. ITI at its own cost. Decision in this regard shall be communicated by the Principal within 30 days of signing of this MOU.

7. The above work shall be undertaken by the SECOND PARTY in a phased manner spread over five year starting from Academic year 2010-11 as per mutual agreement. The gross estimated cost of all the infrastructural & facilities upgradation work will be Rs.1.45 Crores based on estimates as on 13/08/2009.

All the infrastructural development works shall be on one time expenditure basis by the

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SECOND PARTY and any subsequent repair and maintenance shall be the responsibility of FIRST PARTY.

Both the PARTIES shall be governed by prevailing rules and government orders.

This MOU shall remains valid for five years. In case need arises, the parties to this MOU shall amicably decide either to renew or to enter in to a fresh MOU on mutually agreed terms and conditions.

In case any dispute arises relating to or arising out of this MOU the same shall be resolved mutually. In case the dispute is not resolved amicably between the parties within a period of 30 days, the same shall be referred to arbitration in accordance with the Arbitration and Conciliation Act, 1996.

In WITNESS WHEREOF the parties hereto have executed these presents on the 30th day of January , 2010 first above written at Lucknow.

For & on behalf of Govt. of U.P.

(Hiramani Singh Yadav)
Director,
Training & Employment,
Govt. of Uttar Pradesh
FIRST PARTY

For & on behalf of MUNPL

(Vinod Sharma)
Meja Urja Nigam Pvt. Ltd.
Allahabad, U. P.

SECOND PARTY

Date: 30th January 2010
Place: Lucknow
WITNESSED By

(Govt. of U. P.)
1. Signature:
Name (B.B. Singh)
Address: DTE, Lucknow
2. Signature:
Name (M.R. Usmani)
Address: Principal I.T.I. Naini Allahabad

(MUNPL)
1. Signature: 30.01.10
Name : Shiv Prasad
Address: Sangam Place, Civil Lines, Allahabad
2. Signature:
Name : Ashok Kumar
Address: Sangam Place, Civil Lines, Allahabad

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Annexure- I

Rehabilitation Package

(A) Calculation of Rehabilitation Grant

Sl No	Category	No of PAPs	Rehabilitation Grant (Rs)	Subsistence Grant(Rs)	Sub Total (Rs)	Total Grant (Rs)
1	A	98	100000	30000	130000	12740000
2	B	287	75000	30000	105000	30135000
3	C	163	75000	30000	105000	17115000
4	D	108	75000	30000	105000	11340000
5	E	0	75000	30000	105000	0
6	F	29	75000	30000	105000	3045000
	Total	685				74375000
			Grand Total with Variation up to 10% * * Includes variations due to change in numbers of PAPs and their individual land loss on receiving the final list of PAPs from the State Government.			81812500

Total no of PAPs in category A, B, C & D as per the list provided by the SLAO office as 831. The verified list provided by the local administration for category A to D is 656. 113 cases of Bhoodan are pending in salaiya kala village. Details related to land loss and amount of compensation to be paid to these 113 PAPs is unavailable.

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Annexure-I

(B) Calculation of Rehabilitation Grant for 113 pending *Bhoodan* Cases:

Category	No of PAPs	Rehabilitation Grant (RG) (Rs)	Subsistence Grant(Rs)	Sub Total (Rs)	Total Grant (Rs)
A	113	168750	30000	198750	2,24,58,750

Total No of Land Oustee's as per latest information and inclusion of 113 pending Bhoodan cases = 113+656= 769

113 pending cases of *bhoodan* involve total 662 Acre of land, with average land holding of 5.86 acre. Considering this fact RG has been assumed as per land loss to the tune of 5 acres per head.

Total RG amount may change in future as per actual / verified list of PAPs to be received from SLAO office.

(C) Total Rehabilitation Grant:

a. Rehabilitation Grant for 685 PAPs = Rs 8,18,12,500
b. Rehabilitation Grant for 113 pending *bhoodan* cases = Rs 2,24,58,750
Total Rehabilitation Grant = Rs10,42,71,250

Total Rehabilitation Package:

S N	Descriptions	Details
1	Total Rehabilitation Grant	Rs. 10,42,71,250
2	No of people opting for LFL option (On assumption that 33 % of land oustee opt for the option)	219 Number
a	Land development amount (per Acre)	Rs 12,500
b	Registration fee (per Acre)	Rs 15,000
c	Land development and registration of land under LFL option [12500+15000]* 219 * 3 (Max limit is 2 hec. or 5 Acre, Average land loss has been assumed as 3acres per PAP)	Rs. 1,80,67,500
3	Total Rehabilitation package (1+ 2c)	Rs 12,23,38,750

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Annexure II

Resettlement Package

S N	Descriptions	Details
1	One time Self-Resettlement Grant	Rs 1,25,000
2	Resettlement Grant	Rs 37,500
3	Subsistence Grant	Rs 30,000
4	Sub Total	Rs 1,92,500
5	Transportation/ shifting assistance (For Budgeting Purpose Only)	Rs 25,000
6	Total resettlement grant including Transportation assistance	Rs 2,17,500
7	Total No. of HSO's	77 Number
A	No's of HSO's who will receive Resettlement package of Rs 2,17,500	42 Number
B	No's of HSO who will receive Resettlement package of Rs 1,92,500 excluding subsistence Grant *(35 HSO's are also LO's and their Subsistence grant has already been included in their Rehabilitation Package)*	35 Number
C	Sum of resettlement package for 42 HSO's	Rs 91,35,000
D	Sum of resettlement package for 35 HSO's	Rs 67,37,500
8	One time Resettlement package (C+D)	Rs1,58,72,500

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Annexure-III

Community Development Work

Sl.No.		Description	Financial Implication (in Lacs)	Remarks	
(A) Infrastructure 1. Construction Works	a	Construction of boundary wall of schools in villages Salaiya Kala , Salaiya Khurd and Mai Kala	15	400 meter	
	b	Construction of one new Junior High school	63	Subject to availability of land	
	c	Construction of one Intermediate college for girls	103	Subject to availability of land	
	d	Construction of Community center Building in affected villages	168	8 number	
	e	Construction of approach road in affected villages	370	Approx length 10 kms	
	f	Alternate approach road to 2 villages	111	Raipuri & Rajjab Singh ka pura in Salaiya Kala village (about 3 kms)	
	g	Approach road to locked area near Village Patai Dandi	185	5 Kms	
	h	Construction of rain sheds	25	15 number	
	i	Approach roads to self Resettlement Areas of Jhariyahi and Salaiya Kala.	111	3 kms	*In case HSO settle in a group of 25-30 PAFs at one place*
	j	Electrification of self resettlement areas of Jhariyahi and Salaiya Kala	20	As per estimates of UPPCL	
	k	Internal *PCC* roads in self resettlement areas	60	3 kms.	
	l	Drainage in self resettlement areas	45	5 kms	
	m	Provision of Retaining wall to prevent earth slide in self resettlement area of Jhariyahi	25	@lumpsum	
	n	Provision of Construction water for self resettlement area of Jhariyahi and Salaiya Kala	15	@lumpsum	
	o	Infrastructure development Work at Govt. ITI Naini • Five Theory & five workshop rooms • Tools and Equipments • An independent	70 30		

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		feeder(Cable) from TSL substation to ITI Naini or one 100 KVA & one 20 KVA DG sets ▪ A PCC road from main gate of ITI to its Administrative Building. ▪ Miscellaneous works	35 10 5	
		Sub Total	1466	
2. Road Connectivity	a	Construction of internal roads in affected villages	592	Total length approximately 16 Kms
	b	Construction of culverts	80	10 number
		Sub Total	672	
3. Drinking Water		Installation of Hand Pumps, Borewells thru pipes etc	112	42 number handpumps, 08 borewells etc
		Sub Total	112	
4. Sanitation		Provision for drainage system, toilets etc	210	Subject to availability of land, Total length of drains 5 kms
		Sub Total	210	
5. Others		Provision for Common Property Resources (CPR) 1. Restoration 2. Construction/Development		
	a.	Restoration		
	1	Ponds	60	3 number
	b.	Construction/Development		
	1	Ponds	20	1 number, Subject to availability of land
	2	Community Wells	28	7 number, Subject to availability of land
	c	Social Forestry	25	Subject to availability of land
	d	Temple / Religious place	25	1 number, Subject to availability of land
		Sub Total	158	
(B) Capacity Building	a	Training Programme at Govt ITI, Naini	50	Total 320 students, To be covered in 5 batches

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	b	Long term professional courses like nursing, Midwifery, Fashion Designing, Beautician etc.	50	Total 50 students
	c	Skill oriented Vocational training programs of short term duration etc.	45	Total 300 students, 60 students per year
	d	Women empowerment etc.	30	Formation of self help groups and other activities
	e	Farmer *Mela* & Agriculture clinics etc.	20	@ lump sum
	f	Exposure Tours & Miscellaneous	10	@ lump sum
		Sub Total .	205	
	a	Health Facilities		
	1	General Health /Eye camps & General Purpose Medicine	25	General camps 3 times a year , Eye camp once a year
	2	Children health check up camps at schools	20	@ Rs 400000 per year
	3	Organizing Vaccination camps	5	Lump Sum @ Rs 100000.00 per year
	4	Family Planning	15	Camps to be held once a year
3-(C) Welfare Activities	5	Medical equipments and aid to physically challenged people(Like tri-cycle, movement aid, hearing aid etc,)	15	@ lumpsum
	6	Self Employment assistance to physically challenged & vulnerable people	10	@ lumpsum
	7	Distribution of chlorine tablets & bleaching powder etc. in affected villages	10	@ lumpsum
	8	Mobile clinic & Ambulance Etc.	100	One number
	9	Veterinary Camp	5	@ 100000.00 per annum
	b	Activities related to Schools/ children		To cater about 2500 children
	I	Distribution of books, Bags,	25	

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		Stationary,		
	2	Scholarships	5	
	3	Furniture	20	
	4	Other need based welfare activities/material etc.	10	
	c	Promotion of cultural activities etc	10	1 time a year @ Rs 200000.00 per year
	d	Organization of rural sport events & sport kits etc.	30	1 time a year
	e	Distribution of computers, accessories & peripherals etc.	25	@ lumpsum
		Sub Total	330	
(D) Miscellaneous / Others		Other need based works as emerges or as consented by VDAC	100	Need based works
		Sub Total	100	
Total (A + B +C +D)		**Community Development Work**	Rs.3253 lacs	

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Annexure -IV

Implementation Measures:

Sl No	Description	Financial Implication (in Lacs)	Remarks
1	PAPs Verification & Issue of Id Card and Signing of Agreement with each PAPs/ HSOs etc.	20	@ lump sum
2	Supervision of Implementation of RAP	20	@ lump sum
3	Monitoring & Evaluation of Implementation of RAP.	20	@ lump sum
4	Miscellaneous Expenses	40	@ lump sum
	Sub Total	100	

Total proposed expenditure is estimated as Rs 5208 Lac with following break-up:

Sl No	Budget Head	Financial Implication (Rs. in Lac)	Remarks
1	Rehabilitation package	1223	As per Annexure -I
2	Resettlement Package	159	As per Annexure-II
3	Community Development works	3253	As per Annexure-III
4	Implementation Measures (Supervision / Monitoring & Evaluation of RAP)	100	As per Annexure-IV
5	Variations (10%)	473	
	Total	5208	

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ANNEXURE V:-2

कार्यवाही रजिस्टर

रूप पत्र संख्या 8

नियम 34 व 43 रूप पत्र

दिनांक	उपस्थित पंचो/ सदस्यों का नाम	प्रस्ताव नं0	की गई कार्यवाही	पंचो/ सदस्यों का ह. या अंगूठा निशान	टिप्पणी
1	2	3	4	5	6
03/10/2013	[illegible] (प्रधान)	1	हॉल निर्माण कार्य [illegible] की स्वीकृति	[illegible]	
			बोर्ड की बैठक प्रधान [illegible] की अध्यक्षता में प्रारम्भ [illegible] कि वे उक्त पूर्व सूचनाओं के बाद सूची बैठक आहूत की जाती [illegible] बैठक में लिम्न प्रस्ताव पर चर्चा की गयी और एन.टी.पी.सी. द्वारा ग्राम सभा में कार्य कराने हेतु विभिन्न परियोजना निर्माण पर [illegible] चर्चा		
			क. [illegible] निर्माण ख. [illegible] निर्माण ग. [illegible] निर्माण घ. [illegible] निर्माण च. [illegible] निर्माण क. [illegible] छ. [illegible] ज. [illegible] झ. [illegible] ञ. [illegible] ट. [illegible] ठ. [illegible] ड. [illegible] ढ. [illegible] ण. [illegible]		
			सभी सदस्यों ने इसे सर्वसम्मति से स्वीकृत किया और कार्यवाही को [illegible] समाप्त किया गया।		

नोट :- प्रत्येक कार्यवाही पर प्रधान और सेक्रेटरी के हस्ताक्षर होना आवश्यक है।

:- प्रत्येक कार्यवाह

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कार्यवाही रजिस्टर की प्रतिलिपि

रूप पत्र संख्या 8

नियम 36 व 43

दिनांक	उपस्थित पंचो/ सदस्यों का नाम	प्रस्ताव नं०	की गई कार्यवाही	पंचों/ सदस्यों का ह० या अंगूठा निशान
1	2	3	4	5
12/5/[illegible]	श्री रामचन्द्र ग्राम प्रधान इसौता		आज दिनांक 12/5/[illegible] को प्रातः इसौता पर समय 12 बजे से दी गई पूर्व सूचनानुसार ग्राम सभा – इसौता की खुली बैठक का आयोजन ग्राम प्रधान श्री रामचन्द्र की अध्यक्षता में आहूत की गई जिसमें बैठक के आधार एवं कोरम पूर्ण रहा। बैठक में सभी उपस्थित सदस्यों द्वारा निम्न लिखित कार्यों को कराये जाने की अनुमति प्राप्त है।	
			(1) ग्रा०पं० – इसौता के राजेश कुमार पुत्र स्व० राम सजीवन के घर के सामने ईंट पक्का निर्माण कार्य।	
			(2) ग्रा०पं० – इसौता में बँजूलाल पुत्र गेंदालाल के खेत के पास – एक डेम निर्माण कार्य।	
			(3) ग्रा०पं० – इसौता में रामकुमार पुत्र लालजी के खेत के पास एक डेम निर्माण कार्य।	
			(4) ग्रा०पं० – इसौता में अतिरिक्त सी-सी० रोड़ निर्माण कार्य।	

ग्राम प्रधान इसौता के रजिस्टर में लिखे गये कार्यवाही की प्रतिलिपि

नोट :- प्रत्येक कार्यवाही पर प्रधान और सेक्रेटरी के हस्ताक्षर [illegible]

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ANNEXURE V:-3

MEJA URJA NIGAM PVT Ltd
(A Joint Venture of NTPC & UPRVUN LTD)
MEJA THERMAL POWER PROJECT
PO. Kohdar , Tehsil. Meja,Allahabad (UP)

Ref. No. MUNPL/CCD-III/R&R/Jal Nigam/ Date.17/01/2014

To,
Project Manager
Construction & Design Service (E./M.)
Nalkoop Wing, U.P. Jal Nigam
A.D.-8, Ekanki Kunj,
Muir Road, Allahabad (UP), 211 001

Sub:-Construction of 3 nos Check Dam in village Esauta, Patai Dandi & Kohdar under R&R Plan.

Ref. No Your letter no nil dated 18/07/2013

Sir,

This is in reference to your the letter no nil dated 18/07/2013, 01/10/13 & 18/10/13 and MUNPL letter dated 03/09/2012 for construction of 3 nos check dam for Meja Thermal Power Project (Meja TPP) in village- Kohdar, Esauta and Patai Dandi.

We are pleased to accept the contract work for construction of 3 nos check dam for Meja TPP in village Kohdar, Esauta and Patai Dandi to UP Jal Nigam, Allahabad as deposit work. The approved cost for this contract is Rs.55,27,302.56 /-(Rupees fifty five lakh twenty seven thousand three hundred two and paise fifty six) only.

The scope of work , Terms and condition, payment terms, Field quality plan, completion period, and Bill of quantity shall form part of this contract (enclosed).

Engineer In Charge for this contract work will be Mr. OP Gupta, Sr.Manager (CCD-III).

You are requested to send copy of this letter duly signed and stamped by authorised signatory of your company as a proof of your acknowledgement and unequivocal acceptance of work .

Thanking You,

Yours faithfully
17/01/2014
(VK Jain)
AGM(CCD-III)

Enclosure:- A/a

Recd.
17/01/14

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Completion Period:-

4(Four) Months from the date of handing over the site for individual Check Dam. Rainy Season from **June to September** will not be considered in the construction period.
The work will be guaranteed for 12 months from the date of completion of work against any defects which will be rectified by UP Jal Nigam for which MUNPL will not make any payment.
Defect Liability period as per GCC of NTPC

Payment Terms:-

1	25% Immediate advance.
2	25% After mobilisation.
3	50% After completion and handing over of work.
4	10% of work will be held by MUNPL which will be released after 12 months after completion of work. This 10% amount will be deposited by UP Jal Nigam in shape of FDR / Bank Guarantee from any nationalised bank.

Scope of Work:-

1	Spot levelling as per technical specification.
2	Construction of Check Dam Civil work as per technical specification, drawing, schedule of items
3	Conductance of all the Quality Assurance test as per approved field quality Plan , Materials quality plan from approved test agencies of MUNPL/NTPC on it own cost.
4	Transportation including loading, unloading, stacking , handing of material.
5	Safety and Security of all the material at site till completion of work and handing over to MUNPL
6	Providing PPE (Personal Protective Equipments) like safety helmet , shoe to worker.

General Instruction to Bidder:

1	Bidder has to make its own arrangement for construction of Power and Water.
2	The rates are inclusive of all taxes & duties , all the ingredient / Material, tools and tackles and nothing will be issued by MUNPL.

Quality Assurance:-

1	Bidder shall furnish a Quality Plan Assurance Plan for all materials to be used in the work for review and approval of MUNPL prior to start of work (as per sample FQAP provided with this document.)
2	Bidder shall conduct all the tests at various stages as per quality plan; submit the test reports / relevant documents to FQA department of MUNPL through Engineer- In-Charge.

Accepted
17/01/14
PROJECT MANAGER
C&DS (E/M) Varanasi Wing
UP Jal Nigam, Allahabad

17/01/14

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Field Quality Plan For Civil Work

			Work - **Construction of 03 Nos Checkdam.**				Document Reference : MUNPL/Checkdam/2014/ 01 Date : 11.01.2014	
Sl	Component & Operation	Characteristics	Class	Type of Check	Quantum of check	Reference Documents	Acceptable Documents	Formate of records
1	Coarse Aggregate	Particle size distribution	B	Physical	Individual Check Dam	CPWD/Tech. spec. and cons. Drg.	CPWD/Tech. spec. and cons. Drg.	Test Report
		Crushing striength/Impact value	B	Physical	Once per source	CPWD / Tchnical specification.Drg.	CPWD / Technical spec.Drg.	Test Report
2	Fine Aggregate	A. particle size distribution	B	Physical	Individual Check Dam	CPWD/Tech. spec. and cons. Drg.	CPWD/Tech. spec. and cons. Drg.	Test Report
		B. silt content	B	Physical	every 100 cum			
3	Cement	Submission of MTC for each batch of delivery from MUNPL approved source	A	Review of MTC	Each lot / batch	CPWD/Tech. spec. and cons. Drg.	CPWD/Tech. spec. and cons. Drg.	MTC
4	Concrete - CC	A. Compresive Strength	A	Mechanical	IS 456	IS 456/ CPWD	IS 456/ CPWD	Test Report
		B. Slump	B	Physical	for every work	IS 456/ CPWD	do	do

Agency NTPC - Execution NTPC - FQA

17/01/14

Accepted
17/01/14
PROJECT MANAGER
C&DS (E/M) Nalkoop Wing
UP Jal Nigam, Allahabad

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Construction of 3 nos [illegible] of MUNPL site

M/s UP Jal Nigam, Allahabad (UP)

BOQ

Sno	Description	Unit	Rate	Qty	Amount	Qty	Amount	Qty	Amount
				Kohrar (Local Nala)		Isauta (Local Nala)		Patal (Local Nala)	
1	Earth work in cutting or embankment in kankar mixed with Moorum/Bajari/Charri/B.C Soil including lead upto 30m & lift up to 1.50m etc								
1(a)	E/W in Kankar Mixed	Cum	62.00	28.80	1785.60	28.80	1785.60	28.80	1785.60
1(b)	Soft Rock Cutting	Cum	163.00	19.20	3129.60	19.20	3129.60	19.20	3129.60
2	Earth work in excavation in foundation in Kankar mixed with Moorum/Bajari/Charri/CC .Soil including lead up to 30mtr & Lift up to 1.50mtr erc.	Cum	64.00	521.69	33388.16	589.11	37703.04	458.13	29320.32
3	Cement Concrete work in 1:3:6 cement coarse sand & 25 to 50 mm gauge stone ballast including all cost of labour , materials T&P etc P.C.C 1:3:6	Cum	3371.00	215.12	725169.52	246.48	830884.08	188.40	635096.40
4	R.R/C.R Stone Masonary work in 1:3 Cement course sand mortar in crest wall, wing walks & protection walls including all cost of labour material and T&P etc. CR 1:3 - Stone work.	Cum	3414.00	211.25	721207.50	213.75	729742.50	206.25	704137.50
5	Laying of C.C. work in 1:2:4 Cement coarse sand & 10 to 20 mm gauge Dalla grit including all cost of labout Materials and T&P etc. 1:2:4	Cum	4243.00	33.26	141122.18	36.66	155548.38	26.46	112269.78
6	Deep / Raised struck pointing work 1:2 cement coarse sand mortar including all cost of labour material and T&P etc.	Nos	80.00	304.00	24320.00	308.00	24640.00	296.00	23680.00
7	Cement Plaster in 1:3 Cement Plaster in 1:3 cement coarse sand including all cost of labour, Materials and T&P	Sqm	132.00	263.50	34782.00	276.50	36498.00	237.50	31350.00
	Total				1584904.56		1819931.20		1540769.20
8	Add for Contigencies @ 2.50% on Sub Total	L.S.			42122.614		45498.28		38519.23
					1727027.17		1865429.48		1579288.43
9	Less efficiency cost @ 5%				86351.36		93271.47		78964.42
	Total				1640675.82		1772158.01		1500324.01
	Add departmental fee @12.50%				205084.4769		221519.7508		187540.5
	Grand Total				1845760.29		1993677.76		1687864.51

Total cosr for three Nos Check Dam in Rs 5527302.56

Rupees Fifty five lakh twenty seven thousand three hundred tow and paise fifty six only

17/01/14

Accepted

17/01/14

PROJECT MANAGER
C&DS (E/M) Walkood Wing
UP Jal Nigam, Allahabad

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ANNEXURE VI: Ground water level data taken from UP Jal Nigam

//True Copy//

Email : pmnalkoopwingallahabad@gmail.com
Phone : 0532-2424809

PROJECT MANAGER

Construction & Design Services
E.M. NALKOOP WING
U.P. JAL NIGAM
A.D.- 8 Ekanki Kunj, Muir Road, Rajapur, Prayagraj-211001

Ref.....

Date 10/09/2024

मेजा ऊर्जा निगम इलाहाबाद प्रभावित ग्रामों के वाटर लेवर निम्नानुसार है -

1. ग्राम सलैया खुर्द – 35 मीटर
2. ग्राम पहाड़ी भैरों महादेव मन्दिर – 40 मीटर।
3. ग्राम सलैया कला – 35 मीटर।
4. ग्राम कोहड़ार वाटर लेवल – 25 मीटर।
5. ग्राम झडियाही – 22 मीटर।
6. ग्राम मई कला एवं मई खुर्द – 22 मीटर।
7. ग्राम पताई – 25 मीटर
8. ग्राम इसौटा – 22 मीटर।
9. ग्राम बिजौरा – 22 मीटर।

Project Manag
...& D.S. (E/M Wing)
U.P. Jal Nigam
Prayagraj

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ANNEXURE VII: As per GoUP water allocation letter ref. no. 78/08-27-sep0460(w)/07 dated 10.07.2008, point no.5

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संख्या-78/08-27-सिं-4-60(इण्डु)/07

प्रेषक,

जय प्रकाश नारायण,
संयुक्त सचिव,
उत्तर प्रदेश शासन।

सेवा में,

एक्जीक्यूटिव डायरेक्टर (इन्जी0)
एन0टी0पी0सी0 भवन,
स्कोप काम्पलैक्स,
7, इन्स्टीट्यूशनल एरिया,
लोधी रोड, नई दिल्ली।

सिंचाई अनुभाग-4 लखनऊः दिनांक 10 जनवरी, 08

विषयः- जनपद-इलाहाबाद की मेजा तहसील में प्रस्तावित (2x660 मेजावाट) तापीय विद्युत गृह हेतु पानी की आपूर्ति के संबंध में।

महोदय,

उपर्युक्त विषयक आपके पत्र संख्या-सीसीः ईएसएनः 1530:0:1, दिनांक 10-12-07 के संदर्भ में मुझे यह कहने का निदेश हुआ है कि जनपद इलाहाबाद की मेजा तहसील में प्रस्तावित (2x660 मेजावाट) तापीय विद्युत गृह हेतु गंगा नदी से 65 क्यूसेक जल की आपूर्ति प्राप्त करने के संबंध में निम्नलिखित शर्तों के अधीन राज्य सरकार की स्वीकृति संसूचित की जाती है :-

(1) प्रस्तावित जलापूर्ति हेतु एन0टी0पी0सी0 लि0 को राज्य सरकार के साथ विधिवत एम0ओ0यू0 करना होगा।

(2) जलापूर्ति हेतु डिलेवरी व्यवस्था पर राज्य सरकार की पूर्वानुमति एन0टी0पी0सी0 लि0 को लेनी होगी।

(3) औद्योगिक , आवश्यकता होने पर जलापूर्ति हेतु एन0टी0पी0सी0 लि0 को वर्तमान में लागू दर अथवा भविष्य में होने वाले दर के पुनरीक्षण के अनुसार राज्य सरकार को शुल्क का भुगतान करना होगा।

(4) जल संसाधन मंत्रालय, भारत सरकार से गंगा नदी से प्रस्तावित जलापूर्ति हेतु अनापत्ति प्रमाण पत्र प्राप्त करना होगा।

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(5) गंगा नदी में जल की मात्रा कम होने के कारण गंगा नदी से एन0टी0पी0सी0 को जल उपलब्ध न हो पाये, इस अवधि में अन्य तापीय विद्युत गृहों की भांति प्रशमणात परियोजना हेतु न्यूनतम 15 दिवस अवधि हेतु जल संचय व्यवस्था एन0टी0पी0सी0 द्वारा सुनिश्चित की जानी होगी।

(6) एन0टी0पी0सी0 को यह भी सुनिश्चित करना होगा कि गंगा नदी से आहरित कर उपभोग उपरान्त जो जल वापस डाला जायेगा, वह केन्द्रीय प्रदूषण बोर्ड द्वारा निर्धारित मानकों के अनुरूप प्रदूषण रहित होगा।

भवदीय,

(जय प्रकाश नारायण)
संयुक्त सचिव।

पृष्ठांकन संख्या एवं दिनांक यथोक्त।

प्रतिलिपि-निम्नलिखित सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

1- प्रमुख अभियन्ता, सिंचाई विभाग, उ0प्र0, लखनऊ को उनके कार्यालय के पत्रांक-4685/1/मेजा तहसील/एन0टी0पी0सी0/वारा एवं कराछना, दिनांक 09-01-08 के संदर्भ में।

2- मुख्य अभियन्ता (सोन), सिंचाई विभाग, उ0प्र0, वाराणसी।

आज्ञा से

(जय प्रकाश नारायण)
संयुक्त सचिव।

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No. 23/94/2006-PAN(N)/85-86

Government of India
Central Water commission
Project Appraisal (North) Directorate

Room No. 407(S), Sewa Bhavan,
R.K. Puram, New Delhi-110066
Dated: 17.11.2009

To

General Manager [Engg. Services]
Engineering Office Complex,
PlotNo.A -8A, Sector-24
Uttar Pradesh
Pin Code- 201301

Sub: Meja JV Thermal Power Project [2 x 660 MW]
Ref: CC:FSN: 9562:0:1 dated 04.02.2008.
Sir,

The proposal with following details has been received vide above letter in CWC:

Proposal: To lift 65 cusecs water from river Ganga for consumptive water requirement for 2 x 660 MW coal based Meja Thermal Power Plant.

The above proposal has been examined in CWC and concurrence is accorded subject to the following conditions:

1. The water withdrawal will be limited to 44 cusecs only.
2. The water of 44 cusecs from river Ganga would be accounted for as utilization by U.P. against the U.P. State's share of water of Ganga., if any agreement is reached among concerned States on sharing of water in the Ganga river or its tributaries in future.

This issues with the approval of Chief Engineer, PAO, CWC.

Yours faithfully

17.11.09

(G. Thekur)
Director (PA-N)
Tel. No. 011 – 26108026

Copy to:
Principal Secretary, Irrigation Department, Govt. of Uttar Pradesh, Lucknow [U.P.]

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ANNEXURE-8: List of Legal / Court cases

List of Cout Cases

EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	Mr. Atul Kumar, Senior Manager, Mechanical Erection (Mobile No: 9412771486)	Mr.Puneet Taneja (Mob No: 9989887314)	NA	Through an order dated 15.02.2023 delivered in W.P.(C)-1926/2023 by the Hon'ble High Court of Delhi has appointed Retd. Justice G.S. Sistani as an Adjudciator.	September 9, 10, 11 & 12, 2024	Cooling Tower Package	Pleadings from both sides have been completed. The parties are awaiting the commencment of hearings once a date is fixed by the Learned Adjudicator.	FANS
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	Shri Pankaj Agrawal, Senior Manager (FES & FQA) (Mob No: 8004921056)	Mr. Aman Varma (Mob No: 8447652223)	Mr. Sanjoy Ghose, Senior Advocate, High Court of Delhi (For final hearings) (Mob No: 9811118889)	As per the order dated 18.01.2024, the next hearing shall now take place on 11.03.2024 at 5 pm through video conferencing.	26.07.2024	Site Leveling and Infrastructure Works Package	The Hon'ble HC of Delhi vide an order dated 13.10.2023 has ordered the period for arbitral proceedings before learned arbitrator stands extended for one year with effect from 16.08.2023 for concluding the proceedings and passing the arbitral award.	M/s Ratna Infrastructure Projects Pvt. Ltd., Hyderabad
Shri S.K. Singh, AGM (FM/FT) (Mob No: 9425219603)	Shri Nitesh Kumar Singh, DGM (FM) (Mob No: 9650995092)	NA	NA	NA	NA	Meja Loop Bridge & Embankment Work (subpackage 3-RB) vide LOA no.- RITES/RPO-LKO/5920/MUNPL/P 3/RB/VOL-VI/1277 Dated 23.03.2017)	DRB award is yet to be released.	Ram Kripal Singh Construction Private Ltd.

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
Shri S.K. Singh, AGM (FM/FT) (Mob No: 9425219603)	Shri Nitesh Kumar Singh, DGM (FM) (Mob No: 9650995092)	NA	NA	NA	NA	Unchdih Loop Bridge & Embankment Work (subpackage 3-RC) vide LOA no. - RITES/RPO-LKO-5920/MUNPL/RKS/P-3/RC/APR/VOL-I/1972, Dt. 11.08.2017	DRB award is yet to be released.	Ram Kripal Singh Construction Private Ltd.
Shri Manoj Kumar Singh AGM (Civil Construction) (Mobile No. 9425816166)	Shri Manoj Kumar Singh AGM (Civil Construction) (Mobile No. 9425816166)	Mr. Aman Varma (Mob No: 8447652223)	NA	Written Submissions have been filed by MUNPL	NA	Site Leveling and Infrastructure Works Package	Appeal against the arbitral award delivered in Case No. 1 of 2013	M/s Ratna Infrastructure Projects Pvt. Ltd., Hyderabad
Shri Manoj Kumar Singh AGM (Civil Construction) (Mobile No. 9425816166)	Shri Manoj Kumar Singh AGM (Civil Construction) (Mobile No. 9425816166)	Shri Gorla Bhupesh (Mob No: 99666 22805)	NA	The HC of Delhi vide an order dated 15.02.2024 disposed of the execution petition with a liberty to the decree-holder to approach the appropriate court, therefore the present petition in Hyderabad	NA	Site Leveling and Infrastructure Works Package	MUNPL seeking enforcement of the arbitral award delivered on July 20, 2021, which was corrected on April 17, 2022 for ₹23.44 Crores + 10% Interest per Annum from 22.02.2014 till realization (Risk & Cost Amount)	M/s Ratna Infrastructure Projects Pvt. Ltd., Hyderabad
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	Shri Pankaj Agrawal, Senior Manager (FES & FQA) (Mob No: 8004921056)	Mr. Kailashnath (Mob No : 9989887314)	Mr. Arvind Desai (Senior Advocate)	Condonation Application filed. Claim filed with the Liquidator. Liquidator dismissed the claim in toto. Against the liquidator's decision, an appeal was filed before NCLAT.	NA	Main Plant and Offsite Civil Works Package	Liquidator- Mr. Sutanu Sinha, Company under Liquidation vide order dated 23.02.2018	IVRCL Limited

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	Mr. Nitesh Kumar Singh, DGM (CCD) (Mob No: 9650995092)	Mr. Adarsh Tripathi (Mob No: 9090416535, 9425308454)	NA	A committee is proposed to be constituted, the mandate of which is to have the claims prepared on MUNPL's behalf for presentation before NCLAT, Mumbai.	NA	Contract for CW system & Make up water system Civil Works Package	Liquidator- Mr. Avil Menezes, Company under Liquidation vide order dated 25.06.2019	Sunil Hightech Engineers Limited
Shri Sumit Kumar Kundu AGM (Ash Handling) (Mobile No. 9434043065)	Mr. Ashutosh Singh Bhadoria, DGM (Ash Handling) (Mob No: 9412771651)	Mr. Adarsh Tripathi (Mob No: 9090416535, 9425308454)	NA	Submission of proof of claim in respect of the liquidation of M/s Tecpro Systems was submitted to Liquidator on 11.05.2022.	NA	Contract for Ash Water Recirculation Package and Ash Handling packages.	Liquidator- Mr. Ramachandran Subramanium Company under Liquidation vide order dated 16.01.2020	M/s TecPro Systems Limited
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
(Mobile No: 9650991359)								
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Retrenchment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	IVRCL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	M/S Aditya Associates & GE Power Limited
Shri Anand Prakash AGM (New Project)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	M/S Aditya Associates & GE Power Limited

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
(Mobile No: 9650991359)								
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	M/S Simplex
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Illegal Termination	NA	UPL
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	Ma Durga Engineering Works & M/S BGR Energy System Ltd
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	Ma Durga Engineering Works & M/S BGR Energy System Ltd

EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	Ma Durga Engineering Works & M/S BGR Energy System Ltd
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	MUNPL, BHEL, Indure Private Limited & Om Sai Enterprise
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	S.K. Mukherjee (Mob No: 6306692256)	NA	Arguments are undergoing.	NA	Wage Payment	NA	MUNPL, BHEL, Indure Private Limited & Om Sai Enterprise
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	Mr. Atul Kumar, Senior Manager, Mechanical Erection (Mobile No: 9412771486)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Wage Payment	NA	Ma Durga Engineering Works & M/S BGR Energy System Ltd.
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	Mr. Vivek Ratan Agarwal (Mob No: 8423182000)	NA	Arguments are undergoing.	NA	Wage Payment	NA	Ma Durga Engineering Works & M/S BGR Energy System Ltd.

EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	Mr. H.P. Dube (Mob No: 8447079949)	NA	Application dated 26.12.2013 was presented stating default in payment of 118 workers from July 2013 to September 2013.	NA	Wage Payment	NA	Ratna Infrastructure Projects Private Limited
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA		NA	NA
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	Shri Nitesh Kumar Singh, DGM (FM) (Mob No: 9650995092)	Mr. Vivek Ratan Agarwal (Mob No: 8423182000)	NA	A stay has been granted by the HC vide order dated 10.10.2023, against the DLC order dated 16.05.2023	NA	Wage Payment	NA	Simplex Infrastructures Ltd. & Genius Consultants
Shri Anand Prakash AGM (New Project) (Mobile No: 9650991359)	NA	Mr. H.P. Dube (Mob No: 8447079949)	NA	Arguments are undergoing.	NA	Recruitment Issue by UPL	NA	UPL
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. V.R. Agarwal (Mob. No. 8423182000)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. V.R. Agarwal (Mob. No. 8423182000)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. V.R. Agarwal (Mob. No. 8423182000)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. V.R. Agarwal (Mob. No. 8423182000)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Sarvanand Pandey (Mob. No. 9451038199)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Sarvanand Pandey (Mob. No. 9451038199)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Amit Singh (Mob. No. 9389516299)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Amit Singh (Mob. No. 9389516299)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Amit Singh (Mob. No. 9389516299)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Amit Singh (Mob. No. 9389516299)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Amit Singh (Mob. No. 9389516299)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Ankit Raj Anand (Mob No: 8840047356)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Ankit Raj Anand (Mob No: 8840047356)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Ankit Raj Anand (Mob No: 8840047356)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Harsh Kumar Anand (Mob. No. 7042104362)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Harsh Kumar Anand (Mob. No. 7042104362)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Harsh Kumar Anand (Mob. No. 7042104362)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Harsh Kumar Anand (Mob. No. 7042104362)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Harsh Kumar Anand (Mob. No. 7042104362)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Shrey Singh (Mob. No. 9026948387)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA

EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr. Shrey Singh (Mob. No. 9026948387)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA

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EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
NA	Shri Manoj Kumar Verma DGM(HR) (Mob No: 8318160124)	Mr.Rajendra Singh (Mob. No. 8318870222)	NA	Arguments are undergoing.	NA	Land Acquisition	NA	NA
Shri P.K. Sabat GM (C&M/TS) (Mobile No. 9431215217)	Mr. Saurabh Kumar Pathak Senior Manager (Mobile No. 9435326427)	Mr. Adarsh Tripathi (Mob No: 9090416535)	Shri Chetan Sharma, Additional Solicitor General of India	MUNPL has filed its reply on 07.02.2024 and the tribunal has impleaded MUNPL as one of the Respondents in the case.	18.10.2024	Environment	Case related to compliance of environment laws.	NA
NA	Shri S.B. Singh GM (Project) (Mobile No. 9416212303)	Mr. Gaurav Bishan (Mob. No. 7895244152)	Shri Udai Karan Saxena (Mob. No. 9335151441)	The HC vide an order dated 22.12.2023 has stayed the trial court proceedings in Criminal Case No. 11 of 2023 until the next date of listing.	NA	Quashing of Chargesheet	Trial Court Proceedings have been stayed as Criminal Case No. 11 of 2023 was registered in connection with FIR No. 360 of 2023 having 3 NTPC Ltd. Executives being accused of committing offenses	M/S Rama Construction

EIC	Authorized Representative	Advocate	Senior Advocate	Status of the Case	Next Date of Hearing	Type of Work	Other info	Agency
							under Sections 406, 419, 420, 504 & 506 of the IPC	
NA	Shri S.B. Singh GM (Project) (Mobile No. 9416212303)	Mr. Gaurav Bishan (Mob. No. 7895244152)	NA	The Certified Copy of the HC is being pressed before the learned ACJM.	NA	Criminal Case	A chargesheet under Sections 406, 419, 420, 504 & 506 of the IPC has been filed in connection with FIR No. 360 of 2023	M/S Rama Construction

ANNEXURE-9: Test reports from the Lab and Baseline monitoring station photographs with Coordinates

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Advanced Environmental Testing And Research Lab P. Ltd.
CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8
Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)
Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
Gwalior-474 011, M.P., India
0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Project Site (Meja TPP Main Entry Gate)
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	03.10.2023	81	53	10	16.2	<20	0.33	21.3
2	06.10.2023	65	33.1	13.9	12.3	<20	0.18	17.4
3	10.10.2023	75	35	11.4	15.2	<20	0.28	20.3
4	11.10.2023	51	23	7.7	10.8	<20	0.14	15.9
5	17.10.2023	58	25.1	9.7	11.9	<20	0.16	17
6	18.10.2023	66	36	10.3	11.2	<20	0.15	16.3
7	24.10.2023	72	51	9	16.9	<20	0.31	22
8	25.10.2023	80	52	11.2	14.1	<20	0.33	19.2
9	01.11.2023	58	24.7	8.7	11.2	<20	0.21	16.3
10	02.11.2023	91	50	13.1	14.9	<20	0.35	23.4
11	08.11.2023	74	38	12.2	16.7	<20	0.35	21.8
12	09.11.2023	80	41	10.7	13..2	<20	0.40	18.3
13	15.11.2023	93	48	10.1	14.4	<20	0.41	19.5
14	16.11.2023	75	35	9.4	15.7	<20	0.34	20.8
15	22.11.2023	87	51	12	16.9	<20	0.39	22
16	23.11.2023	71	45	11.5	15.9	<20	0.29	21
17	02.12.2023	93	52	10.7	16.2	<20	0.41	21.3
18	03.12.2023	65	28	12.2	10.9	<20	0.15	16
19	09.12.2023	80	49	10.4	16.1	<20	0.14	21.2
20	10.12.2023	71	54	11.5	17	<20	0.16	22.1

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Web: www.aetrl.com

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Project Site (Meja TPP Main Entry Gate)
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	16.12.2023	77	43	10	15.2	<20	0.29	20.3
22	17.12.2023	90	51	12.1	14.2	<20	0.35	19.3
23	23.12.2023	94	54	13.9	17.3	<20	0.41	22.4
24	24.12.2023	69	42	11.4	11.2	<20	0.28	16.3
Maximum		94.0	54.0	13.9	17.3	<20	0.41	23.4
Minimum		51.0	23.0	7.7	10.8	<20	0.14	15.9
Mean		75.7	42.2	11.0	14.5	<20	0.28	19.6
Percentile 98		93.5	54.0	13.9	17.2	<20	0.41	22.9
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	$100\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Salaya Kala near Ash Pond
Lab Code	ERDC231029-02	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	03.10.2023	76	50	9.2	15.1	<20	0.32	19.8
2	04.10.2023	60	30.1	7.8	11.2	<20	0.17	15.9
3	10.10.2023	70	32	10.6	14.1	<20	0.27	18.8
4	11.10.2023	46	20	6.9	9.7	<20	0.13	14.4
5	17.10.2023	53	22.1	8.9	10.8	<20	0.15	15.5
6	18.10.2023	61	33	9.5	10.1	<20	0.14	14.8
7	24.10.2023	67	48	8.2	13.2	<20	0.19	17.9
8	25.10.2023	75	49	10.4	13	<20	0.32	17.7
9	01.11.2023	53	21.7	7.9	10.1	<20	0.20	14.8
10	02.11.2023	86	47	12.1	13.8	<20	0.34	18.5
11	08.11.2023	69	35	11.4	11.2	<20	0.14	15.9
12	09.11.2023	75	38	9.9	12.1	<20	0.21	16.8
13	15.11.2023	88	45	9.3	13.3	<20	0.29	18
14	16.11.2023	70	32	8.6	14.6	<20	0.33	19.3
15	22.11.2023	82	48	11.2	14.9	<20	0.31	19.6
16	23.11.2023	66	42	10.7	14.8	<20	0.28	19.5
17	02.12.2023	88	49	9.9	15.1	<20	0.31	19.8
18	03.12.2023	60	25	11.4	9.8	<20	0.14	14.5
19	09.12.2023	75	46	9.6	15	<20	0.13	19.7
20	10.12.2023	66	51	10.7	14.2	<20	0.15	18.9

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Salaya Kala near Ash Pond
Lab Code	ERDC231029-02	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	16.12.2023	72	40	9.2	14.1	<20	0.28	18.8
22	17.12.2023	85	48	11.3	13.1	<20	0.29	17.8
23	23.12.2023	88	51	12.2	15.5	24.0	0.34	20.2
24	24.12.2023	64	39	10.6	10.1	<20	0.27	14.8
Maximum		88.0	51.0	12.2	15.5	24.0	0.34	20.2
Minimum		46.0	20.0	6.9	9.7	24.0	0.13	14.4
Mean		70.6	39.2	9.9	12.9	24.0	0.24	17.6
Percentile 98		88.0	51.0	12.2	15.3	24.0	0.34	20.0
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Patai Dandi Village
Lab Code	ERDC231029-03	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	05.10.2023	74	48	8.3	11.2	<20	0.19	15.3
2	07.10.2023	58	28.1	6.9	10.2	<20	0.14	14.3
3	10.10.2023	68	30	7.8	9.8	<20	0.14	13.9
4	11.10.2023	44	18	6	9.2	<20	0.10	13.3
5	17.10.2023	51	20.1	8	10.8	<20	0.12	14.9
6	18.10.2023	59	31	8.6	10.1	<20	0.11	14.2
7	24.10.2023	65	46	7.3	10.2	<20	0.16	14.3
8	25.10.2023	73	47	9.1	13	<20	0.21	17.1
9	01.11.2023	51	19.7	7	10.1	<20	0.17	14.2
10	02.11.2023	80	45	8.9	12.1	<20	0.22	16.2
11	08.11.2023	67	33	8.1	11.2	<20	0.11	15.3
12	09.11.2023	73	36	9	12.1	<20	0.22	16.2
13	15.11.2023	81	43	8.4	12.8	<20	0.16	16.9
14	16.11.2023	68	30	7.7	11.5	<20	0.17	15.6
15	22.11.2023	80	46	8.6	11.1	<20	0.18	15.2
16	23.11.2023	64	40	7.9	10.6	<20	0.15	14.7
17	02.12.2023	79	47	9	13.1	<20	0.20	17.2
18	03.12.2023	58	23	7.5	10.2	<20	0.11	14.3
19	09.12.2023	73	44	8.7	12.1	<20	0.10	16.2
20	10.12.2023	64	49	8.1	9.3	<20	0.12	13.4

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CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8
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Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)
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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Patai Dandi Village
Lab Code	ERDC231029-03	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	16.12.2023	70	38	8.3	9.9	<20	0.19	14
22	17.12.2023	81	46	8.9	13.1	<20	0.21	17.2
23	23.12.2023	82	50	9.6	13.2	<20	0.23	17.3
24	24.12.2023	62	37	8.7	10.1	<20	0.18	14.2
Maximum		82.0	50.0	9.6	13.2	0.0	0.23	17.3
Minimum		44.0	18.0	6.0	9.2	0.0	0.10	13.3
Mean		67.7	37.3	8.2	11.1	#DIV/0!	0.16	15.2
Percentile 98		81.5	49.5	9.4	13.2	#NUM!	0.23	17.3
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Rithaiya Village
Lab Code	ERDC231029-04	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	04.10.2023	76	47	8.7	11	<20	0.15	14.5
2	06.10.2023	60	27.1	7.3	10	<20	0.12	13.5
3	12.10.2023	70	29	8.2	9.6	<20	0.13	13.1
4	13.10.2023	42	17	6.4	9	<20	0.10	12.5
5	19.10.2023	53	19.1	8.4	10.6	<20	0.11	14.1
6	20.10.2023	61	30	9	9.9	<20	0.10	13.4
7	26.10.2023	67	45	7.7	10	<20	0.15	13.5
8	27.10.2023	75	46	9.5	12.8	<20	0.17	16.3
9	03.11.2023	53	18.7	7.4	9.9	<20	0.16	13.4
10	04.11.2023	82	44	9.3	11.9	<20	0.17	15.4
11	10.11.2023	69	32	8.5	11	<20	0.10	14.5
12	11.11.2023	75	35	9.4	11.9	<20	0.13	15.4
13	17.11.2023	83	42	8.8	12.6	<20	0.15	16.1
14	18.11.2023	70	29	8.1	11.3	<20	0.16	14.8
15	24.11.2023	82	45	9	10.9	<20	0.17	14.4
16	25.11.2023	66	39	8.3	10.4	<20	0.14	13.9
17	05.12.2023	81	46	9.4	12.4	<20	0.16	15.9
18	06.12.2023	60	22	7.9	10	<20	0.10	13.5
19	12.12.2023	75	43	9.1	11.9	<20	0.11	15.4
20	13.12.2023	66	48	8.5	9.1	<20	0.11	12.6

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Rithaiya Village
Lab Code	ERDC231029-04	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	19.12.2023	72	37	8.7	9.7	<20	0.18	13.2
22	20.12.2023	83	45	9.3	12.6	<20	0.17	16.1
23	26.12.2023	84	49	10.3	12.8	<20	0.18	18.4
24	27.12.2023	64	37	9.1	9.9	<20	0.17	13.4
Maximum		84.0	49.0	10.3	12.8	0.0	0.18	18.4
Minimum		42.0	17.0	6.4	9.0	0.0	0.10	12.5
Mean		69.5	36.3	8.6	10.9	#DIV/0!	0.14	14.5
Percentile 98		83.5	48.5	9.9	12.8	#NUM!	0.18	17.4
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Sukath near Meja Tehsil
Lab Code	ERDC231029-05	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	05.10.2023	78	51	8.5	14.1	<20	0.20	15.8
2	06.10.2023	62	31.1	7.1	10.2	<20	0.15	11.9
3	12.10.2023	72	33	9.9	13.1	<20	0.12	14.8
4	13.10.2023	45	21	6.2	9.4	<20	0.11	11.1
5	19.10.2023	55	23.1	8.2	9.8	<20	0.13	11.5
6	20.10.2023	63	34	8.8	9.5	<20	0.12	11.2
7	26.10.2023	69	49	7.5	12.2	<20	0.17	13.9
8	27.10.2023	77	50	9.7	12	<20	0.16	13.7
9	03.11.2023	55	22.7	7.2	9.5	<20	0.18	11.2
10	04.11.2023	88	48	11.4	12.8	<20	0.12	14.5
11	10.11.2023	71	36	10.7	10.2	<20	0.12	11.9
12	11.11.2023	77	39	9.2	11.1	<20	0.19	12.8
13	17.11.2023	90	46	8.6	12.3	<20	0.17	14
14	18.11.2023	72	33	7.9	13.6	<20	0.13	15.3
15	24.11.2023	84	49	10.5	13.9	<20	0.12	15.6
16	25.11.2023	68	43	10	13.8	<20	0.16	15.5
17	05.12.2023	90	50	9.2	14.1	<20	0.18	15.8
18	06.12.2023	62	26	10.7	9.5	<20	0.12	11.2
19	12.12.2023	77	47	8.9	14	<20	0.11	15.7
20	13.12.2023	68	52	10	13.2	<20	0.13	14.9

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Meja
Lab Code	ERDC231029-05	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	19.12.2023	74	41	8.5	13.1	<20	0.18	14.8
22	20.12.2023	87	49	10.6	12.1	<20	0.21	13.8
23	26.12.2023	90	52	11.9	14.5	<20	0.22	16.2
24	27.12.2023	66	40	9.9	9.6	<20	0.18	11.3
Maximum		90.0	52.0	11.9	14.5	0.0	0.22	16.2
Minimum		45.0	21.0	6.2	9.4	0.0	0.11	11.1
Mean		72.5	40.2	9.2	12.0	#DIV/0!	0.15	13.7
Percentile 98		90.0	52.0	11.7	14.3	#NUM!	0.22	16.0
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Son Barsi
Lab Code	ERDC231029-06	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3) IS :5182(Part-23)	PM2.5 (µg/m3) IS :5182(Part-24)	SO2 (µg/m3) IS :5182(Part-2)	NO2 (µg/m3) IS :5182(Part-6)	NH3 (µg/m3) IS :5182(Part-25)	CO(mg/m3) IS :5182(Part-10)	Ozone (O3) (µg/m³) IS :5182(Part-09)
1	07.10.2023	72	46	8.5	11.4	<20	0.15	11.3
2	08.10.2023	56	26.1	7.1	10.4	<20	0.10	10.3
3	12.10.2023	66	28	8	10	<20	0.10	9.9
4	13.10.2023	42	17	6	9	<20	0.08	8.9
5	19.10.2023	49	18.1	8.2	11	<20	0.08	10.9
6	20.10.2023	57	29	8.8	10.3	<20	0.10	10.2
7	26.10.2023	63	44	7.5	10.4	<20	0.12	10.3
8	27.10.2023	71	45	9.3	13.2	<20	0.17	13.1
9	03.11.2023	49	17.7	7.2	10.3	<20	0.13	10.2
10	04.11.2023	78	43	9.1	12.3	<20	0.18	12.2
11	10.11.2023	65	31	8.3	11.4	<20	0.11	11.3
12	11.11.2023	71	34	9.2	12.3	<20	0.18	12.2
13	17.11.2023	79	41	8.6	13	<20	0.12	12.9
14	18.11.2023	66	28	7.9	11.7	<20	0.13	11.6
15	24.11.2023	78	44	8.8	11.3	<20	0.14	11.2
16	25.11.2023	62	38	8.1	10.8	<20	0.11	10.7
17	05.12.2023	77	45	9.2	13.3	<20	0.16	13.2
18	06.12.2023	56	21	7.7	10.4	<20	0.13	10.3
19	12.12.2023	71	42	8.9	12.3	<20	0.09	12.2
20	13.12.2023	62	47	8.3	9.5	<20	0.08	9.4

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Son Barsi
Lab Code	ERDC231029-06	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	19.12.2023	68	36	8.5	10.1	<20	0.15	10
22	20.12.2023	79	44	9.1	13.3	<20	0.17	13.2
23	26.12.2023	80	48	9.8	13.4	<20	0.19	13.3
24	27.12.2023	60	35	8.9	10.3	<20	0.14	10.2
Maximum		80.0	48.0	9.8	13.4	0.0	0.19	13.3
Minimum		42.0	17.0	6.0	9.0	0.0	0.08	8.9
Mean		65.7	35.3	8.4	11.3	#DIV/0!	0.13	11.2
Percentile 98		79.5	47.5	9.6	13.4	#NUM!	0.19	13.3
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Gadeva Village
Lab Code	ERDC231029-07	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	74	47	8.3	11.2	<20	0.13	12.7
2	08.10.2023	58	27.1	6.9	10.2	<20	0.11	11.7
3	14.10.2023	68	29	7.8	9.8	<20	0.12	11.3
4	15.10.2023	44	18	5.8	9.3	<20	0.10	10.8
5	21.10.2023	51	19.1	8	10.8	<20	0.14	12.3
6	22.10.2023	59	30	8.6	10.1	<20	0.12	11.6
7	28.10.2023	65	45	7.3	10.2	<20	0.10	11.7
8	29.10.2023	73	46	9.1	13	<20	0.15	14.5
9	07.11.2023	51	18.7	7	10.1	<20	0.11	11.6
10	08.11.2023	80	44	8.9	12.1	<20	0.11	13.6
11	14.11.2023	67	32	8.1	11.2	<20	0.13	12.7
12	15.11.2023	73	35	9	12.1	<20	0.13	13.6
13	21.11.2023	81	42	8.4	12.8	<20	0.10	14.3
14	22.11.2023	68	29	7.7	11.5	<20	0.11	13
15	28.11.2023	80	45	8.6	11.1	<20	0.12	12.6
16	29.11.2023	64	39	7.9	10.6	<20	0.10	12.1
17	07.12.2023	79	46	9	13.1	<20	0.14	14.6
18	08.12.2023	58	22	7.5	10.2	<20	0.11	11.7
19	14.12.2023	73	43	8.7	12.1	<20	0.11	13.6
20	15.12.2023	64	38	8.1	9.3	<20	0.12	10.8

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS

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Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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TEST REPORT

AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Gadeva Village
Lab Code	ERDC231029-07	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	70	37	8.3	9.9	<20	0.13	11.4
22	22.12.2023	80	45	8.9	13.1	<20	0.15	14.6
23	28.12.2023	81	47	9.6	13.2	<20	0.15	14.7
24	29.12.2023	62	36	8.7	10.1	<20	0.12	11.6
Maximum		81.0	47.0	9.6	13.2	0.0	0.15	14.7
Minimum		44.0	18.0	5.8	9.3	0.0	0.10	10.8
Mean		67.6	35.8	8.2	11.1	#DIV/0!	0.12	12.6
Percentile 98		81.0	47.0	9.4	13.2	#NUM!	0.15	14.7
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT

AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Piprau Village
Lab Code	ERDC231029-08	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	72	47	8	10.8	<20	0.14	13.3
2	08.10.2023	56	27.1	6.6	9.8	<20	0.12	12.3
3	14.10.2023	66	29	7.5	9.4	<20	0.13	11.9
4	15.10.2023	42	17	5.4	9.1	<20	0.09	11.6
5	21.10.2023	49	19.1	7.7	10.4	<20	0.15	12.9
6	22.10.2023	57	30	8.3	9.7	<20	0.13	12.2
7	28.10.2023	63	45	7	9.8	<20	0.11	12.3
8	29.10.2023	71	46	8.8	12.6	<20	0.16	15.1
9	07.11.2023	49	18.7	6.7	9.7	<20	0.12	12.2
10	08.11.2023	78	44	8.6	11.7	<20	0.12	14.2
11	14.11.2023	65	32	7.8	10.8	<20	0.14	13.3
12	15.11.2023	71	35	8.7	11.7	<20	0.14	14.2
13	21.11.2023	79	42	8.1	12.4	<20	0.11	14.9
14	22.11.2023	66	29	7.4	11.1	<20	0.12	13.6
15	28.11.2023	78	45	8.3	10.7	<20	0.13	13.2
16	29.11.2023	62	39	7.6	10.2	<20	0.11	12.7
17	07.12.2023	77	46	8.7	12.7	<20	0.15	15.2
18	08.12.2023	56	22	7.2	9.8	<20	0.12	12.3
19	14.12.2023	71	43	8.4	11.7	<20	0.12	14.2
20	15.12.2023	62	48	7.8	9.5	<20	0.13	12

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Piprau Village
Lab Code	ERDC231029-08	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	68	37	8	9.6	<20	0.14	12.1
22	22.12.2023	79	45	8.6	12.7	<20	0.16	15.2
23	28.12.2023	83	50	9.3	12.8	<20	0.16	15.3
24	29.12.2023	60	36	8.4	9.7	<20	0.13	12.2
Maximum		83.0	50.0	9.3	12.8	0.0	0.16	15.3
Minimum		42.0	17.0	5.4	9.1	0.0	0.09	11.6
Mean		65.8	36.3	7.9	10.8	#DIV/0!	0.13	13.3
Percentile 98		81.2	49.1	9.1	12.8	#NUM!	0.16	15.3
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Korhar Village
Lab Code	ERDC231029-09	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	77	49	8.9	11.7	<20	0.09	14.3
2	08.10.2023	61	29.1	7.5	10.7	<20	0.11	13.3
3	14.10.2023	71	31	8.4	10.6	<20	0.10	13.2
4	15.10.2023	46	20	6	10.3	<20	0.08	12.9
5	21.10.2023	54	21.1	8.6	11.3	<20	0.12	13.9
6	22.10.2023	62	32	9.2	10.6	<20	0.11	13.2
7	28.10.2023	68	47	7.9	10.7	<20	0.09	13.3
8	29.10.2023	76	48	9.7	13.5	<20	0.11	16.1
9	07.11.2023	54	20.7	7.6	10.6	<20	0.10	13.2
10	08.11.2023	83	46	9.5	12.6	<20	0.11	15.2
11	14.11.2023	70	34	8.7	11.7	<20	0.12	14.3
12	15.11.2023	76	37	9.6	12.6	<20	0.10	15.2
13	21.11.2023	84	44	9	13.3	<20	0.09	15.9
14	22.11.2023	71	31	8.3	12.0	<20	0.10	14.6
15	28.11.2023	83	47	9.2	11.6	<20	0.11	14.2
16	29.11.2023	67	41	8.5	11.1	<20	0.08	13.7
17	07.12.2023	82	48	9.6	13.1	<20	0.10	15.7
18	08.12.2023	61	24	8.1	10.7	<20	0.11	13.3
19	14.12.2023	76	45	9.3	12.6	<20	0.09	15.2
20	15.12.2023	67	50	8.7	9.8	<20	0.11	12.4

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Korhar Village
Lab Code	ERDC231029-09	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	73	39	8.9	10.4	<20	0.12	13.0
22	22.12.2023	84	47	9.5	13.3	<20	0.11	15.9
23	28.12.2023	85	51	10.5	13.5	<20	0.12	16.1
24	29.12.2023	65	39	9.3	10.6	<20	0.11	13.2
Maximum		85.0	51.0	10.5	13.5	0.0	0.12	16.1
Minimum		46.0	20.0	6.0	9.8	0.0	0.08	12.4
Mean		70.7	38.4	8.8	11.6	#DIV/0!	0.10	14.2
Percentile 98		84.5	50.5	10.1	13.5	#NUM!	0.12	16.1
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Bhendewara Village
Lab Code	ERDC231029-10	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	74	42	8.3	10.9	<20	0.12	13.1
2	08.10.2023	58	27.1	6.9	9.9	<20	0.14	12.1
3	14.10.2023	68	29	7.8	10.1	<20	0.13	12.3
4	15.10.2023	43	18	5.9	9.9	<20	0.08	12.1
5	21.10.2023	51	19.1	8	10.5	<20	0.15	12.7
6	22.10.2023	59	30	8.6	10.2	<20	0.14	12.4
7	28.10.2023	65	39	7.3	9.9	<20	0.12	12.1
8	29.10.2023	73	41	9.1	12.7	<20	0.14	14.9
9	07.11.2023	51	18.7	7	9.9	<20	0.13	12.1
10	08.11.2023	80	44	8.9	11.8	<20	0.14	14.0
11	14.11.2023	67	32	8.1	10.9	<20	0.15	13.1
12	15.11.2023	73	35	9	11.8	<20	0.13	14.0
13	21.11.2023	81	42	8.4	12.5	<20	0.12	14.7
14	22.11.2023	68	29	7.7	11.2	<20	0.13	13.4
15	28.11.2023	80	44	8.6	10.8	<20	0.14	13.0
16	29.11.2023	64	39	7.9	10.3	<20	0.11	12.5
17	07.12.2023	79	36	9	12.3	<20	0.13	14.5
18	08.12.2023	58	22	7.5	9.9	<20	0.14	12.1
19	14.12.2023	73	43	8.7	11.8	<20	0.12	14.0
20	15.12.2023	64	38	8.1	9.9	<20	0.14	12.1

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Korhar Village
Lab Code	ERDC231029-10	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	70	37	8.3	10.2	<20	0.15	12.4
22	22.12.2023	81	43	8.9	12.5	<20	0.14	14.7
23	28.12.2023	82	44	9.9	12.7	<20	0.15	14.9
24	29.12.2023	62	37	8.7	10.2	<20	0.14	12.4
Maximum		82.0	44.0	9.9	12.7	0.0	0.15	14.9
Minimum		43.0	18.0	5.9	9.9	0.0	0.08	12.1
Mean		67.7	34.5	8.2	11.0	#DIV/0!	0.13	13.2
Percentile 98		81.5	44.0	9.5	12.7	#NUM!	0.15	14.9
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

7	Gadeva Village	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m^3	1 ng/m^3	1 **ug/m^3**	20 **ng/m^3**	6 **ng/m^3**	-

***** End of Report*****

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AMBIENT AIR QUALITY ANALYSIS

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Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	November 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

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Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	November 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

	Gadeva Village	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	18.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	18.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m^3	1 ng/m^3	1 **ug/m^3**	20 **ng/m^3**	6 **ng/m^3**	-

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Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

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Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

7	Gadeva Village	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m^3	1 ng/m^3	1 **ug/m^3**	20 **ng/m^3**	6 **ng/m^3**	-

***** End of Report*****

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

763

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
Gwalior-474 011, M.P., India
0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

TEST REPORT\

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.92	7.43	7.54	7.29	7.57	7.78
2	Temperature	°C			21.1	21.5	22.2	21.4	22.4	20.5
3	Conductivity	µmhos/cm			490	543	1305	958	564	881
4	Total dissolve solid (TDS)	mg/l	500	2000	328	364	874	642	378	590
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	156	544	418	173	277
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	137	255	228	245	257
8	Chloride (as Cl)	mg/l	250	1000	67	53	64	273	133	157
9	Calcium (as Ca)	mg/l	75	200	47.5	37	14	77.5	44	42.6
10	Magnesium (as Mg)	mg/l	30	100	19.1	16	53	32	18	16.8
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.64	0.67	0.65	0.53	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.5	18.9	45	40	35.6	36.4
13	Iron (as Fe)	mg/l	1	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	0.03	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.8	27.3	51.2	27.9	52.1	152.1
21	Potassium (as K)	mg/l	-	-	3.8	11.4	0.39	3.8	1.71	0.66
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

764

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lead (as Pb)	mg/l	0.01	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Mercury (as Hg)	mg/l	0.001	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Arsenic (as As)	mg/l	0.01	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Hexa-Chromium (as Cr^{-6})	mg/l	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Total Coliform	MPN/100 ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

765

Approved: by Occupational Health &Safety Management (ISO45001:2018)
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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.15	7.38	6.95	7.5	7.31	7.13
2	Temperature	o C	-		22.1	22.4	21.4	21.6	22.5	21.8
3	Conductivity	µmhos/cm	-		1066	391	484	567	807	504
4	Total dissolve solid (TDS)	mg/l	500	2000	714	262	324	380	541	338
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	348	149	194	178	318	186
7	Alkalinity (asCaCO3)	mg/l	200	600	284	144	63	246	247	157
8	Chloride (as Cl)	mg/l	250	1000	311	42	69	133	172	73
9	Calcium (as Ca)	mg/l	75	200	51.2	36	46.8	43.8	75.6	44.6
10	Magnesium (as Mg)	mg/l	30	100	21	14.6	19.7	16.8	30.8	18.7
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.58	0.53	0.63	0.56
12	Sulphate (as SO4)	mg/l	200	400	47	16	20.8	36.4	37.5	28.6
13	Iron (as Fe)	mg/l	1	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO4)	mg/l	0.03	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
18	Dissolve Oxygen	mg/l	-	-	6.5	6.7	6.4	6.6		
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	131.6	22.4	38.1	52.9	138.8	35.1
21	Potassium (as K)	mg/l	-	-	0.59	9.69	3.6	1.63	1.14	2.9
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.1	5.4	6.7	7.2	6.8

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
Gwalior-474 011, M.P., India
0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Copper (as Cu)		-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lead (as Pb)	mg/l	0.01	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Mercury (as Hg)	mg/l	0.001	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Arsenic (as As)	mg/l	0.01	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Chromium (as Cr-6)	mg/l		-	Absent	Absent	Absent	Absent	Absent	Absent
33	Total Coliform	MPN/100 ml	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.91	7.44	7.53	7.28	7.58	7.77
2	Temperature	°C			22.5	21.8	22.5	22.4	23.5	22.4
3	Conductivity	µmhos/cm			486	391	1300	955	562	877
4	Total dissolve solid (TDS)	mg/l	500	2000	326	262	871	640	376	588
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	154	542	417	172	276
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	57	138	254	226	244	256
8	Chloride (as Cl)	mg/l	250	1000	66.5	52.5	64	272	132	156
9	Calcium (as Ca)	mg/l	75	200	47	36.5	13.5	77.1	43.8	42
10	Magnesium (as Mg)	mg/l	30	100	19.1	15.3	52.5	31.5	17.8	16.4
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.62	0.67	0.65	0.52	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.2	18.5	44.1	39.1	35.5	36.4
13	Iron (as Fe)	mg/l	1	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	0.03	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.1	26.1	50.8	27.1	51.5	151.2
21	Potassium (as K)	mg/l	-	-	3.5	11.2	0.38	3.4	1.69	0.64
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

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Approved: by Occupational Health &Safety Management (ISO45001:2018)
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TEST REPORT

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lead (as Pb)	mg/l	0.01	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Mercury (as Hg)	mg/l	0.001	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Arsenic (as As)	mg/l	0.01	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Hexa-Chromium (as Cr^{-6})	mg/l	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Total Coliform	MPN/100 ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.14	7.39	6.92	7.49	7.3	7.12
2	Temperature	o C	-		22.2	23.1	22.8	22.5	23.1	22.2
3	Conductivity	µmhos/cm	-		1062	388	481	565	809	503
4	Total dissolve solid (TDS)	mg/l	500	2000	712	260	322	379	540	337
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	346	149	193	177	317	185
7	Alkalinity (asCaCO3)	mg/l	200	600	285	143	62.5	245	246	156
8	Chloride (as Cl)	mg/l	250	1000	310	41	68.4	133	171	72.4
9	Calcium (as Ca)	mg/l	75	200	51	35.6	46.2	43.5	75.2	44.2
10	Magnesium (as Mg)	mg/l	30	100	20.5	14.2	19.2	16.8	30.5	18.4
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.57	0.52	0.62	0.56
12	Sulphate (as SO4)	mg/l	200	400	46.1	15.5	20.8	36.2	37.5	28.4
13	Iron (as Fe)	mg/l	1	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO4)	mg/l	0.03	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.9	20.8	37.9	52.8	138.4	34.8
21	Potassium (as K)	mg/l	-	-	0.58	9.53	3.4	1.61	1.13	2.8
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.1	5.3	6.7	7.2	6.7

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

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Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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0751-3566867, 2232177
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Web: www.aetrl.com

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Copper (as Cu)		-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lead (as Pb)	mg/l	0.01	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Mercury (as Hg)	mg/l	0.001	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Arsenic (as As)	mg/l	0.01	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Chromium (as Cr-6)	mg/l	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Total Coliform	MPN/100 ml	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Project site	Salaya Kala near Ashpond	Patai Dandi village Near Primary school sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.89	7.43	7.52	7.26	7.58	7.76
2	Temperature	° C			25.2	24.8	24.6	24.1	23.8	26.2
3	Conductivity	µmhos/cm			483	388	1298	952	555	874
4	Total dissolve solid (TDS)	mg/l	500	2000	324	260	870	638	372	586
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	192	152	540	416	170	275
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	138	252	225	245	254
8	Chloride (as Cl)	mg/l	250	1000	66	52	63	270	130	155
9	Calcium (as Ca)	mg/l	75	200	47	36	130	77	43	41
10	Magnesium (as Mg)	mg/l	30	100	19	15	52	31	17	16
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.61	0.68	0.66	0.51	0.48
12	Sulphate (as SO_4)	mg/l	200	400	21	18	44	38	34	36
13	Iron (as Fe)	mg/l	1	NR	0.15	0.13	0.1	0.14	0.48	0.12
14	Phosphate (as PO_4)	mg/l	0.03	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	38.1	25	50.1	26.6	50.2	150.2
21	Potassium (as K)	mg/l	-	-	3.2	11	0.38	3.1	1.68	0.62
22	Nitrate (as NO_3)	mg/l	45	NR	5.8	8.9	4.4	7.9	6.8	5.1

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

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Approved: by Occupational Health &Safety Management (ISO45001:2018)
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Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Copper (as Cu)				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lead (as Pb)	mg/l	0.01	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Mercury (as Hg)	mg/l	0.001	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Arsenic (as As)	mg/l	0.01	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Hexa-Chromium (as Cr^{-6})	mg/l	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Total Coliform	MPN/100 ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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Advanced Environmental Testing And Research Lab P. Ltd.

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.13	7.38	6.91	7.48	7.29	7.11
2	Temperature	o C	-		24.6	24.8	24.2	24.6	24.0	24.7
3	Conductivity	µmhos/cm	-		1056	385	477	564	803	501
4	Total dissolve solid (TDS)	mg/l	500	2000	708	258	320	378	538	336
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	344	148	192	176	316	184
7	Alkalinity (asCaCO3)	mg/l	200	600	284	142	62	248	245	155
8	Chloride (as Cl)	mg/l	250	1000	309	40	68	132	170	72
9	Calcium (as Ca)	mg/l	75	200	50	35	46	43	75	44
10	Magnesium (as Mg)	mg/l	30	100	20	14	19	16.8	30	18
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.32	0.56	0.51	0.61	0.56
12	Sulphate (as SO4)	mg/l	200	400	46	15	20.5	36	35	28
13	Iron (as Fe)	mg/l	1	NR	0.12	0.12	0.15	0.49	0.14	0.14
14	Phosphate (as PO4)	mg/l	0.03	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.1	20.1	37.5	52.1	138.1	34.2
21	Potassium (as K)	mg/l	-	-	0.57	9.52	3.1	1.58	1.12	2.8
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.2	5.2	6.8	7.1	6.6

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

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Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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Web: www.aetrl.com

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Copper (as Cu)		-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lead (as Pb)	mg/l	0.01	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
29	Mercury (as Hg)	mg/l	0.001	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Arsenic (as As)	mg/l	0.01	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Chromium (as Cr-6)	mg/l	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Total Coliform	MPN/100 ml	Absent/100 ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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TEST REPORT
AMBIENT NOISE QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Noise Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Duration	24 Hrs.
Lab Code	ERDC240102-01		
Sample Collected by	Lab Representative	Sample Description	Ambient Noise
Analysis period	October 2023 to December 2023		

Test Result

Location Code	Location Name	Category	Day time Leq dB(A)	Standard Day time Leq; dB(A)	Night time Leq; dB(A)	Standard Night time Leq; dB(A)
N-1	Project Site	Industrial	59.8	75	52.1	70
N-2	Salaya Kala near Ash pond	Industrial	54.5	75	43.8	70
N-3	Patai Dandi village	Residential	52.8	55	41.6	45
N-4	NTPC Meja Road	Commercial	58.3	65	50.4	55
N-5	Pura Salaiya	Residential	52.2	55	41.8	45
N-6	Son Barsi	Residential	50.2	55	40.3	45
N-7	SH-135 C Kohdarghat Road	Commercial	60.4	65	53.9	55
N-8	Piprau village	Residential	51.4	55	41.2	45
N-9	Kohrar village	Residential	52.0	55	41.7	45
N-10	MaikhurdVillage	Residential	50.9	55	40.8	45

*** End of Report***

Note:- *Day Time mean 6 A.M to 10 P.M
**Day Time mean 10 P.M to 6 A.M

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TEST REPORT

	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

TEST RESULT

Sl. No.	Parameters		Unit	Sampling location				
				Project Site (Meja TPP Main Entry Gate)	Salaya Kala near Ash pond	Patai Dandi village	Rithaiya village	Sukath Near Meja
1	pH		-	7.59	7.87	7.78	7.61	7.64
2	Electrical Conductivity at 25° C (1:5suspension.)		µmhos/cm	340	389	440	472	360
3	Sodium (as Na)		(mg/kg)	126	117	155	145	123
4	Water holding capacity		(%) by mass	29.8	27.9	30.2	28.28	29
5	Potassium (as K)		(kg/ha)	178	165	176	180	165
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	57.5	56.5	56.9	55.2	56.2
		Clay	(%) by mass)	27.1	28.1	28.5	27.1	29.8
		Silt	(%) by mass)	15.4	15.4	14.6	17.7	14
7	Calcium (as Ca)		(mg/kg)	1451	1477	1877	1426.9	1086
8	Magnesium (as Mg)		(mg/kg)	154.1	398	521	502.2	420.1
9	Sodium Absorption Ration (SAR)		-	0.59	0.49	0.58	0.59	0.57
10	Cation Exchange Capacity (CEC)		(meq/100gm)	9.5	11.6	14.9	12.4	9.9
11	Available Phosphorus (as P)		Kg/ha	19.2	14.0	14.7	18.2	20.8

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

12	Organic carbon	(%) by mass)	0.75	0.79	0.81	0.69	0.78
13	Porosity	(% by mass)	35.2	34.1	38.1	32.6	38.2
14	Bulk Density	(g/cm^3)	1.25	1.26	1.28	1.29	1.22
15	Nitrogen	Kg/ha	230	174	222	166	198
17	Zinc (as Zn)	mg/kg	8.1	7.2	9.87	8.42	8.8
18	Manganese (as Mn)	mg/kg	15	16.2	72.96	22.45	20.2
19	Chromium (Cr+6)	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
20	Lead (as Pb)	mg/kg	3.2	1.47	1.28	1.26	1.27
21	Cadmium (as Cd)	mg/kg	<0.1	<0.05	<0.1	<0.1	<0.05
22	Cupper (as Cu)	mg/kg	30.2	18.2	18.23	33.82	23.8
23	Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

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Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

TEST RESUL

Sl. No.	Parameters		Unit	Sampling location				
				Son Barsi	Gadeva Village	Piprau village	Kohrar village	Maikhurd Village
1	pH		-	7.74	7.89	7.56	7.38	7.85
2	Electrical Conductivity at 25o C (1:5suspension.)		µmhos/cm	480	355	380	390	412
3	Sodium (as Na)		(mg/kg)	119	124	129	131	139
4	Water holding capacity		(%) by mass	30.8	32.8	28.9	30.2	31.5
5	Potassium (as K)		(kg/ha)	132	190	170	185	165
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	55.4	56.5	55.2	54.1	54.5
		Clay	(%) by mass)	27.8	27.9	29.5	28.1	29.4
		Silt	(%) by mass)	16.8	15.6	15.3	17.8	16.1
7	Calcium (as Ca)		(mg/kg)	1023	2085	2155	2085	2045
8	Magnesium (as Mg)		(mg/kg)	502	554.6	580	514	531
9	Sodium Absorption Ration (SAR)		-	0.54	0.44	0.45	0.47	0.50
10	Cation Exchange Capacity (CEC)		(meq/100gm)	10.2	16.1	17.1	14.2	15.2
11	Available Phosphorus (as P)		Kg/ha	18.8	20.1	18.6	19.5	17.8

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IC-12750

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

12	Organic carbon	(%) by mass)	0.82	0.79	0.81	0.72	0.75
13	Porosity	(% by mass)	34.6	36	38	31.2	34.5
14	Bulk Density	(g/cm3)	1.2	1.19	1.18	1.21	1.22
15	Nitrogen	Kg/ha	155	205	185	220	190
17	Zinc (as Zn)	mg/kg	8.5	3.5	8.6	7.9	8.4
18	Manganese (as Mn)	mg/kg	23.15	18.5	21	20.3	22.3
19	Chromium (Cr+6)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
20	Lead (as Pb)	mg/kg	1.28	1.11	2.1	2.2	2.5
21	Cadmium (as Cd)	mg/kg	<0.1	<0.05	<0.05	<0.05	<0.05
22	Cupper (as Cu)	mg/kg	36.08	21.4	14.8	16.5	17.2
23	Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madaraha Village	Tons/ River d/s of site near Dhadhuva Village	Pond Dasuati Village	Pond near Khodar Pahari
1	pH	-	6.5 -8.5	7.92	7.88	7.6	7.38	7.55	7.48
2	Temperature	°C	N.S	23.0	22.9	21.7	22.2	21.1	21.2
3	Conductivity	µmhos/cm	N.S	384	385	330	396	552	231
4	Chloride(as Cl)	mg/l	600	19	20	60.2	64.2	79.1	23.5
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	146	149	106	115	65.2	50.2
6	Total Hardness(as CaCO3)	mg/l	N.S	124	125	109	126	81	58.2
7	Calcium (as Ca)	mg/l	N.S	28.1	28.9	27.1	31.9	20.2	15.2
8	Magnesium (as Mg)	mg/l	N.S	13.0	12.8	11.5	12.6	7.9	5.9
9	COD (as O2)	mg/l	N.S	14	16	14	13	47	44
10	BOD (3 days at 27^0C)	mg/l	3	2.7	3.1	2.8	2.9	8.2	7.6
11	Dissolve Oxygen	mg/l	4	6.1	6.3	6.1	6.2	4.5	4.4
12	Total Dissolved Solid	mg/l	1500	244	248	178	192	364	130
13	Total Suspended Solid	mg/l	N.S	4.2	4.4	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	3.3	3.2	2.9	2.8	2.8	2.5
15	Phosphate (as P)	mg/l	N.S	0.23	0.20	0.38	0.42	0.31	0.22
16	Fluoride (as F)	mg/l	1.5	0.33	0.38	0.67	0.7	0.52	0.43

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

17	Sulphate (SO4)	mg/l	400	17.0	16.9	28.1	34.6	30.1	18.4
18	Iron (as Fe)	mg/l	50	0.25	0.26	0.23	0.35	0.14	0.19
19	Nitrate (as NO_3)	mg/l	N.S	3.3	3.1	4.4	4.8	3.6	3.9
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13,4	14.1	10.6	14.9	37	8.8
23	Potassium (as K)	mg/l	N.S	1.7	1.8	1.9	1.9	8	7.3
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.08
27	Zinc (as Zn)	mg/l	15	0.24	0.26	0.11	0.13	0.19	0.35
28	Total Coliform	MPN	<5000	4380	4360	1380	1610	3510	3740

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	18/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231118-02	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	17/11/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madaraha Village	Tons/ River d/s of site near Dhadhuva Village	Pond Dasuati Village	Pond near Khodar Pahari
1	pH	-	6.5 -8.5	7.70	7.74	7.59	7.32	7.54	7.42
2	Temperature	°C	N.S	23.8	23.7	23.1	22.7	22.1	23.1
3	Conductivity	µmhos/cm	N.S	367	374	328	392	548	229
4	Chloride(as Cl)	mg/l	600	16	17	59.2	63.1	78.1	22.5
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	138	142	105	117	64.8	49.2
6	Total Hardness(as CaCO3)	mg/l	N.S	119	117	108.5	125	80.4	57.1
7	Calcium (as Ca)	mg/l	N.S	27.4	26.8	26.4	31.1	19.4	14.1
8	Magnesium (as Mg)	mg/l	N.S	12.4	12.1	11.1	12.4	7.9	5.9
9	COD (as O2)	mg/l	N.S	12	14	12	11	46	44
10	BOD (3 days at 27^0C)	mg/l	3	2.7	3.0	2.8	2.6	8.0	7.6
11	Dissolve Oxygen	mg/l	4	6.2	6.4	6.2	6.1	4.5	4.5
12	Total Dissolved Solid	mg/l	1500	240	247	174	189	360	129
13	Total Suspended Solid	mg/l	N.S	4.6	4.7	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	3.4	3.2	2.7	2.8	2.5	2.2
15	Phosphate (as P)	mg/l	N.S	0.24	0.20	0.36	0.4	0.29	0.2
16	Fluoride (as F)	mg/l	1.5	0.34	0.36	0.67	0.69	0.5	0.42

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Web: www.aetrl.com

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	18/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231118-02	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	17/11/2023

TEST RESULT

17	Sulphate (SO4)	mg/l	400	15.6	16.1	28.1	34.6	30.1	18.4
18	Iron (as Fe)	mg/l	50	0.26	0.27	0.23	0.35	0.14	0.19
19	Nitrate (as NO_3)	mg/l	N.S	3.0	3.2	4.3	4.9	3.4	3.7
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13,7	13.8	10	14	36	8
23	Potassium (as K)	mg/l	N.S	1.4	1.5	1.9	1.9	8	7.2
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.08
27	Zinc (as Zn)	mg/l	15	0.26	0.25	0.11	0.13	0.19	0.35
28	Total Coliform	MPN	<5000	4450	4320	1420	1480	3510	3660

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madaraha Village	Tons/ River d/s of site near Dhadhuva Village	Pond Dasuati Village	Pond near Khodar Pahari
1	pH	-	6.5 -8.5	7.89	7.80	7.58	7.3	7.5	7.4
2	Temperature	°C	N.S	24.8	24.1	24.3	23.4	25.4	23.9
3	Conductivity	µmhos/cm	N.S	380	388	323	388	540	225
4	Chloride(as Cl)	mg/l	600	18	19	58	62	78	22
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	144	148	104	116	64	48
6	Total Hardness(as CaCO3)	mg/l	N.S	120	124	108	124	80	56
7	Calcium (as Ca)	mg/l	N.S	28.9	29.1	26	30	19	13.4
8	Magnesium (as Mg)	mg/l	N.S	11.6	12.4	10	12	7.8	5.4
9	COD (as O2)	mg/l	N.S	13	15	13	12	48	42
10	BOD (3 days at 27^0C)	mg/l	3	3.0	2.9	2.9	2.7	8.1	7.2
11	Dissolve Oxygen	mg/l	4	6.4	6.6	6.3	6.4	4.4	4.6
12	Total Dissolved Solid	mg/l	1500	240	247	170	186	357	124
13	Total Suspended Solid	mg/l	N.S	4.5	4.6	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	3.1	3.3	2.8	2.9	2.4	2.1
15	Phosphate (as P)	mg/l	N.S	0.21	0.22	0.35	0.39	0.28	0.19
16	Fluoride (as F)	mg/l	1.5	0.38	0.36	0.66	0.68	0.51	0.41

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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

17	Sulphate (SO4)	mg/l	400	16.2	17.3	28	34	29	18
18	Iron (as Fe)	mg/l	50	0.28	0.24	0.23	0.35	0.14	0.19
19	Nitrate (as NO_3)	mg/l	N.S	3.2	3.5	4.1	4.5	3.9	3.5
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13,6	14.3	10	14	36	8
23	Potassium (as K)	mg/l	N.S	1.6	1.7	1.9	1.9	8	7.2
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.08
27	Zinc (as Zn)	mg/l	15	0.22	0.28	0.11	0.13	0.19	0.35
28	Total Coliform	MPN	<5000	4220	4170	1460	1540	3450	3780

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	Air quality Meja Urja Nigam Pvt. LTD Jan 2024 to March 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.01.2024	83	47	10.5	17.2	<20	0.34
2	06.01.2024	67	38	14.4	13.3	<20	0.19
3	01.01.2024	77	44	11.9	16.2	<20	0.29
4	11.01.2024	53	30	8.2	11.8	<20	0.15
5	17.01.2024	60	34	10.2	12.9	<20	0.17
6	18.01.2024	68	39	10.8	12.2	<20	0.16
7	24.01.2024	74	42	9.5	17.9	<20	0.32
8	25.01.2024	82	47	11.7	15.1	<20	0.34
9	01.02.2024	60	34	9.2	12.2	<20	0.22
10	02.02.2024	90	51	13.6	15.9	<20	0.36
11	08.02.2024	76	43	12.7	17.7	<20	0.36
12	09.02.2024	82	47	11.2	14.2	<20	0.41
13	15.02.2024	92	52	10.6	15.4	<20	0.42
14	16.02.2024	77	44	9.9	16.7	<20	0.35
15	22.02.2024	89	51	12.5	17.9	<20	0.40
16	23.02.2024	73	42	12	16.9	<20	0.30
17	02.03.2024	92	52	11.2	17.2	<20	0.42
18	03.03.2024	67	38	12.7	11.9	<20	0.16
19	09.03.2024	82	47	10.9	17.1	<20	0.15
20	10.03.2024	73	42	12	18	<20	0.17
21	16.03.2024	79	45	10.5	16.2	<20	0.30
22	17.03.2024	92	52	12.6	15.2	<20	0.36
23	23.03.2024	91	52	14.4	18.3	28.0	0.42
24	24.03.2024	71	40	11.9	12.2	<20	0.29
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.01.2024	80	46	9.7	16.1	<20	0.33
2	06.01.2024	64	36	8.3	12.2	<20	0.18
3	01.01.2024	74	42	11.1	15.1	<20	0.28
4	11.01.2024	50	29	7.4	10.7	<20	0.14
5	17.01.2024	57	32	9.4	11.8	<20	0.16
6	18.01.2024	65	37	10	11.1	<20	0.15
7	24.01.2024	71	40	8.7	14.2	<20	0.20
8	25.01.2024	79	45	10.9	14	<20	0.33
9	01.02.2024	57	32	8.4	11.1	<20	0.21
10	02.02.2024	89	51	12.6	14.8	<20	0.35
11	08.02.2024	73	42	11.9	12.2	<20	0.15
12	09.02.2024	79	45	10.4	13.1	<20	0.22
13	15.02.2024	90	52	9.8	14.3	<20	0.30
14	16.02.2024	74	42	9.1	15.6	<20	0.34
15	22.02.2024	86	49	11.7	15.9	<20	0.32
16	23.02.2024	70	40	11.2	15.8	<20	0.29

17	02.03.2024	90	52	10.4	16.1	<20	0.32
18	03.03.2024	64	36	11.9	10.8	<20	0.15
19	09.03.2024	79	45	10.1	16	<20	0.14
20	10.03.2024	70	40	11.2	15.2	<20	0.16
21	16.03.2024	76	43	9.7	15.1	<20	0.29
22	17.03.2024	89	51	11.8	14.1	<20	0.30
23	23.03.2024	90	52	12.7	16.5	24.0	0.35
24	24.03.2024	68	39	11.1	11.1	<20	0.28

Patai Dandi village (AAQ-3)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43.2	8.8	12.2	<20	0.19
2	06.01.2024	60	34.1	7.4	11.2	<20	0.14
3	01.01.2024	70	39.8	8.3	10.8	<20	0.14
4	11.01.2024	46	26.1	6.5	10.2	<20	0.10
5	17.01.2024	53	30.1	8.5	11.8	<20	0.12
6	18.01.2024	61	34.7	9.1	11.1	<20	0.11
7	24.01.2024	67	38.1	7.8	11.2	<20	0.16
8	25.01.2024	75	42.6	9.6	14	<20	0.21
9	01.02.2024	53	30.1	7.5	11.1	<20	0.17
10	02.02.2024	82	46.6	9.4	13.1	<20	0.22
11	08.02.2024	69	39.2	8.6	12.2	<20	0.11
12	09.02.2024	75	42.6	9.5	13.1	<20	0.22
13	15.02.2024	83	47.2	8.9	13.8	<20	0.16
14	16.02.2024	70	39.8	8.2	12.5	<20	0.17
15	22.02.2024	82	46.6	9.1	12.1	<20	0.18
16	23.02.2024	66	37.5	8.4	11.6	<20	0.15
17	02.03.2024	81	46.1	9.5	14.1	<20	0.20
18	03.03.2024	60	34.1	8	11.2	<20	0.11
19	09.03.2024	75	42.6	9.2	13.1	<20	0.10
20	10.03.2024	66	37.5	8.6	10.3	<20	0.12
21	16.03.2024	72	40.9	8.8	10.9	<20	0.19
22	17.03.2024	83	47.2	9.4	14.1	<20	0.21
23	23.03.2024	84	47.8	10.1	14.2	<20	0.23
24	24.03.2024	64	36.4	9.2	11.1	<20	0.18

Rithaiya Village (AAQ-4)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	78	44	9.2	12	<20	0.16
2	06.01.2024	62	35	7.8	11	<20	0.13
3	01.01.2024	72	41	8.7	10.6	<20	0.14
4	11.01.2024	44	25	6.9	10	<20	0.11
5	17.01.2024	55	31	8.9	11.6	<20	0.12
6	18.01.2024	63	36	9.5	10.9	<20	0.11
7	24.01.2024	69	39	8.2	11	<20	0.16
8	25.01.2024	77	44	10	13.8	<20	0.18
9	01.02.2024	55	31	7.9	10.9	<20	0.17
10	02.02.2024	84	48	9.8	12.9	<20	0.18
11	08.02.2024	71	40	9	12	<20	0.11
12	09.02.2024	77	44	9.9	12.9	<20	0.14
13	15.02.2024	85	48	9.3	13.6	<20	0.16
14	16.02.2024	72	41	8.6	12.3	<20	0.17
15	22.02.2024	84	48	9.5	11.9	<20	0.18
16	23.02.2024	68	39	8.8	11.4	<20	0.15

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17	02.03.2024	83	47	9.9	13.4	<20	0.17
18	03.03.2024	62	35	8.4	11	<20	0.11
19	09.03.2024	77	44	9.6	12.9	<20	0.12
20	10.03.2024	68	39	9	10.1	<20	0.12
21	16.03.2024	74	42	9.2	10.7	<20	0.19
22	17.03.2024	85	48	9.8	13.6	<20	0.18
23	23.03.2024	86	49	10.8	13.8	<20	0.19
24	24.03.2024	66	38	9.6	10.9	<20	0.18

Meja (AAQ-5)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	80	46	9	15.1	<20	0.21
2	06.01.2024	64	36	7.6	11.2	<20	0.16
3	01.01.2024	74	42	10.4	14.1	<20	0.13
4	11.01.2024	47	27	6.7	10.4	<20	0.12
5	17.01.2024	57	32	8.7	10.8	<20	0.14
6	18.01.2024	65	37	9.3	10.5	<20	0.13
7	24.01.2024	71	40	8	13.2	<20	0.18
8	25.01.2024	79	45	10.2	13	<20	0.17
9	01.02.2024	57	32	7.7	10.5	<20	0.19
10	02.02.2024	90	51	11.9	13.8	<20	0.13
11	08.02.2024	73	42	11.2	11.2	<20	0.13
12	09.02.2024	79	45	9.7	12.1	<20	0.20
13	15.02.2024	90	51	9.1	13.3	<20	0.18
14	16.02.2024	74	42	8.4	14.6	<20	0.14
15	22.02.2024	86	49	11	14.9	<20	0.13
16	23.02.2024	89	51	10.5	14.8	<20	0.17
17	02.03.2024	91	52	9.7	15.1	<20	0.19
18	03.03.2024	64	36	11.2	10.5	<20	0.13
19	09.03.2024	79	45	9.4	15	<20	0.12
20	10.03.2024	70	40	10.5	14.2	<20	0.14
21	16.03.2024	76	43	9	14.1	<20	0.19
22	17.03.2024	89	51	11.1	13.1	<20	0.22
23	23.03.2024	89	52	12.4	15.5	<20	0.23
24	24.03.2024	68	39	10.4	10.6	<20	0.19

Son Barsi (AAQ-6)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	74	42	9.1	12.4	<20	0.16
2	06.01.2024	58	33	7.6	10.4	<20	0.11
3	01.01.2024	68	39	8.5	10	<20	0.11
4	11.01.2024	44	25	6.5	9	<20	0.09
5	17.01.2024	51	29	8.7	11	<20	0.09
6	18.01.2024	59	34	9.3	10.3	<20	0.11
7	24.01.2024	65	37	8	10.4	<20	0.13
8	25.01.2024	73	42	9.8	13.2	<20	0.18
9	01.02.2024	51	29	7.7	10.3	<20	0.14
10	02.02.2024	80	46	9.6	12.3	<20	0.19
11	08.02.2024	67	38	8.8	11.4	<20	0.12
12	09.02.2024	73	42	9.7	12.3	<20	0.19
13	15.02.2024	81	46	9.1	13	<20	0.13
14	16.02.2024	68	39	8.4	11.7	<20	0.14
15	22.02.2024	80	46	9.3	11.3	<20	0.15
16	23.02.2024	64	36	8.6	10.8	<20	0.12

17	02.03.2024	79	45	9.7	13.3	<20	0.17
18	03.03.2024	58	33	8.2	10.4	<20	0.14
19	09.03.2024	73	42	9.4	12.3	<20	0.10
20	10.03.2024	64	36	8.8	9.5	<20	0.09
21	16.03.2024	70	40	9	10.1	<20	0.16
22	17.03.2024	81	46	9.6	13.3	<20	0.18
23	23.03.2024	82	47	10.3	13.4	<20	0.20
24	24.03.2024	62	35	9.4	10.3	<20	0.15

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43	8.8	12.2	<20	0.14
2	06.01.2024	60	34	7.4	11.2	<20	0.12
3	01.01.2024	70	40	8.3	10.8	<20	0.13
4	11.01.2024	46	26	6.3	10.3	<20	0.11
5	17.01.2024	53	30	8.5	11.8	<20	0.15
6	18.01.2024	61	35	9.1	11.1	<20	0.13
7	24.01.2024	67	38	7.8	11.2	<20	0.11
8	25.01.2024	75	43	9.6	14	<20	0.16
9	01.02.2024	53	30	7.5	11.1	<20	0.12
10	02.02.2024	82	47	9.4	13.1	<20	0.12
11	08.02.2024	69	39	8.6	12.2	<20	0.14
12	09.02.2024	75	43	9.5	13.1	<20	0.14
13	15.02.2024	83	47	8.9	13.8	<20	0.11
14	16.02.2024	70	40	8.2	12.5	<20	0.12
15	22.02.2024	82	47	9.1	12.1	<20	0.13
16	23.02.2024	66	38	8.4	11.6	<20	0.11
17	02.03.2024	81	46	9.5	14.1	<20	0.15
18	03.03.2024	60	34	8	11.2	<20	0.12
19	09.03.2024	75	43	9.2	13.1	<20	0.12
20	10.03.2024	66	38	8.6	10.3	<20	0.13
21	16.03.2024	72	41	8.8	10.9	<20	0.14
22	17.03.2024	82	47	9.4	14.1	<20	0.16
23	23.03.2024	83	47	10.1	14.2	<20	0.16
24	24.03.2024	64	36	9.2	11.1	<20	0.13

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43	8.5	11.8	<20	0.15
2	06.01.2024	60	34	7.1	10.8	<20	0.13
3	01.01.2024	70	40	8	10.4	<20	0.14
4	11.01.2024	46	26	5.9	10.1	<20	0.10
5	17.01.2024	53	30	8.2	11.4	<20	0.16
6	18.01.2024	61	35	8.8	10.7	<20	0.14
7	24.01.2024	67	38	7.5	10.8	<20	0.12
8	25.01.2024	75	43	9.3	13.6	<20	0.17
9	01.02.2024	53	30	7.2	10.7	<20	0.13
10	02.02.2024	82	47	9.1	12.7	<20	0.13
11	08.02.2024	69	39	8.3	11.8	<20	0.15
12	09.02.2024	75	43	9.2	12.7	<20	0.15
13	15.02.2024	83	47	8.6	13.4	<20	0.12
14	16.02.2024	70	40	7.9	12.1	<20	0.13
15	22.02.2024	82	47	8.8	11.7	<20	0.14
16	23.02.2024	66	38	8.1	11.2	<20	0.12
17	02.03.2024	81	46	9.2	13.7	<20	0.16
18	03.03.2024	60	34	7.7	10.8	<20	0.13
19	09.03.2024	75	43	8.9	12.7	<20	0.13

20	10.03.2024	66	38	8.3	10.5	<20	0.14
21	16.03.2024	72	41	8.5	10.6	<20	0.15
22	17.03.2024	83	47	9.1	13.7	<20	0.17
23	23.03.2024	87	50	9.8	13.8	<20	0.17
24	24.03.2024	64	36	8.9	10.7	<20	0.14

Kohrar Village (AAQ-9)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	79	45	9.4	12.7	<20	0.15
2	06.01.2024	63	36	8	11.7	<20	0.12
3	01.01.2024	73	41	8.9	11.6	<20	0.11
4	11.01.2024	48	27	6.5	11.3	<20	0.09
5	17.01.2024	56	32	9.1	12.3	<20	0.13
6	18.01.2024	64	36	9.7	11.6	<20	0.12
7	24.01.2024	70	40	8.4	11.7	<20	0.10
8	25.01.2024	78	44	10.2	14.5	<20	0.12
9	01.02.2024	56	32	8.1	11.6	<20	0.11
10	02.02.2024	85	48	10	13.6	<20	0.12
11	08.02.2024	72	41	9.2	12.7	<20	0.13
12	09.02.2024	78	44	10.1	13.6	<20	0.11
13	15.02.2024	86	49	9.5	14.3	<20	0.10
14	16.02.2024	73	41	8.8	13.0	<20	0.11
15	22.02.2024	85	48	9.7	12.6	<20	0.12
16	23.02.2024	69	39	9	12.1	<20	0.09
17	02.03.2024	84	48	10.1	14.1	<20	0.11
18	03.03.2024	63	36	8.6	11.7	<20	0.12
19	09.03.2024	78	44	9.8	13.6	<20	0.10
20	10.03.2024	69	39	9.2	10.8	<20	0.12
21	16.03.2024	75	43	9.4	11.4	<20	0.13
22	17.03.2024	86	49	10	14.3	<20	0.12
23	23.03.2024	87	49	11	14.5	<20	0.13
24	24.03.2024	67	38	9.8	11.6	<20	0.12

Bhendewara Village (AAQ-10)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43	8.7	11.9	<20	0.13
2	06.01.2024	60	43	7.3	10.9	<20	0.15
3	01.01.2024	70	43	8.2	11.1	<20	0.14
4	11.01.2024	45	43	6.3	10.9	<20	0.09
5	17.01.2024	53	43	8.4	11.5	<20	0.16
6	18.01.2024	61	43	9	11.2	<20	0.15
7	24.01.2024	67	43	7.7	10.9	<20	0.13
8	25.01.2024	75	43	9.5	13.7	<20	0.15
9	01.02.2024	53	43	7.4	10.9	<20	0.14
10	02.02.2024	82	43	9.3	12.8	<20	0.15
11	08.02.2024	69	43	8.5	11.9	<20	0.16
12	09.02.2024	75	43	9.4	12.8	<20	0.14
13	15.02.2024	83	43	8.8	13.5	<20	0.13
14	16.02.2024	70	43	8.1	12.2	<20	0.14
15	22.02.2024	82	43	9	11.8	<20	0.15
16	23.02.2024	66	43	8.3	11.3	<20	0.12
17	02.03.2024	81	43	9.4	13.3	<20	0.14
18	03.03.2024	60	43	7.9	10.9	<20	0.15
19	09.03.2024	75	43	9.1	12.8	<20	0.13
20	10.03.2024	66	43	8.5	10.9	<20	0.15
21	16.03.2024	72	43	8.7	11.2	<20	0.16
22	17.03.2024	83	43	9.3	13.5	<20	0.15

23	23.03.2024	84	43	10.3	13.7	<20	0.16
24	24.03.2024	64	43	9.1	11.2	<20	0.15

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	Air quality Meja Urja Nigam Pvt. LTD April 2024 to June 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.04.2024	78	44	9.7	16.4	<20	0.32
2	06.04.2024	62	35	13.6	12.5	<20	0.17
3	04.04.2024	72	41	11.1	15.4	<20	0.27
4	11.04.2024	48	27	7.4	11	<20	0.13
5	17.04.2024	55	31	9.4	12.1	<20	0.15
6	18.04.2024	63	36	10	11.4	<20	0.14
7	24.04.2024	69	39	8.7	17.1	<20	0.30
8	25.04.2024	77	44	10.9	14.3	<20	0.32
9	01.05.2024	55	31	8.4	11.4	<20	0.20
10	02.05.2024	88	50	12.8	15.1	<20	0.34
11	08.05.2024	71	40	11.9	16.9	<20	0.34
12	09.05.2024	77	44	10.4	13.4	<20	0.39
13	15.05.2024	90	51	9.8	14.6	<20	0.40
14	16.05.2024	72	41	9.1	15.9	<20	0.33
15	22.05.2024	84	48	11.7	17.1	<20	0.38
16	23.05.2024	68	39	11.2	16.1	<20	0.28
17	02.06.2024	90	51	10.4	16.4	<20	0.40
18	03.06.2024	62	35	11.9	11.1	<20	0.14
19	09.06.2024	77	44	10.1	16.3	<20	0.13
20	10.06.2024	68	39	11.2	17.2	<20	0.15
21	16.06.2024	74	42	9.7	15.4	<20	0.28
22	17.06.2024	87	50	11.8	14.4	<20	0.34
23	23.06.2024	91	52	13.6	17.5	28.0	0.40
24	24.06.2024	66	38	11.1	11.4	<20	0.27
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.04.2024	77	44	8.9	15.3	<20	0.31
2	02.04.2024	61	35	7.5	11.4	<20	0.16
3	08.04.2024	71	40	10.3	14.3	<20	0.26
4	**09.04.2024**	47	27	6.6	9.9	<20	0.12
5	15.04.2024	54	31	8.6	11	<20	0.14
6	16.04.2024	62	35	9.2	10.3	<20	0.13
7	22.04.2024	68	39	7.9	13.4	<20	0.18
8	23.04.2024	76	43	10.1	13.2	<20	0.31
9	02.05.2024	54	31	7.6	10.3	<20	0.19
10	03.05.2024	87	50	11.8	14	<20	0.33
11	09.05.2024	70	40	11.1	11.4	<20	0.13
12	10.05.2024	76	43	9.6	12.3	<20	0.20
13	16.05.2024	89	51	9	13.5	<20	0.28
14	17.05.2024	71	40	8.3	14.8	<20	0.32
15	23.05.2024	83	47	10.9	15.1	<20	0.30
16	24.05.2024	67	38	10.4	15	<20	0.27

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17	02.06.2024	89	51	9.6	15.3	<20	0.30
18	03.06.2024	61	35	11.1	10	<20	0.13
19	09.06.2024	76	43	9.3	15.2	<20	0.12
20	10.06.2024	67	38	10.4	14.4	<20	0.14
21	16.06.2024	73	42	8.9	14.3	<20	0.27
22	17.06.2024	86	49	11	13.3	<20	0.28
23	23.06.2024	89	51	11.9	15.7	24.0	0.33
24	24.06.2024	65	37	10.3	10.3	<20	0.26

Patai Dandi village (AAQ-3)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.04.2024	73	41.5	8	11.4	<20	0.18
2	06.04.2024	57	32.4	6.6	10.4	<20	0.13
3	04.04.2024	67	38.1	7.5	10	<20	0.13
4	11.04.2024	43	24.4	5.7	9.4	<20	0.09
5	17.04.2024	50	28.4	7.7	11	<20	0.11
6	18.04.2024	58	32.9	8.3	10.3	<20	0.10
7	24.04.2024	64	36.4	7	10.4	<20	0.15
8	25.04.2024	72	40.9	8.8	13.2	<20	0.20
9	01.05.2024	50	28.4	6.7	10.3	<20	0.16
10	02.05.2024	79	44.9	8.6	12.3	<20	0.21
11	08.05.2024	66	37.5	7.8	11.4	<20	0.10
12	09.05.2024	72	40.9	8.7	12.3	<20	0.21
13	15.05.2024	80	45.5	8.1	13	<20	0.15
14	16.05.2024	67	38.1	7.4	11.7	<20	0.16
15	22.05.2024	79	44.9	8.3	11.3	<20	0.17
16	23.05.2024	63	35.8	7.6	10.8	<20	0.14
17	02.06.2024	78	44.3	8.7	13.3	<20	0.19
18	03.06.2024	57	32.4	7.2	10.4	<20	0.10
19	09.06.2024	72	40.9	8.4	12.3	<20	0.09
20	10.06.2024	63	35.8	7.8	9.5	<20	0.11
21	16.06.2024	69	39.2	8	10.1	<20	0.18
22	17.06.2024	80	45.5	8.6	13.3	<20	0.20
23	23.06.2024	81	46.1	9.3	13.4	<20	0.22
24	24.06.2024	61	34.7	8.4	10.3	<20	0.17

Rithaiya Village (AAQ-4)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.04.2024	78	44	8.4	11.5	<20	0.15
2	02.04.2024	62	35	7	10.5	<20	0.12
3	08.04.2024	72	41	7.9	10.1	<20	0.13
4	**09.04.2024**	44	25	6.1	9.5	<20	0.10
5	15.04.2024	55	31	8.1	11.1	<20	0.11
6	16.04.2024	63	36	8.7	10.4	<20	0.10
7	22.04.2024	69	39	7.4	10.5	<20	0.15
8	23.04.2024	77	44	9.2	13.3	<20	0.17
9	02.05.2024	55	31	7.1	10.4	<20	0.16
10	03.05.2024	84	48	9	12.4	<20	0.17
11	09.05.2024	71	40	8.2	11.5	<20	0.10
12	10.05.2024	77	44	9.1	12.4	<20	0.13
13	16.05.2024	85	48	8.5	13.1	<20	0.15
14	17.05.2024	72	41	7.8	11.8	<20	0.16
15	23.05.2024	84	48	8.7	11.4	<20	0.17
16	24.05.2024	68	38	8	10.9	<20	0.14

17	02.06.2024	83	47	9.1	12.9	<20	0.16
18	03.06.2024	62	35	7.6	10.5	<20	0.10
19	09.06.2024	77	44	8.8	12.4	<20	0.11
20	10.06.2024	68	38	8.2	9.6	<20	0.11
21	16.06.2024	74	42	8.4	10.2	<20	0.18
22	17.06.2024	85	48	9	13.1	<20	0.17
23	23.06.2024	86	49	10	13.3	<20	0.18
24	24.06.2024	66	37	8.8	10.4	<20	0.17

Meja (AAQ-5)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.04.2024	77	44	8.5	14.8	<20	0.20
2	06.04.2024	61	35	7.1	10.9	<20	0.15
3	04.04.2024	71	40	9.9	13.8	<20	0.12
4	11.04.2024	44	25	6.2	10.1	<20	0.11
5	17.04.2024	54	31	8.2	10.5	<20	0.13
6	18.04.2024	62	35	8.8	10.2	<20	0.12
7	24.04.2024	68	39	7.5	12.9	<20	0.17
8	25.04.2024	76	43	9.7	12.7	<20	0.16
9	01.05.2024	54	31	7.2	10.2	<20	0.18
10	02.05.2024	87	50	11.4	13.5	<20	0.12
11	08.05.2024	70	40	10.7	10.9	<20	0.12
12	09.05.2024	76	43	9.2	11.8	<20	0.19
13	15.05.2024	89	51	8.6	13	<20	0.17
14	16.05.2024	71	40	7.9	14.3	<20	0.13
15	22.05.2024	83	47	10.5	14.6	<20	0.12
16	23.05.2024	67	38	10	14.5	<20	0.16
17	02.06.2024	89	51	9.2	14.8	<20	0.18
18	03.06.2024	61	35	10.7	10.2	<20	0.12
19	09.06.2024	76	43	8.9	14.7	<20	0.11
20	10.06.2024	67	38	10	13.9	<20	0.13
21	16.06.2024	73	42	8.5	13.8	<20	0.18
22	17.06.2024	86	49	10.6	12.8	<20	0.21
23	23.06.2024	89	51	11.9	15.2	<20	0.22
24	24.06.2024	65	37	9.9	10.3	<20	0.18

Son Barsi (AAQ-6)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.04.2024	71	40	8.6	12.1	<20	0.17
2	02.04.2024	55	31	7.1	10.1	<20	0.12
3	08.04.2024	65	37	8	9.7	<20	0.12
4	**09.04.2024**	41	23	6	8.7	<20	0.10
5	15.04.2024	48	27	8.2	10.7	<20	0.10
6	16.04.2024	56	32	8.8	10	<20	0.12
7	22.04.2024	62	35	7.5	10.1	<20	0.14
8	23.04.2024	70	40	9.3	12.9	<20	0.19
9	02.05.2024	48	27	7.2	10	<20	0.15
10	03.05.2024	77	44	9.1	12	<20	0.20
11	09.05.2024	64	36	8.3	11.1	<20	0.13
12	10.05.2024	70	40	9.2	12	<20	0.20
13	16.05.2024	78	44	8.6	12.7	<20	0.14
14	17.05.2024	65	37	7.9	11.4	<20	0.15
15	23.05.2024	77	44	8.8	11	<20	0.16
16	24.05.2024	61	35	8.1	10.5	<20	0.13

17	02.06.2024	76	43	9.2	13	<20	0.18
18	03.06.2024	55	31	7.7	10.1	<20	0.15
19	09.06.2024	70	40	8.9	12	<20	0.11
20	10.06.2024	61	35	8.3	9.2	<20	0.10
21	16.06.2024	67	38	8.5	9.8	<20	0.17
22	17.06.2024	78	44	9.1	13	<20	0.19
23	23.06.2024	79	45	9.8	13.1	<20	0.21
24	24.06.2024	59	34	8.9	10	<20	0.16

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.04.2024	73	42	8.3	11.9	<20	0.15
2	06.04.2024	57	32	6.9	10.9	<20	0.13
3	04.04.2024	67	38	7.8	10.5	<20	0.14
4	11.04.2024	43	25	5.8	10	<20	0.12
5	17.04.2024	50	29	8	11.5	<20	0.16
6	18.04.2024	58	33	8.6	10.8	<20	0.14
7	24.04.2024	64	36	7.3	10.9	<20	0.12
8	25.04.2024	72	41	9.1	13.7	<20	0.17
9	01.05.2024	50	29	7	10.8	<20	0.13
10	02.05.2024	79	45	8.9	12.8	<20	0.13
11	08.05.2024	66	38	8.1	11.9	<20	0.15
12	09.05.2024	72	41	9	12.8	<20	0.15
13	15.05.2024	80	46	8.4	13.5	<20	0.12
14	16.05.2024	67	38	7.7	12.2	<20	0.13
15	22.05.2024	79	45	8.6	11.8	<20	0.14
16	23.05.2024	63	36	7.9	11.3	<20	0.12
17	02.06.2024	78	44	9	13.8	<20	0.16
18	03.06.2024	57	32	7.5	10.9	<20	0.13
19	09.06.2024	72	41	8.7	12.8	<20	0.13
20	10.06.2024	63	36	8.1	10	<20	0.14
21	16.06.2024	69	39	8.3	10.6	<20	0.15
22	17.06.2024	79	45	8.9	13.8	<20	0.17
23	23.06.2024	80	46	9.6	13.9	<20	0.17
24	24.06.2024	61	35	8.7	10.8	<20	0.14

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.04.2024	73	42	8.2	11.3	<20	0.14
2	02.04.2024	57	32	6.8	10.3	<20	0.12
3	08.04.2024	67	38	7.7	9.9	<20	0.13
4	**09.04.2024**	43	25	5.6	9.6	<20	0.09
5	15.04.2024	50	29	7.9	10.9	<20	0.15
6	16.04.2024	58	33	8.5	10.2	<20	0.13
7	22.04.2024	64	36	7.2	10.3	<20	0.11
8	23.04.2024	72	41	9	13.1	<20	0.16
9	02.05.2024	50	29	6.9	10.2	<20	0.12
10	03.05.2024	79	45	8.8	12.2	<20	0.12
11	09.05.2024	66	38	8	11.3	<20	0.14
12	10.05.2024	72	41	8.9	12.2	<20	0.14
13	16.05.2024	80	46	8.3	12.9	<20	0.11
14	17.05.2024	67	38	7.6	11.6	<20	0.12
15	23.05.2024	79	45	8.5	11.2	<20	0.13
16	24.05.2024	63	36	7.8	10.7	<20	0.11
17	02.06.2024	78	44	8.9	13.2	<20	0.15
18	03.06.2024	57	32	7.4	10.3	<20	0.12
19	09.06.2024	72	41	8.6	12.2	<20	0.12

20	10.06.2024	63	36	8	10	<20	0.13
21	16.06.2024	69	39	8.2	10.1	<20	0.14
22	17.06.2024	80	46	8.8	13.2	<20	0.16
23	23.06.2024	84	48	9.5	13.3	<20	0.16
24	24.06.2024	61	35	8.6	10.2	<20	0.13

Kohrar Village (AAQ-9)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.04.2024	76	43	8.9	12.4	<20	0.16
2	06.04.2024	60	34	7.5	11.4	<20	0.13
3	04.04.2024	70	40	8.4	11.3	<20	0.12
4	11.04.2024	45	26	6	11.0	<20	0.10
5	17.04.2024	53	30	8.6	12.0	<20	0.14
6	18.04.2024	61	35	9.2	11.3	<20	0.13
7	24.04.2024	67	38	7.9	11.4	<20	0.11
8	25.04.2024	75	43	9.7	14.2	<20	0.13
9	01.05.2024	53	30	7.6	11.3	<20	0.12
10	02.05.2024	82	47	9.5	13.3	<20	0.13
11	08.05.2024	69	39	8.7	12.4	<20	0.14
12	09.05.2024	75	43	9.6	13.3	<20	0.12
13	15.05.2024	83	47	9	14.0	<20	0.11
14	16.05.2024	70	40	8.3	12.7	<20	0.12
15	22.05.2024	82	47	9.2	12.3	<20	0.13
16	23.05.2024	66	38	8.5	11.8	<20	0.10
17	02.06.2024	81	46	9.6	13.8	<20	0.12
18	03.06.2024	60	34	8.1	11.4	<20	0.13
19	09.06.2024	75	43	9.3	13.3	<20	0.11
20	10.06.2024	66	38	8.7	10.5	<20	0.13
21	16.06.2024	72	41	8.9	11.1	<20	0.14
22	17.06.2024	83	47	9.5	14.0	<20	0.13
23	23.06.2024	84	48	10.5	14.2	<20	0.14
24	24.06.2024	64	36	9.3	11.3	<20	0.13

Bhendewara Village (AAQ-10)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.04.2024	73	42	7.7	11.7	<20	0.12
2	02.04.2024	57	32	6.3	10.7	<20	0.14
3	08.04.2024	67	38	7.2	10.9	<20	0.13
4	**09.04.2024**	42	24	5.3	10.7	<20	0.08
5	15.04.2024	50	29	7.4	11.3	<20	0.15
6	16.04.2024	58	33	8	11.0	<20	0.14
7	22.04.2024	64	36	6.7	10.7	<20	0.12
8	23.04.2024	72	41	8.5	13.5	<20	0.14
9	02.05.2024	50	29	6.4	10.7	<20	0.13
10	03.05.2024	79	45	8.3	12.6	<20	0.14
11	09.05.2024	66	38	7.5	11.7	<20	0.15
12	10.05.2024	72	41	8.4	12.6	<20	0.13
13	16.05.2024	80	46	7.8	13.3	<20	0.12
14	17.05.2024	67	38	7.1	12.0	<20	0.13
15	23.05.2024	79	45	8	11.6	<20	0.14
16	24.05.2024	63	36	7.3	11.1	<20	0.11
17	02.06.2024	78	44	8.4	13.1	<20	0.13
18	03.06.2024	57	32	6.9	10.7	<20	0.14
19	09.06.2024	72	41	8.1	12.6	<20	0.12
20	10.06.2024	63	36	7.5	10.7	<20	0.14
21	16.06.2024	69	39	7.7	11.0	<20	0.15
22	17.06.2024	80	46	8.3	13.3	<20	0.14

23	23.06.2024	81	46	9.3	13.5	<20	0.15
24	24.06.2024	61	35	8.1	11.0	<20	0.14

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	Air quality Meja Urja Nigam Pvt. LTD July 2024 to Sept 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.07.2024	75	43	8.9	15.6	<20	0.28
2	04.07.2024	59	34	12.8	11.7	<20	0.13
3	10.07.2024	69	39	10.3	14.6	<20	0.23
4	11.07.2024	45	26	6.6	10.2	<20	0.09
5	17.07.2024	52	30	8.6	11.3	<20	0.11
6	18.07.2024	60	34	9.2	10.6	<20	0.10
7	24.07.2024	66	38	7.9	16.3	<20	0.26
8	25.07.2024	74	42	10.1	13.5	<20	0.28
9	01.08.2024	52	30	7.6	10.6	<20	0.16
10	02.08.2024	85	48	12	14.3	<20	0.30
11	08.08.2024	68	39	11.1	16.1	<20	0.30
12	09.08.2024	74	42	9.6	12.6	<20	0.35
13	15.08.2024	87	50	9	13.8	<20	0.36
14	16.08.2024	69	39	8.3	15.1	<20	0.29
15	22.08.2024	81	46	10.9	16.3	<20	0.34
16	23.08.2024	65	37	10.4	15.3	<20	0.24
17	02.09.2024	87	50	9.6	15.6	<20	0.36
18	03.09.2024	59	34	11.1	10.3	<20	0.10
19	09.09.2024	74	42	9.3	15.5	<20	0.09
20	10.09.2024	65	37	10.4	16.4	<20	0.11
21	16.09.2024	71	40	8.9	14.6	<20	0.24
22	17.09.2024	84	48	11	13.6	<20	0.30
23	23.09.2024	88	50	12.8	16.7	28.0	0.36
24	24.09.2024	63	36	10.3	10.6	<20	0.23
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	74	42	8.1	14.5	<20	0.27
2	02.07.2024	58	33	6.7	10.6	<20	0.12
3	09.07.2024	68	39	9.5	13.5	<20	0.22
4	10.07.2024	44	25	5.8	9.1	<20	0.08
5	16.07.2024	51	29	7.8	10.2	<20	0.10
6	17.07.2024	59	34	8.4	9.5	<20	0.09
7	25.07.2024	65	37	7.1	12.6	<20	0.14
8	26.07.2024	73	42	9.3	12.4	<20	0.27
9	02.08.2024	51	29	6.8	9.5	<20	0.15
10	03.08.2024	84	48	11	13.2	<20	0.29
11	07.08.2024	67	38	10.3	10.6	<20	0.09
12	08.08.2024	73	42	8.8	11.5	<20	0.16
13	14.08.2024	86	49	8.2	12.7	<20	0.24
14	15.08.2024	68	39	7.5	14	<20	0.28
15	22.08.2024	80	46	10.1	14.3	<20	0.26
16	23.08.2024	64	36	9.6	14.2	<20	0.23
17	03.09.2024	86	49	8.8	14.5	<20	0.26

18	04.09.2024	58	33	10.3	9.2	<20	0.09
19	10.09.2024	73	42	8.5	14.4	<20	0.08
20	11.09.2024	64	36	9.6	13.6	<20	0.10
21	17.09.2024	70	40	8.1	13.5	<20	0.23
22	18.09.2024	83	47	10.2	12.5	<20	0.24
23	24.09.2024	86	49	11.1	14.9	24.0	0.29
24	25.09.2024	62	35	9.5	9.5	<20	0.22
Patai Dandi village (AAQ-3)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	70	39.8	7.2	10.6	<20	0.14
2	04.07.2024	54	30.7	5.8	9.6	<20	0.09
3	10.07.2024	64	36.4	6.7	9.2	<20	0.09
4	11.07.2024	40	22.7	4.9	8.6	<20	0.05
5	17.07.2024	47	26.7	6.9	10.2	<20	0.07
6	18.07.2024	55	31.2	7.5	9.5	<20	0.06
7	24.07.2024	61	34.7	6.2	9.6	<20	0.11
8	25.07.2024	69	39.2	8	12.4	<20	0.16
9	01.08.2024	47	26.7	5.9	9.5	<20	0.12
10	02.08.2024	76	43.2	7.8	11.5	<20	0.17
11	08.08.2024	63	35.8	7	10.6	<20	0.06
12	09.08.2024	69	39.2	7.9	11.5	<20	0.17
13	15.08.2024	77	43.8	7.3	12.2	<20	0.11
14	16.08.2024	64	36.4	6.6	10.9	<20	0.12
15	22.08.2024	76	43.2	7.5	10.5	<20	0.13
16	23.08.2024	60	34.1	6.8	10	<20	0.10
17	02.09.2024	75	42.6	7.9	12.5	<20	0.15
18	03.09.2024	54	30.7	6.4	9.6	<20	0.06
19	09.09.2024	69	39.2	7.6	11.5	<20	0.05
20	10.09.2024	60	34.1	7	8.7	<20	0.07
21	16.09.2024	66	37.5	7.2	9.3	<20	0.14
22	17.09.2024	77	43.8	7.8	12.5	<20	0.16
23	23.09.2024	78	44.3	8.5	12.6	<20	0.18
24	24.09.2024	58	32.9	7.6	9.5	<20	0.13
Rithaiya Village (AAQ-4)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	75	42	7.6	10.7	<20	0.13
2	02.07.2024	59	33	6.2	9.7	<20	0.10
3	09.07.2024	69	39	7.1	9.3	<20	0.11
4	10.07.2024	41	23	5.3	8.7	<20	0.08
5	16.07.2024	52	29	7.3	10.3	<20	0.09
6	17.07.2024	60	34	7.9	9.6	<20	0.08
7	25.07.2024	66	37	6.6	9.7	<20	0.13
8	26.07.2024	74	42	8.4	12.5	<20	0.15
9	02.08.2024	52	29	6.3	9.6	<20	0.14
10	03.08.2024	81	46	8.2	11.6	<20	0.15
11	07.08.2024	68	38	7.4	10.7	<20	0.08
12	08.08.2024	74	42	8.3	11.6	<20	0.11
13	14.08.2024	82	46	7.7	12.3	<20	0.13
14	15.08.2024	69	39	7	11	<20	0.14
15	22.08.2024	81	46	7.9	10.6	<20	0.15
16	23.08.2024	65	37	7.2	10.1	<20	0.12
17	03.09.2024	80	45	8.3	12.1	<20	0.14

18	04.09.2024	59	33	6.8	9.7	<20	0.08
19	10.09.2024	74	42	8	11.6	<20	0.09
20	11.09.2024	65	37	7.4	8.8	<20	0.09
21	17.09.2024	71	40	7.6	9.4	<20	0.16
22	18.09.2024	82	46	8.2	12.3	<20	0.15
23	24.09.2024	83	47	9.2	12.5	<20	0.16
24	25.09.2024	63	36	8	9.6	<20	0.15

Meja (AAQ-5)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.07.2024	74	42	7.7	14	<20	0.18
2	04.07.2024	58	33	6.3	10.1	<20	0.13
3	10.07.2024	68	39	9.1	13	<20	0.10
4	11.07.2024	41	23	5.4	9.3	<20	0.09
5	17.07.2024	51	29	7.4	9.7	<20	0.11
6	18.07.2024	59	34	8	9.4	<20	0.10
7	24.07.2024	65	37	6.7	12.1	<20	0.15
8	25.07.2024	73	42	8.9	11.9	<20	0.14
9	01.08.2024	51	29	6.4	9.4	<20	0.16
10	02.08.2024	84	48	10.6	12.7	<20	0.10
11	08.08.2024	67	38	9.9	10.1	<20	0.10
12	09.08.2024	73	42	8.4	11	<20	0.17
13	15.08.2024	86	49	7.8	12.2	<20	0.15
14	16.08.2024	68	39	7.1	13.5	<20	0.11
15	22.08.2024	80	46	9.7	13.8	<20	0.10
16	23.08.2024	64	36	9.2	13.7	<20	0.14
17	02.09.2024	86	49	8.4	14	<20	0.16
18	03.09.2024	58	33	9.9	9.4	<20	0.10
19	09.09.2024	73	42	8.1	13.9	<20	0.09
20	10.09.2024	64	36	9.2	13.1	<20	0.11
21	16.09.2024	70	40	7.7	13	<20	0.16
22	17.09.2024	83	47	9.8	12	<20	0.19
23	23.09.2024	86	49	11.1	14.4	<20	0.20
24	24.09.2024	62	35	9.1	9.5	<20	0.16

Son Barsi (AAQ-6)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.07.2024	68	39	7.8	11.3	<20	0.15
2	02.07.2024	52	30	6.3	9.3	<20	0.10
3	09.07.2024	62	35	7.2	8.9	<20	0.10
4	10.07.2024	38	22	5.2	7.9	<20	0.08
5	16.07.2024	45	26	7.4	9.9	<20	0.08
6	17.07.2024	53	30	8	9.2	<20	0.10
7	25.07.2024	59	34	6.7	9.3	<20	0.12
8	26.07.2024	67	38	8.5	12.1	<20	0.17
9	02.08.2024	45	26	6.4	9.2	<20	0.13
10	03.08.2024	74	42	8.3	11.2	<20	0.18
11	07.08.2024	61	35	7.5	10.3	<20	0.11
12	08.08.2024	67	38	8.4	11.2	<20	0.18
13	14.08.2024	75	43	7.8	11.9	<20	0.12
14	15.08.2024	62	35	7.1	10.6	<20	0.13
15	22.08.2024	74	42	8	10.2	<20	0.14
16	23.08.2024	58	33	7.3	9.7	<20	0.11
17	03.09.2024	73	42	8.4	12.2	<20	0.16

18	04.09.2024	52	30	6.9	9.3	<20	0.13
19	10.09.2024	67	38	8.1	11.2	<20	0.09
20	11.09.2024	58	33	7.5	8.4	<20	0.08
21	17.09.2024	64	36	7.7	9	<20	0.15
22	18.09.2024	75	43	8.3	12.2	<20	0.17
23	24.09.2024	76	43	9	12.3	<20	0.19
24	25.09.2024	56	32	8.1	9.2	<20	0.14

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.07.2024	70	40	7.5	11.1	<20	0.13
2	04.07.2024	54	31	6.1	10.1	<20	0.11
3	10.07.2024	64	36	7	9.7	<20	0.12
4	11.07.2024	40	23	5	9.2	<20	0.10
5	17.07.2024	47	27	7.2	10.7	<20	0.14
6	18.07.2024	55	31	7.8	10	<20	0.12
7	24.07.2024	61	35	6.5	10.1	<20	0.10
8	25.07.2024	69	39	8.3	12.9	<20	0.15
9	01.08.2024	47	27	6.2	10	<20	0.11
10	02.08.2024	76	43	8.1	12	<20	0.11
11	08.08.2024	63	36	7.3	11.1	<20	0.13
12	09.08.2024	69	39	8.2	12	<20	0.13
13	15.08.2024	77	44	7.6	12.7	<20	0.10
14	16.08.2024	64	36	6.9	11.4	<20	0.11
15	22.08.2024	76	43	7.8	11	<20	0.12
16	23.08.2024	60	34	7.1	10.5	<20	0.10
17	02.09.2024	75	43	8.2	13	<20	0.14
18	03.09.2024	54	31	6.7	10.1	<20	0.11
19	09.09.2024	69	39	7.9	12	<20	0.11
20	10.09.2024	60	34	7.3	9.2	<20	0.12
21	16.09.2024	66	38	7.5	9.8	<20	0.13
22	17.09.2024	76	43	8.1	13	<20	0.15
23	23.09.2024	77	44	8.8	13.1	<20	0.15
24	24.09.2024	58	33	7.9	10	<20	0.12

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.07.2024	70	40	7.4	10.5	<20	0.12
2	02.07.2024	54	31	6	9.5	<20	0.10
3	09.07.2024	64	36	6.9	9.1	<20	0.11
4	10.07.2024	40	23	4.8	8.8	<20	0.07
5	16.07.2024	47	27	7.1	10.1	<20	0.13
6	17.07.2024	55	31	7.7	9.4	<20	0.11
7	25.07.2024	61	35	6.4	9.5	<20	0.09
8	26.07.2024	69	39	8.2	12.3	<20	0.14
9	02.08.2024	47	27	6.1	9.4	<20	0.10
10	03.08.2024	76	43	8	11.4	<20	0.10
11	07.08.2024	63	36	7.2	10.5	<20	0.12
12	08.08.2024	69	39	8.1	11.4	<20	0.12
13	14.08.2024	77	44	7.5	12.1	<20	0.09
14	15.08.2024	64	36	6.8	10.8	<20	0.10
15	22.08.2024	76	43	7.7	10.4	<20	0.11
16	23.08.2024	60	34	7	9.9	<20	0.09
17	03.09.2024	75	43	8.1	12.4	<20	0.13
18	04.09.2024	54	31	6.6	9.5	<20	0.10
19	10.09.2024	69	39	7.8	11.4	<20	0.10
20	11.09.2024	60	34	7.2	9.2	<20	0.11

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21	17.09.2024	66	38	7.4	9.3	<20	0.12
22	18.09.2024	77	44	8	12.4	<20	0.14
23	24.09.2024	81	46	8.7	12.5	<20	0.14
24	25.09.2024	58	33	7.8	9.4	<20	0.11

Kohrar Village (AAQ-9)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.07.2024	73	41	8.1	11.6	<20	0.14
2	04.07.2024	57	32	6.7	10.6	<20	0.11
3	10.07.2024	67	38	7.6	10.5	<20	0.10
4	11.07.2024	42	24	5.2	10.2	<20	0.08
5	17.07.2024	50	28	7.8	11.2	<20	0.12
6	18.07.2024	58	33	8.4	10.5	<20	0.11
7	24.07.2024	64	36	7.1	10.6	<20	0.09
8	25.07.2024	72	41	8.9	13.4	<20	0.11
9	01.08.2024	50	28	6.8	10.5	<20	0.10
10	02.08.2024	79	45	8.7	12.5	<20	0.11
11	08.08.2024	66	38	7.9	11.6	<20	0.12
12	09.08.2024	72	41	8.8	12.5	<20	0.10
13	15.08.2024	80	45	8.2	13.2	<20	0.09
14	16.08.2024	67	38	7.5	11.9	<20	0.10
15	22.08.2024	79	45	8.4	11.5	<20	0.11
16	23.08.2024	63	36	7.7	11.0	<20	0.08
17	02.09.2024	78	44	8.8	13.0	<20	0.10
18	03.09.2024	57	32	7.3	10.6	<20	0.11
19	09.09.2024	72	41	8.5	12.5	<20	0.09
20	10.09.2024	63	36	7.9	9.7	<20	0.11
21	16.09.2024	69	39	8.1	10.3	<20	0.12
22	17.09.2024	80	45	8.7	13.2	<20	0.11
23	23.09.2024	81	46	9.7	13.4	<20	0.12
24	24.09.2024	61	35	8.5	10.5	<20	0.11

Bhendewara Village (AAQ-10)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.07.2024	70	40	6.9	10.9	<20	0.10
2	02.07.2024	54	31	5.5	9.9	<20	0.12
3	09.07.2024	64	36	6.4	10.1	<20	0.11
4	10.07.2024	39	22	4.5	9.9	<20	0.06
5	16.07.2024	47	27	6.6	10.5	<20	0.13
6	17.07.2024	55	31	7.2	10.2	<20	0.12
7	25.07.2024	61	35	5.9	9.9	<20	0.10
8	26.07.2024	69	39	7.7	12.7	<20	0.12
9	02.08.2024	47	27	5.6	9.9	<20	0.11
10	03.08.2024	76	43	7.5	11.8	<20	0.12
11	07.08.2024	63	36	6.7	10.9	<20	0.13
12	08.08.2024	69	39	7.6	11.8	<20	0.11
13	14.08.2024	77	44	7	12.5	<20	0.10
14	15.08.2024	64	36	6.3	11.2	<20	0.11
15	22.08.2024	76	43	7.2	10.8	<20	0.12
16	23.08.2024	60	34	6.5	10.3	<20	0.09
17	03.09.2024	75	43	7.6	12.3	<20	0.11
18	04.09.2024	54	31	6.1	9.9	<20	0.12
19	10.09.2024	69	39	7.3	11.8	<20	0.10
20	11.09.2024	60	34	6.7	9.9	<20	0.12
21	17.09.2024	66	38	6.9	10.2	<20	0.13
22	18.09.2024	77	44	7.5	12.5	<20	0.12
23	24.09.2024	78	44	8.5	12.7	<20	0.13

24	25.09.2024	58	33	7.3	10.2	<20	0.12

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Monitoring Photographs



Project site



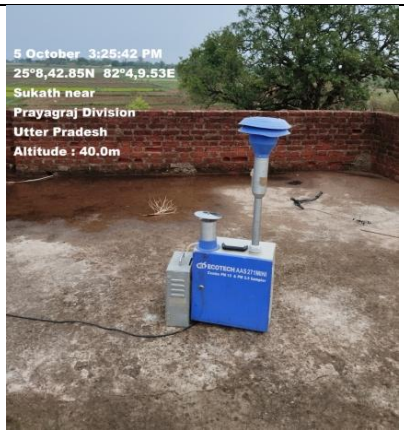
Salaya Kala near Ash Pond



Patai Dandi Village



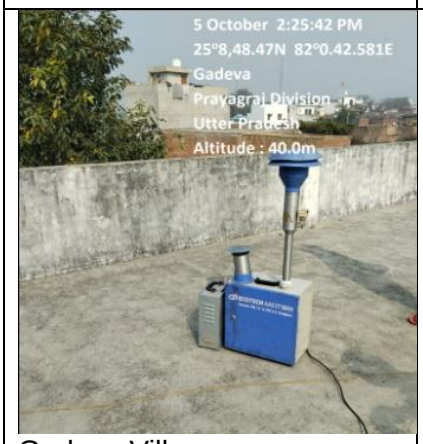
Rithaiya Village



Sukath near meja tehsil



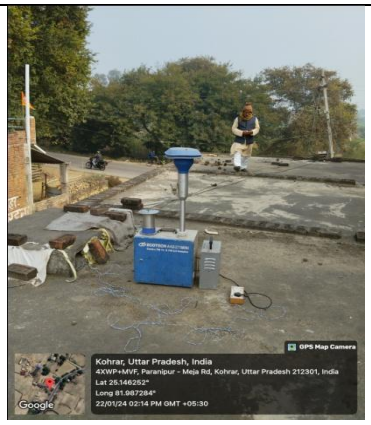
Son Barsi



Gadeva Village

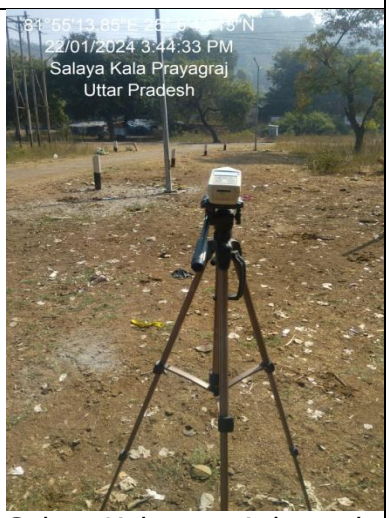
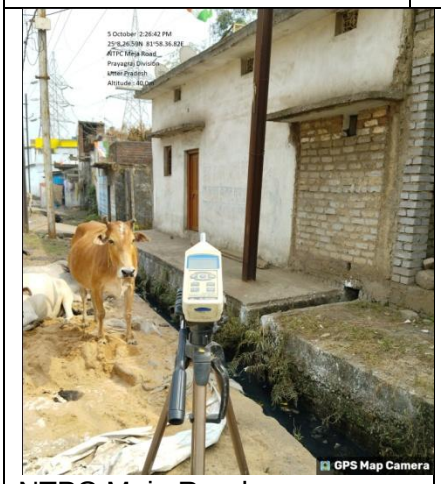
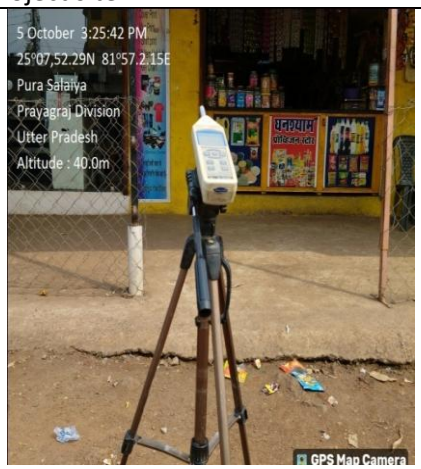
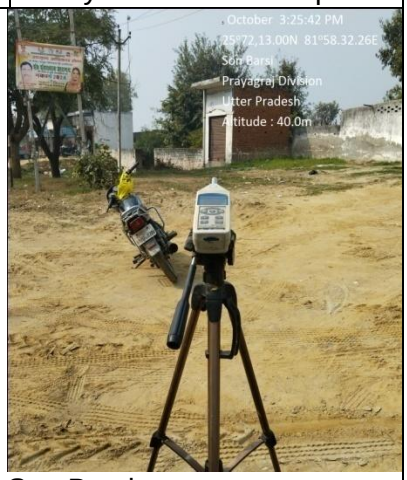
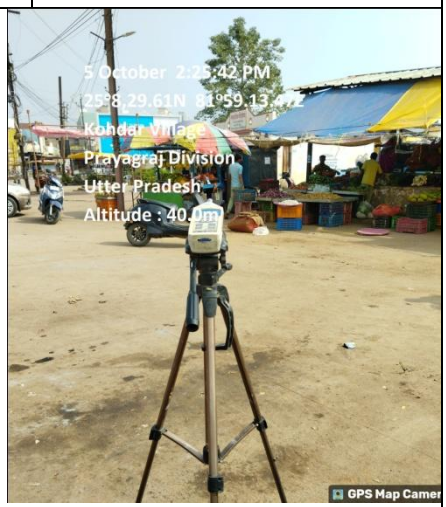


Piprau Village

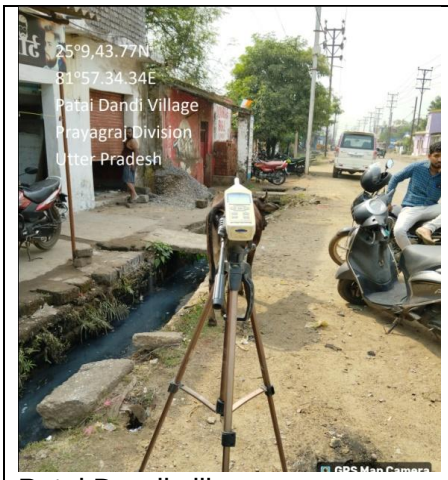


Korhar Village

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	 Project site	 Salaya Kala near Ash pond
 NTPC Meja Road	 Pura Salaiya	 Son Barsi
 SH-135 C Kohdarghat Road	 Piprau village	 Kohdar village

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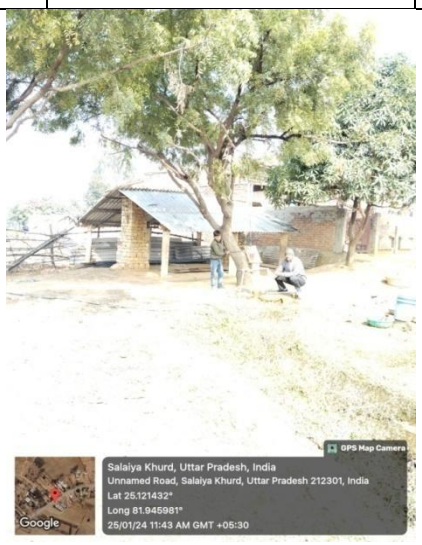
Patai Dandi village



Maikhurd Village



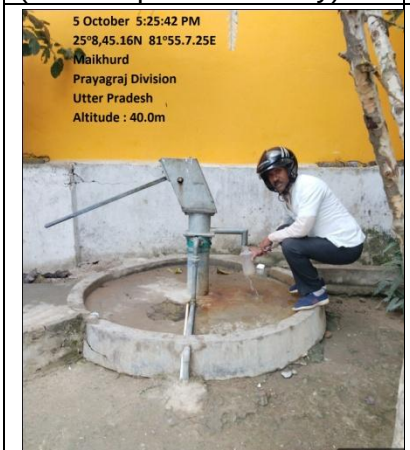
Project Site
(Outside plant boundary)



Salaya Kala near Ash pond



Patai Dandi village
Near Primary school Sulamai



Primary School Mai Khurd



Kohdar near st Joseph school



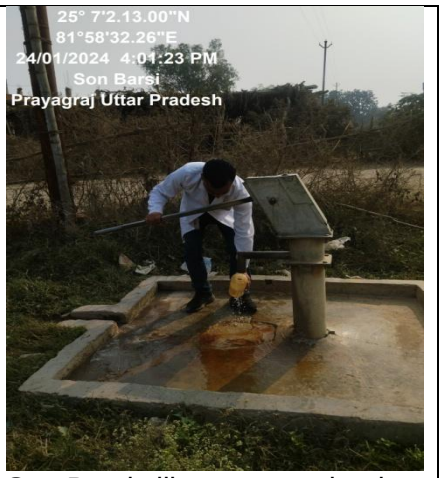
Son Barsi



Dasauti village near Primary School Panasi



Piprau village elementary school



Son Barsi village near school



Rithaiya village



Gadeva Village

Project Site (Meja TPP Main Entry Gate)





Salaya Kala near Ash Pond



Patai Dandi village

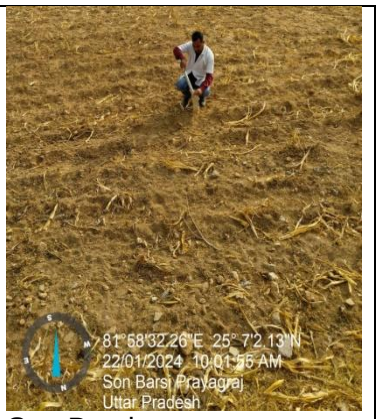
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Rithaiya village



Sukath near meja tehsil



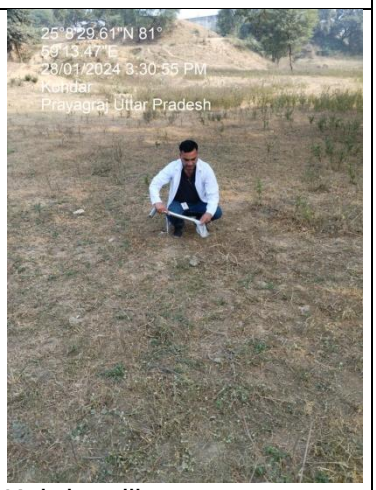
Son Barsi



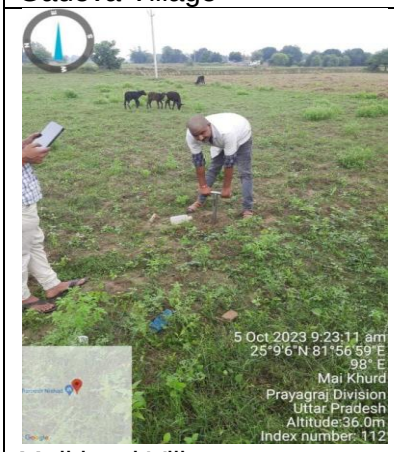
Gadeva Village



Piprau village



Kohdar village



Maikhurd Village

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Pond Near Khodar Pahari









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Photographs of Social Survey

	
Kohdar Village	**Mai Khurd Village**
	
Jhadiyahi Village	**Jhadiyahi Village**
	
Salaiya Khurd Village	**Punchyat office under CSR**

	
Bus Stand under CSR	**Solar Panel and Drinking Water facilities under CSR**

Photographs of Ecological Survey









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Type of vegetation in the study area

ANNEXURE-10: Vision document

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Vision Document of MUNPL MEJA STPP Stage-II 3x800MW)

Meja Urja Nigam Private Limited (MUNPL), a 50:50 Joint Venture Agreement of NTPC Ltd & UPRVUNL was registered as a company on 02.04.2008, with an intent to establish Meja Thermal Power Project. Meja Urja Nigam Private Limited (MUNPL) has an installed capacity of 1320 MW with both units (2X660 MW) under commercial operation since 30.04.2019 and 31.01.2021 respectively. The power plant is located near Villages Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, District-Prayagraj, Uttar Pradesh. Both the units of the power plant have been commissioned.

MUNPL is planning to install a 3X800 MW Coal based thermal power plant near Villages- Kohdar, Mai Khurd and Patai Dandi, Tehsil-Meja, Prayagraj, Uttar Pradesh in line with MoU with govt. of Uttar Pradesh within the existing premises of Meja Thermal Power Project.

Meja TPP subscribes to the vision of the parent company, i.e., NTPC Limited,

"TO BE THE WORLD'S LEADING POWER COMPANY,ENERGIZING INDIA'S GROWTH."

In order to realize the above, the company has adopted the following mission:

"PROVIDE RELIABLE POWER AND RELATED SOLUTIONS IN AN ECONOMICAL, EFFICIENT AND ENVIRONMENT FRIENDLY MANNER, DRIVEN BY INNOVATION AND AGILITY."

NTPC is India's largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India. Since then, it has established itself as the dominant power major with presence in the entire value chain of the power generation business. From fossil fuels it has forayed into generating electricity via hydro, nuclear and renewable energy sources. This foray will play a major role in lowering its carbon footprint by reducing greenhouse gas emissions. To strengthen its core business, the corporation has diversified into the fields of consultancy, power trading, training of power professionals, rural electrification, ash utilisation and coal mining as well. NTPC became a Maharatna company in May 2010.

The total installed capacity of NTPC is 73,874 MW (including JVs). Own stations include 26 coal based, 7 gas based, 1 Hydro, 15 Solar and 1 Small hydroproject. Under JVs and Subsidiaries, NTPC has 9 coal based, 4 gas based, 8 hydro based and 19 renewable energy projects. NTPC has formulated a long-term Corporate Plan to become a 130 GW company

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upto 2032 with diversified fuel mix and a 600 BU company in terms of generation. By 2032, non-fossil fuel-based generation capacity shall make up nearly 50% of NTPC's portfolio. NTPC has been operating its plants at high efficiency levels. As on 31.03.2023 the company has 17% of the total national installed capacity and, it contributes 25% of total power generation of India due to its focus on high efficiency.

Uniquely built on NTPC's vision, our sustainability strategy i.e. The Brighter Plan 2032 aims to accelerate NTPC's efforts in leading the energy transition to a decentralized, decarbonized and digitalized energy future on TBL (Triple Bottom Line) framework and setting new benchmarks in sustainability along the entire energy value chain.

The Brighter Plan 2032 is an integral part of NTPC's core business strategy i.e. Corporate Plan 2032 and aligned with the United Nations Sustainable Development Goals and India's NDCs and other commitments for Sustainability. It provides a broad framework for the company's priorities to meet the challenges in seven focus areas (priority material issues) i.e. Decarbonisation & Air emissions control, Water & Biodiversity Conservation, Circular Economy, Health and Safety, Community Development, Strong Finance & Ethics and Sustainable Supply Chain.

The plan focuses on ensuring the sustainability of NTPC's business operations through co-creating innovative and sustainable solutions for better and greener energy future, leading to profitable business growth, reduced costs and mitigating risks of doing business in VUCA world. This will enable NTPC in delivering a Progressive Business, Greener Environment and Enriched Lives to create shared value for all.

Apart from generating reliable, quality power essential for the development of national economy, expansion of Meja TPP shall also help in the growth of the Northern Region. The vision statement actualization plan for Meja TPP is briefly described as follows:

	NTPC's Vision Statement	**Vision Statement Actualization at Meja-II**
1.	Provide reliable power and related solutions in aneconomical manner	Sustainable power generation maintaining high standards of efficiency and financial strength, over the design life (25 years) and extended life of the project through suitable Renovation and Modernization Programmes from Time to Time.
2.	Efficient and environment friendly operations, driven by innovation	Use of ultra super critical technology for power generation and air cooled condenser, compliance with environmental norms and conservation of natural resources like land, water, fuel. Large scale afforestation with localspecies around the project as far as possible.

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3.	Agility	Contribution in faster growth of company while increasing efforts on Community Development & Corporate Social Responsibility.

At NTPC, People before Plant Load Factor is the mantra that guides all policies. The same is reflected through the three parts of the vision statements of NTPC (as a whole) as well as Meja Urja – Economy, Environment for Everyone. The concept of Corporate Social Responsibility is deeply ingrained in NTPC's culture. Through its expansive CSR initiatives, NTPC strives to develop mutual trust with the communities that surround its power stations.

Meja Urja Nigam Limited is committed to supply quality power keeping in view of a cleaner and healthier environment around the project. The existing Meja TPP Stage-I project has created milestones in CSR/CD for welfare of society. The expansion project will adopt the vision of conservation of water sources, clean and calm surroundings, sustainable economic development and natural resource conservation. A continuous surveillance program on all important environmental parameters is being framed from the pre-feasibility stage with particularreference to the prevailing national standards.

In order to translate the visions of NTPC into reality, following specific programsare envisaged:

Sr No	**NTPC Vision StatementElements**	**Meja TPP Specific Programmes undertaken / planned**
1.	Sustainable power generation maintaining high standards of efficiency and financial strength, over the design life (25 years) and extended life of the project through suitable Renovation and Modernization Programmes from Time toTime	1. Timely commissioning of the project. 2. Operation at high PLF 3. Continual improvement in efficiency and PLF through efficient operation and maintenance and renovation and modernization programs from time to time gaining extended life of the project. 4. Certification of Project with ISO

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2.	Use of ultra super critical technology for power generation, compliance with environmental norms and conservation of natural resources like land, water,fuel etc.	1. Commissioning of all pollution control systems (for air pollution control, water pollution control and noise pollution control) along with the commissioning of plant. 2. Implementation of Ash Utilization Plan. 3. Implementation of Zero Liquid Discharge (ZLD) System by Effluent Treatment, reuse & recyclingof effluents. 4. Compliance with Environmental Norms and Standards. 5. Certification of Project with ISO: 14001. 6. Surveillance of all important environmental parameters on a continuous basis and apply corrective measures. 7. Large scale afforestation around the project as an effective mitigation mechanism.
3	Implementation of NTPC Environment, Water & Rainwater Policy.	1. Design and construction of power project considering the objectives of these policies viz. NTPC Environmental, Water and Rainwater Harvesting Policy. 2. Achieve stewardship in environmental protection.
4.	Community Development & Corporate Social Responsibility	1. Implementation of CSR Plan for local public as perdetails agreed with the State Govt. and otherstakeholders. 2. Activities under Corporate Social Responsibility for improving health care, capacity building, education etc. with special focus on women empowerment, physically challenged & economically weaker section of the Society. 3. Skill based training to local employable youth 4. Construction/renovation of village roads, drains, bus stops, ponds etc. 5. Provision of drinking water in nearby villages. 6. Provision of health services through medical camps, Up-gradation of medical facilities, mobile medical van veterinary etc. 7. Assistance for construction of Toilets and other activities under 'Swachh Bharat Abhiyan', for implementation of sanitation activity in Govt. Schools.

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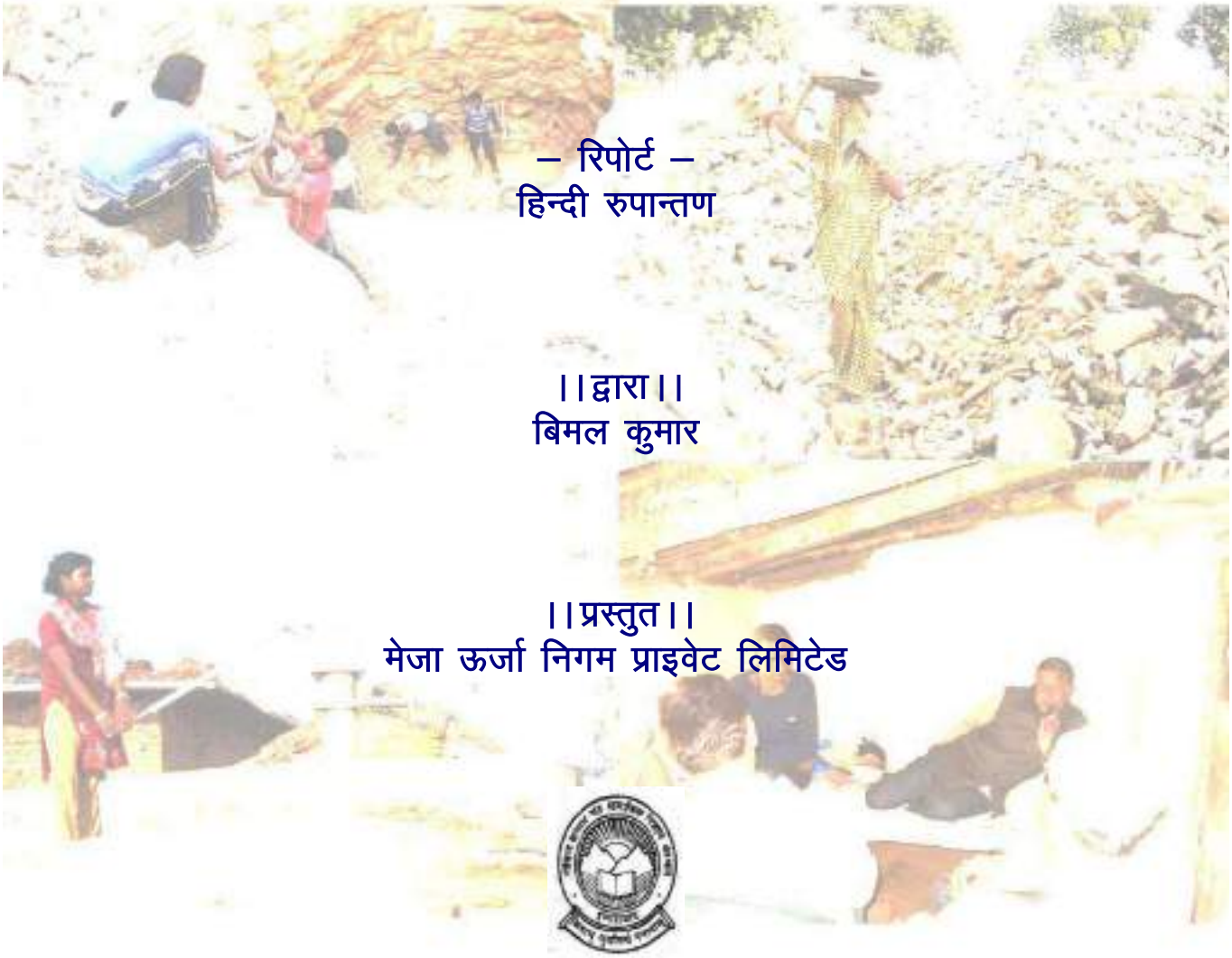
		8. Electrification through Solar streetlights & other solar equipment's. 3. Community Plantation in village Panchayat land, Nagapanchayat land, schools, near water bodies and along the roads.

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ANNEXURE-11: Social Audit-2013, 2015 and 2017

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मेजा ऊर्जा निगम प्राइवेट लिमिटेड हेतु भूमि अधिग्रहण से प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण



– रिपोर्ट –
हिन्दी रुपान्तण

।।द्वारा।।
बिमल कुमार

।।प्रस्तुत।।
मेजा ऊर्जा निगम प्राइवेट लिमिटेड

गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान
इलाहाबाद – 211 019
(इलाहाबाद विश्वविद्यालय का संघटक संस्थान)
दूरभाष: (0532) 2569204, 2569206, फैक्स: (0532) 2569214,
ईमेल: bimal1950@rediffmail.com
2013

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अध्ययन दल

परियोजना निदेशक
बिमल कुमार

शोध अधिकारी
मदन गोपाल गुप्ता
ज्ञान नाथ झा

कम्प्यूटर प्रोग्रामर
संदीप कुमार जायसवाल

शोध सहायक
अनूप कुमार श्रीवास्तव

अनुवादक
अरविन्द सिंह

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प्राक्कथन

''मेजा ऊर्जा निगम प्राइवेट लिमिटेड, इलाहाबाद हेतु भूमि अधिग्रहण द्वारा प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण'' पर यह प्रतिवेदन प्रभावित गांवों, परिवारों तथा व्यक्तियों के पुनर्वास एवं पुनर्स्थापन कार्यक्रम से संबंधित प्रभावों की सम्प्राप्तियों को प्रस्तुत करता है। यह अध्ययन पुनर्वास एवं पुनर्स्थापन गतिविधियों, बुनियादी ढांचे के विकास की गतिविधियों तथा प्रभावित गांवों के व्यक्तियों की तटस्थ गांवों के व्यक्तियों के साथ जीवन गुणवता की तुलनात्मक आकलन को प्रस्तुत करता है।

यह अध्ययन मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा प्रायोजित किया गया था। अध्ययन के लिए हमारे ऊपर विश्वास बनाए रखने के लिए हम मेजा ऊर्जा निगम प्राइवेट लिमिटेड के प्रति आभारी हैं। मेजा ऊर्जा निगम के अधिकारियों एवं कर्मचारियों के सहयोग के बिना इस अध्ययन में गहराई नहीं आ पाती। हम मेजा ऊर्जा निगम के मुख्य कार्यकारी अधिकारी श्री विनोद शर्मा, अपर महा–प्रबन्धक (पुनर्वास एवं पुनर्स्थापन) श्री शिव प्रसाद, अभियंता (पुनर्वास एवं पुनर्स्थापन) श्री दिलराज तथा सहायक प्रबन्धक (पुनर्वास एवं पुनर्स्थापन) श्री के0एन0 मिश्र को अध्ययन को आगे ले जाने के लिए उनके सतत एवं प्रभावी सहयोग के लिए आभार व्यक्त करते हैं।

हम गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान, इलाहाबाद के निदेशक प्रो0 प्रदीप भार्गव के प्रति आभारी हैं, जिन्होंने परियोजना के सुचारू संचालन के लिए अपना समय एवं आवश्यक सहयोग प्रदान किया।

हम प्रभावित क्षेत्रों के गांवों के उन दस सुविधा प्रदाताओं (फैसिलीटेटर्स) के भी आभारी हैं, जिन्होंने गांव की गतिशीलता की जानकारी एवं सूचना के संग्रह में हमारा सहयोग एवं सहायता की।

सबसे बहुमूल्य सहयोग अध्ययन दल ने उन परिवारों एवं समूहों से प्राप्त किया जिन्होंने अपने अथाह अनुभवों एवं भावनाओं को अध्ययन दल के साथ साझा किया। अपने जोखिम के बावजूद वे पूर्ण सहयोग एवं आतिथ्य के साथ आगे आए। यदि रिपोर्ट सफल होता है तो यह चल रहे विकास प्रतिमानों के संदर्भ में विवश अनुकूलन की संभावनाओं को दिखा सकती है।

अध्ययन दल के सदस्यों श्री मदन गोपाल गुप्ता, श्री जी0एन0 झा, श्री अरविन्द सिंह, श्री एस0के0 जायसवाल, एवं श्री अनूप कुमार श्रीवास्तव के निरन्तर प्रयासों, प्रतिबद्धता और समर्पण के बिना अध्ययन पूर्ण नहीं होता। इस अध्ययन का वास्तविक श्रेय अध्ययन दल को जाता है।

तथापि रिपोर्ट में यदि कोई कमी होगी तो वह मेरे हिस्से का कारण है।

मार्च, 2013 — बिमल कुमार

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मेजा ऊर्जा निगम प्राइवेट लिमिटेड हेतु भूमि अधिग्रहण से प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण

अध्ययन की पृष्ठभूमि

एक कल्याणकारी राज्य होने के कारण भारत में लोगों के लाभ के लिए अनेक कार्यक्रमों एवं नीतियों को लागू किया जाता है। आमतौर पर राजनेता एवं नौकरशाह इन नीतियों को नियंत्रित एवं लागू करते हैं। कुछ नीतियां सभी लोगों के लिए सामान्य हैं जबकि कुछ विशेष, जो समाज के विशिष्ट वर्गों के लाभ के लिए होती हैं। इस प्रकार की सभी नीतियों के क्रियान्वयन के लिए धन की व्यवस्था राजकीय कोष से की जाती है, जिसमें प्रत्यक्ष या अप्रत्यक्ष रूप में जनता का योगदान रहता है। इस कोष के निकालने एवं उपयोग पर सामाजिक नियंत्रण को सामाजिक अंकेक्षण कहा जाता है। सामाजिक अंकेक्षण शब्द का प्रयोग 1950 के दशक के पूर्व किया गया। संक्षेप में, यह सरकार या किसी निकाय द्वारा लाभ प्राप्त करने के आशय से वास्तविक लाभान्वित लोगों के लिए किए गए कार्यों को सुनिश्चित करने के कदम को दर्शाता है। यह जहां तक संभव हो संबंधित लोगों की आवश्यकताओं की सहमति एवं पूर्ण समझ के साथ स्थानीय शासन को इससे बाहर किया जाना चाहिए, के सिद्धांत पर आधारित है। यह एक घटना नहीं बल्कि एक प्रक्रिया है। इस प्रकार सामाजिक अंकेक्षण एक समझ, मापन, रिपोर्टिंग एवं सबसे महत्वपूर्ण स्थानीय शासन की दक्षता तथा प्रभाविता में सुधार करना है।

सामाजिक अंकेक्षण की अवधारणा, 'नैगम सामाजिक उत्तरदायित्व' की अवधारणा से भी जुड़ा हुआ है, जिसे विश्व की अधिकांश नैगम संस्थाओं द्वारा अपनाया जा रहा है। यह समुदाय में एक कम्पनी के सामाजिक प्रभाव का निर्धारण करने के लिए एक लोकप्रिय उपकरण बन गया है। यह एक प्रक्रिया है जिसका तात्पर्य है लोगों तक परियोजनाओं/गतिविधियों का लाभ पहुंचाने का प्रयास किया जाता है। सामाजिक अंकेक्षण का मूल उद्देश्य है– यह देखना कि सामाजिक और सार्वजनिक क्षेत्र के उद्यम क्या कर रहे हैं, यह मूल्यांकन करना कि लक्षित लाभार्थियों को मिलने वाली सार्वजनिक संसाधन के वास्तविक आवश्यकताओं का अच्छी तरह उपयोग कैसे हो रहा है, यह पता लगाना कि आवश्यकताओं में कहां सुधार किया जाय तथा वे सुधार किस प्रकार होने चाहिए और लोक कार्यों में जवाबदेही और पारदर्शिता को मजबूत करना। सामान्यतः सरकार एवं सहायक निकाय, निजी उद्यम एवं नागरिक समाज सामाजिक अंकेक्षण प्रतिवेदन के उपयोगकर्ता रहे हैं।

मेजा ऊर्जा निगम प्राइवेट लिमिटेड (एमयूएनपीएल)

मेजा ऊर्जा निगम प्राइवेट निगम लिमिटेड एक संयुक्त उपक्रम है, जो इलाहाबाद जिले के मेजा तहसील में कोयले पर आधारित 2x660 (1320) मेगावाट ताप विद्युत परियोजना को स्थापित करने के लिए एन.टी.पी.सी., लिमिटेड तथा उत्तर प्रदेश राज्य विद्युत ऊर्जा निगम लिमिटेड (UPRVUNL) के मध्य 22 नवम्बर, 2007 को आपसी समझौते पर हस्ताक्षर के उपरांत अस्तित्व में आया। इलाहाबाद के दक्षिण–पश्चिम में इलाहाबाद मिर्जापुर राष्ट्रीय राजमार्ग से 45 किमी0 की दूरी पर मेजा तहसील के कोहड़ार, मई–खुर्द और पताई डांडी

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गांवों में परियोजना स्थल स्थित है। इस स्थल पर इलाहाबाद–मिर्जापुर राष्ट्रीय राजमार्ग से मेजा–खीरी मार्ग द्वारा पहुंचा जा सकता है। परियोजना स्थल $25^0$09′10′′ उत्तरी देशान्तर और $81^0$56′50′′ पूर्वी अक्षांश पर स्थित है। उत्तर मध्य रेलवे इलाहाबाद मुगलसराय क्षेत्र से निकटतम रेलवे स्टेशन 20 किमी0 की दूरी पर स्थित है। प्रस्तावित परियोजना स्थल से निकटतम वाणिज्यिक हवाई अड्डा लगभग 50 किमी0 की दूरी पर स्थित है। यहां से लखनऊ और वाराणसी हवाई अड्डा क्रमशः 250 तथा 120 किमी0 दूर है। 2 अप्रैल, 2008 को दिल्ली और हरियाणा में कम्पनी के रजिस्ट्रार के यहां मेजा ताप संयंत्र परियोजना इकाई का पंजीकरण हुआ। मेजा ऊर्जा निगम उत्तर प्रदेश और अन्य इच्छुक राज्यों, केन्द्र शासित प्रदेशों के लाभ के लिए उत्तर प्रदेश के इलाहाबाद जिले के मेजा तहसील में 660 मेगावाट की दो इकाइयों को शामिल करते हुए सुपर क्रिटिकल तकनीक के साथ 1320 मेगावाट की ताप विद्युत परियोजना स्थापित कर रही है और 12वीं पंचवर्षीय योजना की अवधि में इसके शुरू होने का अनुमान है। उत्तर प्रदेश सरकार ने (2012–17) परियोजना के लिए सिद्धान्त, भूमि और जल की उपलब्धता की मंजूरी दिया है और मेजा ऊर्जा निगम प्राइवेट लिमिटेड ने दीर्घकालिक कोयला आपूर्ति के लिए कोयला मंत्रालय से अनुरोध किया है। परियोजना के लिए आवश्यक भूमि के अधिग्रहण के लिए उत्तर प्रदेश सरकार ने भूमि अधिग्रहण 1884 की धारा–4 के अन्तर्गत दिनांक 22.04.2008 को अधिसूचना प्रकाशित किया।

अध्ययन के उद्देश्य, विधि और कवरेज

वर्तमान सामाजिक अंकेक्षण पुनर्वास कार्ययोजना के अन्तर्गत प्रस्तावित गतिविधियों के क्रियान्वयन की सीमा को मापने एवं कोहड़ार, इसौटा, मईकला तथा सलैया कला ग्राम पंचायत के अन्तर्गत प्रभावित ग्रामों कोहड़ार, इसौटा, पताई डांडी, मईखुर्द, सलैया खुर्द, सलैया कला में पुनर्वास एवं पुनर्स्थापन कार्यक्रमों के प्रभावों का मूल्यांकन करने के लिए किया गया। गैर–आबाद होने के कारण भगदेवा गांव को छोड़ दिया गया। सामाजिक अंकेक्षण अध्ययन पुनर्वास कार्ययोजना के अन्तर्गत निष्पादित गतिविधियों के प्रभावों का मूल्यांकन करता है और परिवर्तन की सीमा का पता लगाता है। यह अध्ययन पुनर्वास एवं पुनर्स्थापन गतिविधियों, बुनियादी विकास की गतिविधियों, सामुदायिक विकास गतिविधियों तथा परियोजना से प्रभावित व्यक्तियों के जीवन स्तर का आकलन है। सामाजिक अंकेक्षण पुनर्वास कार्ययोजना के अन्तर्गत तैयार एवं क्रियान्वित की गयी गतिविधियों के बारे में ग्रामीणों के संतुष्टि के स्तर का आकलन किया गया है जो प्रभावित गांवों में लागू गतिविधियों के विस्तार के लिए एक व्यापक तस्वीर प्रदान करता है। वर्तमान अध्ययन मुआवजे की धनराशि के उपयोग के उपायों एवं साधनों, प्रभावित व्यक्तियों द्वारा उन उपायों एवं साधनों को अपनाए गए एवं उसकी स्थिरता, इस समझ को उपलब्ध करवाना कि भेद्यता में वृद्धि हुई या तो स्थिरता के अंश में सुधार हुआ, इन सबका आकलन करता है। मोटे तौर पर सामाजिक अंकेक्षण प्रतिवेदन का उद्देश्य, जिसे मेजा ऊर्जा निगम प्रा0लि0 के सामाजिक एवं नैतिक निष्पादन को पुनर्वास एवं पुनर्स्थापन के अन्तर्गत विशेष समयावधि में निष्पादित किया गया, को मापना, समझना, रिपोटिंग और अन्ततः सुधारना है। पुनर्वास एवं पुनर्स्थापन के अन्तर्गत प्रभावित गांवों में लागू की गई संबंधित गतिविधियों को मेजा ऊर्जा निगम प्रा0लि0, ग्राम विकास सलाहकार समिति तथा परियोजना से प्रभावित परिवारों के मध्य संकीर्ण अंतराल को समझने में सहायक होगा एवं दोनों पक्षों की दक्षता तथा प्रभाविता को बढ़ाने के लिए सही मार्ग प्रशस्त करेगा।

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अध्ययन के उद्देश्य

सामाजिक अंकेक्षण के मुख्य उद्देश्य निम्न हैं–

- पुनर्वास एवं पुनर्स्थापना के अन्तर्गत प्रस्तावित, कार्यान्वित एवं लम्बित गतिविधियों को मापना।
- परियोजना स्थापित करने के उपरांत मूलभूत विकास के स्तर का आकलन करना तथा सामुदायिक विकास योजना के अनुसार विभिन्न सामुदायिक गतिविधियां और प्रभावित व्यक्तियों तथा स्थानीय जनसंख्या विशेष रूप से स्वास्थ्य, शिक्षा एवं पेयजल को कैसे लाभान्वित किया गया, का आकलन करना।
- आवास अधिग्रहण से प्रभावित परिवारों द्वारा प्राप्त पुनर्वास लाभ का आकलन करना और आवास का स्तर, मूलभूत सुविधाओं तथा वर्तमान पुनर्वास स्थल का उनके पूर्व स्थापित स्तर से मूल्यांकन करना।
- मुआवजे की धनराशि की सहायता से प्रभावित व्यक्तियों द्वारा आय एवं आजीविका बहाली का तथा उनके आजीविका के खोए हुए स्तरों से संबंधित सुधारों का पता लगाना।
- अनुमोदित योजना के अनुसार परियोजना से प्रभावित गांवों में सफलतापूर्वक मूलभूत विकास के सृजन में परियोजना की सीमा का आकलन करना तथा प्रभावित व्यक्तियों एवं स्थानीय जनसंख्या को कैसे लाभान्वित किया गया तथा पुनर्वास एवं पुनर्स्थापन सामुदायिक विकास कार्यक्रम की अवधि में हितधारकों के मध्य संचार एवं परामर्श की प्रकृति का आकलन करना।
- प्रभावित व्यक्तियों के सर्वेक्षण के समय प्रभावित और अप्रभावित गांवों के बीच मूलभूत सुविधाओं का तुलनात्मक विश्लेषण प्रस्तुत करना तथा लक्षित समूहों की आवश्यकता के अनुसार पुनर्वास कार्ययोजना के अन्तर्गत पुनर्वास एवं पुनर्स्थापन गतिविधियों की दक्षता एवं प्रभाविता में वृद्धि करना।
- प्रभावित एवं तटस्थ गांवों के लिए सामाजिक संकेतकों पर आधारित जीवन स्तर के प्रभावी मूल्यांकन के लिए स्वास्थ्य सेवाओं, शिक्षा, आर्थिक अवसरों, आय, मृत्यु एवं प्रजनन दर, मूलभूत सुविधाओं को दर्शाते हुए जीवन स्तर सूचकांक का मानक विकसित करना।
- गांवों की सामाजिक संरचना तथा गांवों के भीतर विशेष समूहों की बदलती किस्मत का आकलन करना और सामुदायिक विकास योजना के अन्तर्गत प्रदान किए गए विभिन्न पैकेजों (संकुलों) की व्यवहार्यता एवं प्रभाविता निर्धारित करना, और
- अध्ययन से प्राप्त अनुभवों के आधार पर भावी पुनर्वास एवं पुनर्स्थापन गतिविधियों के निवेश के लिए सिफारिशें एवं सुझावों को प्रदान करना।

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अध्ययन की विधि

यह अध्ययन द्वितीयक (प्रकाशित एवं अप्रकाशित) तथा प्राथमिक दोनों प्रकार के आंकड़ों पर आधारित है। द्वितीयक आंकड़ों को मेजा ऊर्जा निगम प्राइवेट लिमिटेड तथा ग्राम पंचायत कार्यालय से एकत्र किया गया है। अन्य सूचनाओं के अतिरिक्त द्वितीयक आंकड़ों में गांव के अनुसार एवं विशेष समय सीमा में पुनर्वास कार्य योजना, प्रस्तावित एवं कार्यान्वित गतिविधियों की सूची, भौतिक एवं वित्तीय निष्पादन, हितधारकों की सूची इत्यादि शामिल हैं। जीवन स्तर की तुलना के लिए सिरहिर और जोरा गांवों का चयन किया गया ये दोनों तटस्थ गांव थे अर्थात् मेजा ऊर्जा निगम प्राइवेट लिमिटेड के कार्यक्रमों से प्रभावित नहीं थे। तीन प्रकार के अध्ययन उपकरणों को विकसित किया गया, जिनके नाम हैं– ग्राम अनुसूची, प्रभावित व्यक्तियों की अनुसूची और समूह चर्चा अनुसूची। सभी अध्ययन उपकरणों को टिप्पणियों एवं सुझावों हेतु मेजा ऊर्जा निगम प्राइवेट लिमिटेड को प्रस्तुत किया गया और इन प्रस्तुत किए गए अध्ययन उपकरणों की टिप्पणियों एवं सुझावों को मेजा ऊर्जा निगम प्राइवेट लिमिटेड से प्राप्त किया गया। मेजा ऊर्जा निगम प्राइवेट लिमिटेड के सुझावों को शामिल करते हुए अध्ययन उपकरणों को अंतिम रूप दिया गया। इन गांवों से अपने आप को परिचित कराने तथा सुविधा प्रदाताओं (फैसिलीटेटर्स) की पहचान करने के लिए हमने प्रभावित एवं तटस्थ गांवों का कई बार भ्रमण किया। हमने गांवों के स्थानीय समुदायों तथा मुख्य लोगों की सहायता से सुविधा–प्रदाताओं/एनीमेटर्स की पहचान किया। ये सुविधा–प्रदाता/एनीमेटर अध्ययन क्षेत्र में निवास करते हैं। गोविन्द्र बल्लभ पन्त सामाजिक विज्ञान संस्थान द्वारा दो दिवसीय क्षेत्र आधारित प्रशिक्षण कार्यक्रम का आयोजन किया गया तथा सभी चयनित सुविधा–प्रदाताओं को जमीनी स्तर के सामाजिक अंकेक्षण के पहलुओं पर प्रशिक्षित किया गया। हमने प्राथमिक आंकड़ों को संरचनात्मक अनुसूचियों के माध्यम से एकत्र किया है तथा सूचना एकत्र करने की विधा थी परियोजना से प्रभावित परिवारों/व्यक्तियों का व्यक्तिगत साक्षात्कार। हमने प्रभावित परिवारों के स्तर पर प्रत्येक प्रभावित गांवों से 25 प्रभावित परिवारों का चयन किया, अपने प्रतिदर्श हानि की भरपाई करने के लिए हमने कुछ प्रभावित व्यक्तियों/परिवारों का अतिरिक्त प्रतिदर्श लिया। गांवों में क्रियान्वित सामुदायिक विकास की गतिविधियों का आकलन करने के लिए हमने समूह चर्चा का आयोजन करके गांवों के विभिन्न वर्गों एवं सजातीय समुदायों से सूचनाओं को एकत्र किया है। पुनर्वास कार्य योजना के अन्तर्गत संबंधित क्रियान्वित गतिविधियों के तथ्यों का पता लगाने के लिए इन लक्षित समूहों, ग्राम पंचायत के प्रतिनिधियों एवं लिंग एवं जाति का समुचित प्रतिनिधित्व करने वाले अन्य संबंधित व्यक्तियों को शामिल किया गया। समूह चर्चा आयोजित करने के लिए प्रत्येक लक्षित समूह के लिए प्रायोगिक भ्रमण किया गया तथा इसके लिए समय एवं स्थान का निर्धारण किया गया। अध्ययन दल के दो सदस्यों द्वारा समूह चर्चा का आयोजन किया गया, जिसमें एक ने चर्चा को लिखने का तथा दूसरे ने निगरानी का काम किया। लिखने वाले सदस्य ने समस्त सूचनाओं को अनुसूची/फील्ड डायरी में लिपिबद्ध किया। हमने वायस रिकार्डर का भी उपयोग किया तथा बाद में प्रलेखीकरण के लिए समस्त चर्चाओं को रिकार्ड किया। इन सबसे समूह के समय चर्चा की अवधि में लेखक को छूटी हुई सूचनाओं को लिखने में सहायता प्राप्त हुई। मूलभूत सुविधाओं की उपलब्धता के बारे में जानकारी लेने के लिए हमने प्रत्येक चयनित गांव में ग्राम अनुसूची का उपयोग किया है। हमने फील्ड डायरी के माध्यम से भी कुछ गुणात्मक आंकड़ों को एकत्र किया है। इस तरह की सूचनाएं प्रेक्षण, साक्षात्कार और समूह चर्चा के

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आकार में हैं। सामाजिक अंकेक्षण सर्वेक्षण को सुविधा–प्रदाताओं की सहायता से सभी आठ गांवों कोहड़ार, इसौटा, पताई, डांडी, मईखुर्द, सलैया कला, सलैया खुर्द (प्रभावित गांव) तथा सिरहिर एवं जोरा (तटस्थ गांव) में 20 नवम्बर, 2012 को प्रारंभ किया गया और दिसम्बर, 2012 के अन्त में पूरा किया गया।

अध्ययन में सम्मलित परिवार

अध्ययन के लिए प्रभावित 762 परिवारों से प्रतिदर्श लिया गया है। अध्ययन के उद्देश्यों के अनुसार प्रतिदर्श को तीन प्रकार के नमूनों का गठन किया गया–

(i) अध्ययन की संरचना हेतु प्रतिदर्श संरचना के अन्तर्गत प्रत्येक गांवों से 25–25 परियोजना प्रभावित व्यक्तियों को प्रतिवेदित छः ग्रामों से प्रतिदर्श के रुप में लिया गया है। इस प्रकार कुल 150 प्रभावित व्यक्ति इसमें सम्मिलित हैं।

(ii) जिन दो गांवों में आवास अधिग्रहण के मामले थे, वहां से प्रत्येक गांव से 25 प्रभावित व्यक्तियों को प्रतिदर्श में लिया गया।

(iii) गैर कृषि श्रमिक के अन्तर्गत शत–प्रतिशत उन प्रभावित व्यक्तियों/परिवारों को शामिल किया गया, जो भूमि अधिग्रहण से अप्रत्यक्ष रूप से प्रभावित थे।

गांवों के भीतर परियोजना से प्रभावित परिवारों को जाति प्रतिनिधित्व सुनिश्चित करके व्यवस्थित यादृच्छिक प्रतिदर्श पद्धति के आधार पर प्रतिदर्श लिए गये। गैर आबाद होने के कारण भगदेवा गांव को छोड़ दिया गया है।

तटस्थ गांवों के लिए हमने संस्थान द्वारा जनसंख्या सर्वेक्षण में दिए गए कुल परिवारों की संख्या को आधार बनाया है। जनसंख्या सर्वेक्षण के अनुसार सिरहिर गांव में 411 तथा जोरा गांव में 75 परिवार थे। जीवन स्तर की तुलना के लिए हमने तटस्थ गांवों से 80 परिवारों का सर्वेक्षण किया, जिसमें 51 परिवार सिरहिर तथा 29 परिवार जोरा गांव से थे। प्रभावित गांवों से अध्ययन में सम्मिलित प्रतिदर्श का तालिका 1 में उल्लेख किया गया है।

गांवों में क्रियान्वित सामुदायिक विकास गतिविधियों में निष्पादित आकलन के लिए हमने विभिन्न वर्गों तथा सजातीय समुदायों के साथ समूह चर्चाओं का आयोजन करके सूचनाओं को एकत्र किया है। सभी प्रभावित छः गांवों में 36 समूह चर्चाओं का आयोजन किया गया। गैर–आबाद होने के कारण भगदेवा गांव को छोड़ दिया गया है। हमने अनुसूचित जाति, अन्य पिछड़ी जाति तथा सामान्य जातियों के प्रतिनिधियों से प्रत्येक से सात समूह चर्चाओं का आयोजन किया जबकि अल्पसंख्यक समूहों के मामले में केवल तीन समूह चर्चाओं का आयोजन किया गया क्योंकि केवल दो गांवों में ही अल्पसंख्यक समूह पाए गए। हमने ग्राम पंचायतों तथा ग्राम विकास सलाहकार समिति के प्रतिनिधियों के साथ केवल चार समूह चर्चा आयोजित किया, क्योंकि सभी प्रभावित गांवों में केवल चार ग्राम पंचायते हैं। संरचनात्मक अनुसूची द्वारा चर्चा में प्रत्येक संबंधित समुदायों से औसतन 6–7 व्यक्तियों को शामिल किया गया जिसे विशेष रूप से कहे गए उद्देश्य के लिए तैयार किया गया था। ग्रामवार आयोजित समूह चर्चाओं का उल्लेख तालिका 2 में किया गया है।

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अध्ययन की सम्प्राप्तियाँ

अध्ययन की सम्प्राप्तियों को नीचे प्रस्तुत किया जा रहा है–

समुदाय की जागरूकता

अध्ययन से पता चलता है कि लगभग सभी गांवों में पुनर्वास एवं पुनर्स्थापन नीति संबंधी समुदाय समूहों की जागरूकता बहुत कम थी। मेजा ऊर्जा निगम प्राइवेट लिमिटेड के प्रस्तावित सामुदायिक विकास गतिविधियों के संबंध में 13 उत्तरदाता समूह जागरूक पाए गए, जिसमें से अधिकांश केवल दो गतिविधियों सड़क निर्माण (12 उत्तरदाता) तथा पेयजल (1 उत्तरदाता) की सुविधा उपलब्ध कराने के संबंध में जागरूक थे। इन गांवों में केवल ग्राम पंचायतों ने बताया कि वे जागरूक हैं। यद्यपि मेजा ऊर्जा निगम ने बहुत सी दूसरी गतिविधियों को क्रियान्वित किया, जैसे प्रभावित परिवारों के पाल्यों को आई0टी0आई0 में प्रवेश, स्वास्थ्य परीक्षण शिविर का आयोजन, पशुस्वास्थ्य परीक्षण शिविर, शारीरिक रुप से विकलांग व्यक्तियों हेतु विशेष शिविर, स्कूल बैग एवं स्टेश्नरी इत्यादि का वितरण, किन्तु समुदाय समूहों से विशेष रुप से जब पूछा गया तो उन्होंने इन गतिविधियों के क्रियान्वयन को स्वीकार किया।

क्रियान्वयन पूर्व तैयारीः समुदाय के विचार

लगभग 42 प्रतिशत उत्तरदाता समूहों ने माना कि कार्य के क्रियान्वयन के पूर्व स्थानीय आवश्यकता आकलन का स्तर कम या बहुत कम था, जबकि 11.1 प्रतिशत उत्तरदाता समूहों का विचार था कि स्थानीय आवश्यकता आकलन के लिए कोई कार्य नहीं किया गया। इस प्रकार केवल 47 प्रतिशत उत्तरदाताओं ने महसूस किया कि स्थानीय आवश्यकता आकलन का स्तर अधिक या बहुत अधिक था। इन गतिविधियों के क्रियान्वयन के संबंध में स्थानीय लोगों की सहमति ली गयी या चर्चा की गयी। यह पाया गया कि लगभग 56 प्रतिशत उत्तरदाता समूहों ने महसूस किया कि गतिविधियों के क्रियान्वयन के पूर्व चर्चा का स्तर अधिक अथवा बहुत अधिक था जबकि 30 प्रतिशत का मत है कि यह स्तर कम अथवा बहुत कम था। जहां तक जन–सहभागिता के संबंध में उत्तरदाता समूहों का विचार है, लगभग 53 प्रतिशत उत्तरदाता समूहों ने बताया कि जन सहभागिता का स्तर शून्य था। जबकि लगभग 23 प्रतिशत उत्तरदाता समूहों ने बताया कि यह कम अथवा बहुत कम था।

सामुदायिक विकास कार्यः आवश्यकता, क्रियान्वयन तथा प्रभाव

अध्ययन के दौरान हमने प्रत्येक प्रभावित गांवों में सभी चयनित समुदायों से तीन प्रकार के प्रश्नों को पूछा। पहला प्रश्न कार्य की आवश्यकता तथा इसके क्रियान्वयन के स्तर से संबंधित था। आगे यह कि यदि गतिविधि क्रियान्वित की गयी तो हमने समुदाय से दूसरा प्रश्न पूछा जो कार्य की गुणवत्ता के संतुष्टि स्तर से संबंधित था। तीसरा प्रश्न गांव में क्रियान्वित गतिविधि के प्रभाव से संबंधित था। इस कार्य संरचना के अन्तर्गत 22 सामुदायिक विकास गतिविधियों को सूचीबद्ध किया, जिसे मेजा ऊर्जा निगम प्राइवेट लिमिटेड के पुनर्वास कार्य योजना के अन्तर्गत तैयार किया गया था। मेजा ऊर्जा निगम प्राइवेट लिमिटेड की प्रगति रिपोर्ट के अनुसार पाँच गतिविधियों को अक्टूबर, 2012 तक क्रियान्वित नहीं किया गया था, इनके नाम हैं, सामुदायिक भवन का निर्माण, वर्षा शेड, उच्च प्राथमिक विद्यालय, बालिका इण्टर कालेज, तथा लिंक मार्ग का निर्माण। मेजा ऊर्जा

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निगम प्राइवेट लिमिटेड ने रिपोर्ट किया कि इन गतिविधियों को शीघ्र ही प्रारंभ किया जाएगा। पंचवर्षीय क्रियान्वयन योजना के प्रथम दो वर्ष की अवधि में प्रभावित गांवों में कुल 22 सामुदायिक विकास गतिविधियों में केवल 17 गतिविधियां क्रियान्वित की गयी। इन गतिविधियों की सम्प्राप्तियों को निम्नलिखित अनुच्छेदों के अन्तर्गत प्रस्तुत किया गया है–

(i) गांवों के अंदर सड़क/मार्ग का निर्माण

सभी 36 सामाजिक समूहों ने स्वीकार किया कि इस कार्य की आवश्यकता अपने गांव में थी तथापि केवल 21 सामुदायिक समूहों ने सूचित किया कि इस कार्य को उनके गांवों में क्रियान्वित किया गया जबकि 15 सामाजिक समूहों ने बताया कि उनके गांवों में यह कार्य नहीं किया गया। यह समझना बहुत ही मुश्किल है कि एक ही गांव में कुछ समूहों ने गतिविधियों के क्रियान्वयन को स्वीकार किया जबकि दूसरे समूहों ने नहीं स्वीकार किया। इस तथ्य को जांचने पर हमने पाया कि सामान्यतः एक ही गांव के विभिन्न टोलों में सामाजिक समूह रहते हैं और यदि उनके अपने टोले में गतिविधि क्रियान्वित नहीं की गयी तो उन्होंने बता दिया कि पूरे गांव में गतिविधि का क्रियान्वयन नहीं हुआ। इस प्रकार सामाजिक समूह सदस्यों की गांव की अवधारणा अपने टोले तक ही सीमित थी, पूरे गांव के संबंध में नहीं। कुल 21 सामुदायिक समूहों ने स्वीकार किया कि काम किया गया, 11 समूहों ने बताया की कार्य की गुणवत्ता अच्छी थी जबकि 10 समूहों ने माना कि कार्य की गुणवत्ता औसत स्तर की थी। गौरतलब है कि 20 सामुदायिक समूहों ने माना कि सड़क/रास्तों के निर्माण ने ग्रामीणों को अधिक लाभ प्रदान किया (देखें तालिका 3)।

(ii) स्व–पुनर्स्थापना क्षेत्र में विद्युतीकरण

इस गतिविधि को दो स्व–पुनर्स्थापना क्षेत्र में निष्पादित किया गया जो सलैया कला तथा मईखुर्द गांवों में स्थित थे। इसकी आवश्यकता के बारे में सभी 36 सामुदायिक समूहों ने सूचित किया कि उनके गांवों में इसकी बहुत अधिक जरूरत थी। कुल नौ समूहों के लगभग 78 प्रतिशत (7 समूह) ने माना कि क्रियान्वित कार्य की गुणवत्ता अच्छी थी जबकि केवल 22.2 प्रतिशत (2 समूह) ने विश्वास जताया कि कार्य की गुणवत्ता औसत स्तर की थी। गौरतलब है कि शत प्रतिशत (9 समूह) सामुदायिक समूहों ने माना कि ग्रामीणों को प्रदत्त लाभ उच्च स्तर का था (देखें तालिका 4)।

(iii) पी.सी.सी.सड़क का निर्माण

सभी सामुदायिक समूहों द्वारा सूचना मिली कि कार्य की आवश्यकता का स्तर बहुत अधिक थी। कुल 36 ग्राम समुदाय समूहों के 21 समूहों से सूचना मिली कि काम किया गया। सभी 21 समूहों ने बताया कि इस काम की आवश्यकता गांव में थी। लगभग 48 प्रतिशत (10) सामुदायिक समूहों ने सूचित किया कि क्रियान्वित कार्य की उच्च गुणवत्ता थी तथा इतनी ही संख्या के समूहों ने माना कि कार्य की गुणवत्ता औसत थी। अच्छा खासा 71.4 प्रतिशत अर्थात् 15 सामुदायिक समूहों ने माना कि ग्रामीणों के लिए निर्मित पी.सी.सी. सड़क के लाभ का स्तर उच्च था (देखें तालिका 5)।

(iv) गांवों में जल निकासी हेतु नालियों का निर्माण

हैरत की बात है कि लगभग 80 प्रतिशत सामुदायिक समूहों ने माना कि गांवों के लिए जल निकास के निर्माण की अधिक आवश्यकता थी। समूहों ने माना कि कोहड़ार, सलैया खुर्द तथा सलैया कला गांवों में इसकी अधिक आवश्यकता नहीं थी, ऐसे लोग मुख्यतः

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अनुसूचित जाति एवं अन्य पिछड़ी जाति श्रेणी के थे। कुल 36 समूहों के 55.6 प्रतिशत (अर्थात् 20 समूह) ने स्वीकार किया कि जल निकासी का कार्य किया गया जबकि शेष 44. 6 प्रतिशत (अर्थात् 16 समूहों) ने कार्य के क्रियान्वयन की बात को स्वीकार नहीं किया। लगभग 45 प्रतिशत (अर्थात् 9 समूहों) ने स्वीकारा कि क्रियान्वित कार्य की गुणवत्ता उच्च स्तर की थी, 10 प्रतिशत ने इसे कम बताया जबकि 45 प्रतिशत समूहों ने माना कि कार्य की गुणवत्ता औसत स्तर की थी। ध्यान देने योग्य है कि 70 प्रतिशत (14 समूह) सामुदायिक समूहों ने माना कि निर्मित जलनिकासी से ग्रामीण अधिक लाभान्वित हुए (देखें तालिका 6)।

(vi) तालाबों का निर्माण/जीर्णोद्धार

75 प्रतिशत (अर्थात् 27) सामुदायिक समूहों ने स्वीकार किया कि सभी गांवों में इस कार्य की अत्यधिक आवश्यकता थी। तथापि ध्यान देने योग्य यह है कि ग्राम समूहों में केवल एक गांव सलैया कला में सूचना मिली कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया जबकि अन्य दूसरे गांवों से सभी समूहों ने बताया कि उनके गांवों में इस प्रकार का कोई कार्य नहीं किया गया। सलैया कला गांव के सभी समूहों ने इस किए गए कार्य के बारे में बताया कि कार्य की गुणवत्ता के साथ लाभ का स्तर भी निम्न स्तर की थी (देखें तालिका 7)।

(vii) सामुदायिक कुओं का निर्माण

यह माना जाता है कि सिंचाई एवं पेयजल उद्देश्यों के लिए कुएं जल के स्थायी स्रोत हैं। इस महत्व के कारण सभी गांवों से शत–प्रतिशत समूहों ने स्वीकार किया कि इसकी अत्यधिक आवश्यकता थी। किंतु यह पाया गया कि केवल सलैया कला गांव में यह कार्य किया गया जहॉ विस्थापित लोगों का पुनर्वास किया गया था। आंकड़े बताते हैं कि कुएं का निर्माण प्रगति पर है जिसके कारण कार्य के प्रभाव के संबंध में सूचना एकत्रित नहीं की जा सकी (देखें तालिका 8)।

(viii) पेयजल हेतु हैण्डपम्पों की स्थापना

यह भी प्रेक्षित किया गया कि सभी चयनित गांवों में हैण्डपम्प पेयजल के प्रमुख स्रोत थे। इस कारण सभी गांवों से शत–प्रतिशत समूहों ने स्वीकार किया कि इसकी अत्यधिक आवश्यकता है। गौरतलब है कि सभी 36 समूहों ने सूचित किया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा उनके गांवों में यह कार्य किया गया। आंकड़े बताते हैं कि 86.1 प्रतिशत अर्थात् 31 समूह इस कार्य की गुणवत्ता से अत्यधिक संतुष्ट थे। गौरतलब है कि शत प्रतिशत (36) सामुदायिक समूहों ने भी माना कि हैण्डपम्पों की स्थापना से ग्रामीण अत्यधिक लाभान्वित हुए (देखें तालिका 9)।

(ix) किसान मेला

पुनर्वास कार्य योजना के अन्तर्गत तैयार किए गए किसान मेलों का आयोजन एक महत्वपूर्ण कार्य है। इस कार्य का मूल उद्देश्य आधुनिक कृषि पद्धतियों के बारे में किसानों के जागरूकता स्तर में वृद्धि करना है। सभी गांवों से लगभग 75 प्रतिशत (27) सामुदायिक समूहों ने स्वीकार किया कि गांवों में इसकी अधिक आवश्यकता थी। 25 प्रतिशत (9) समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा किसान मेलों का आयोजन किया गया जबकि 75 प्रतिशत अर्थात् 27 समूहों ने बताया कि इसका आयोजन नहीं किया गया।

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यह आश्चर्य की बात है कि सभी गांवों में सामुदायिक समूहों ने सकारात्मक एवं नकारात्मक दोनों प्रकार की सूचनाएं दी हैं। यह भी देखा जा सकता है कि सकारात्मक प्रतिक्रियाओं की अपेक्षा नकारात्मक प्रतिक्रिया का अनुपात अधिक था। यहां ध्यान देना उचित है कि कार्यक्रम का आयोजन कलस्टर स्तर पर किया गया तथा मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सभी गांवों में सूचना प्रचारित की गयी थी। वास्तव में अधिकांश लोग मेले के मूल उद्देश्य को नहीं समझ पाए इसलिए कार्यक्रम में बड़ी संख्या में उनकी भागीदारी नहीं हो पाई फिर भी उनमें से कुछ ने भागीदारी की। यह भी बताया गया कि कार्यक्रम की वर्ष में आवृत्ति कम हुई, जो इस अंतर के लिए कारण था। कुल 9 समूहों के 66.7 प्रतिशत (अर्थात् 6) सामुदायिक समूहों ने बताया कि आयोजित किए गए मेले की गुणवत्ता औसत स्तर की थी। उल्लेखनीय है कि 88.9 प्रतिशत (अर्थात् 8) सामुदायिक समूहों ने माना कि किसान मेले से किसानों को अत्यधिक लाभ हुआ (देखें तालिका 10)।

(x) स्नान घाट का निर्माण

लगभग 72 प्रतिशत अर्थात् 26 सामुदायिक समूहों ने स्वीकार किया कि इसकी अत्यधिक आवश्यकता थी जबकि 28 प्रतिशत अर्थात् 10 समूहों ने, जो सलैया खुर्द, सलैया कला तथा कोहड़ार गांव के सभी समूहों से संबंधित थे, ने माना कि इसकी कम आवश्यकता थी। यह कार्य केवल मईखुर्द गांव में किया गया जहां सभी सामुदायिक समूहों ने माना कि कार्य की गुणवत्ता उच्च स्तर की थी। उल्लेखनीय है कि मईखुर्द गांव से शत–प्रतिशत (5) सामुदायिक समूहों ने माना कि स्नान घाट का लाभ ग्रामीणों के लिए पर्याप्त है (देखें तालिका 11)।

(xi) मृदा कटाव रोकने हेतु दीवार का निर्माण

अध्ययन में पाया गया कि लगभग 58 प्रतिशत (21) सामुदायिक समूहों ने माना कि इसकी अत्यधिक आवश्यकता थी। यह कार्य केवल मईखुर्द गांव में किया गया जहां पांच में से चार सामुदायिक समूहों ने माना कि कार्य की गुणवत्ता उच्च स्तर की थी। उल्लेखनीय है कि मईखुर्द गांव से शत–प्रतिशत समूहों ने माना कि मृदा कटाव को रोकने हेतु निर्मित दीवार से ग्रामीणों को अत्यधिक लाभ हुआ (देखें तालिका 12)।

(xii) सामान्य स्वास्थ्य परीक्षण शिविर

लगभग 89 प्रतिशत अर्थात् 32 सामुदायिक समूहों ने इसकी अत्यधिक जबकि 11.1 प्रतिशत अर्थात् 4 समूहों ने कम आवश्यकता को स्वीकार किया। उल्लेखनीय है कि सभी 36 समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा इस कार्य को किया गया। 72.2 प्रतिशत समूहों (26) ने विश्वास जताया कि स्वास्थ्य परीक्षण शिविर की गुणवत्ता उच्च स्तर की थी। 80.6 प्रतिशत अर्थात् 29 समूहों ने महसूस किया कि स्वास्थ्य परीक्षण शिविर से ग्रामीणों को अत्यधिक लाभ मिला (देखें तालिका 13)।

(xiii) नेत्र परीक्षण शिविर

यह प्रशंसनीय पाया गया कि सभी 36 समूहों ने स्वीकार किया कि नेत्र परीक्षण शिविर की अत्यधिक आवश्यकता थी तथा सभी 36 समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया। उल्लेखनीय है कि शत प्रतिशत सामुदायिक समूहों ने यह भी विश्वास व्यक्त किया कि आयोजित किए गए नेत्र परीक्षण शिविर की गुणवत्ता उच्च थी। इसी तरह सभी 36 समूहों ने माना कि नेत्र जांच शिविर से ग्रामीणों को अधिक

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लाभान्वित किया गया। हमारा सर्वेक्षण उद्घाटित करता है कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड की इस गतिविधि की अत्यधिक सराहना तथा स्वीकृति मिली तथा सभी गांवों में इसके लाभ एवं गुणवत्ता के संदर्भ में सभी समूहों द्वारा सराहना की गयी (देखें तालिका 14)।

(xiv) पशु स्वास्थ्य परीक्षण शिविर

यह सेवा प्रभावित गांवों से अधिक दूरी पर स्थित होने के कारण ज्यादातर लोग अथवा पशु मालिक इस सेवा का लाभ उठाने में सक्षम नहीं थे। सभी गांवों से लगभग 86 प्रतिशत अर्थात् 31 समूहों ने स्वीकार किया कि इसकी अधिक आवश्यकता थी तथा सभी समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया। 88.9 प्रतिशत अर्थात् 32 समूहों ने माना कि इस सेवा की गुणवत्ता उच्च स्तर की थी। यह भी पाया गया कि 66.7 प्रतिशत (24) समूहों ने माना कि पशु शिविर से ग्रामीणों को अत्यधिक लाभ हुआ (देखें तालिका 15)।

(xv) पशुओं का टीकाकरण/प्रतिरक्षण

लगभग 97 प्रतिशत अर्थात् 35 सामुदायिक समूहों ने स्वीकार किया कि इसकी अत्यधिक आवश्यकता थी। उल्लेखनीय है कि सभी 36 समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया। 88.9 प्रतिशत समूहों ने विश्वास व्यक्त किया कि टीकाकरण शिविर की सेवाओं की गुणवत्ता उच्च थी। विशेषकर 72.2 प्रतिशत अर्थात् 26 समूहों ने माना कि टीकाकरण शिविर से ग्रामीण अधिक लाभान्वित हुए (देखें तालिका 16)।

(xvi) शारीरिक रुप से विकलांग व्यक्तियों को सहायक उपकरणों का वितरण

प्रशंसनीय रुप से सभी 36 समूहों ने स्वीकार किया कि इसकी अत्यंत आवश्यकता थी तथा सभी 36 सामुदायिक समूहों ने बताया कि इस कार्य को मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सम्पादित किया भी गया। उल्लेखनीय है कि 77.8 प्रतिशत अर्थात् 28 समूहों ने विश्वास व्यक्त किया कि विकलांगों को वितरित सहायता की गुणवत्ता उच्च थी तथा 77. 8 प्रतिशत अर्थात् 28 समूहों ने माना कि वितरित सहायता से विकलांग व्यक्तियों के जीवन शैली में काफी सुधार हुआ (देखें तालिका 17)।

समुदायों और प्रभावित परिवारों के पसंदीदा सामुदायिक विकास गतिविधियों का निष्पादन तथा प्रभाव

कुल 36 सामुदायिक समूहों में से 47.2 प्रतिशत समूहों ने बताया कि हैण्डपम्प की स्थापना से गांवों को लाभ प्रदान किया गया जबकि इसौटा और पताई डांडी गांव के समूहों द्वारा इन तथ्यों को नहीं स्वीकार किया गया। अन्य गतिविधियों में जिसे लाभकारी माना गया, उनमें लगभग 50 प्रतिशत (अर्थात् 18) समूहों ने पशु टीकाकरण की गतिविधियों को, 41.7 प्रतिशत स्वास्थ्य परीक्षण शिविर, नेत्र परीक्षण शिविर तथा पी.सी.सी. सड़क के निर्माण के मामले में 27.8 प्रतिशत समूहों ने लाभकारी माना। इसौटा तथा पताई डांडी गांवों के समूहों ने केवल तीन गतिविधियों को लाभकारी माना जबकि सलैया खुर्द तथा सलैया कला गांव के समूहों ने कई अन्य गतिविधियों को भी लाभकारी बताया (देखें तालिका 18)। सामुदायिक समूहों के उत्तरों से पता चलता है कि पेयजल, विद्युतीकरण, जनस्वास्थ्य, पशुओं के स्वास्थ्य तथा साफ–सफाई के क्षेत्र में निष्पादित सामुदायिक विकास गतिविधियों

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से ग्रामीणों के जीवन में परिवर्तन हुआ है (देखें तालिका 19)। कुछ मामलों में यह भी सूचना मिली कि सामुदायिक विकास गतिविधि से अपेक्षित लाभ नहीं पहुंचाया गया। जिसका ज्यादातर कारण मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा भूमि अधिग्रहण के परिणाम थे जिन्होंने भूमि अधिग्रहण के कारण अपनी भूमि एवं रोजगार के अवसरों को खो दिया था। वास्तव में उन्होंने अपेक्षा किया था कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा प्रभावित परिवारों को मूलभूत सुविधाओं एवं रोजगार अवसरों को प्रदान किया जाएगा। इस संबंध में उनके उत्तरों से पता चलता है कि आय अथवा संलग्न अवसरों की अनुपलब्धता, मूलभूत सुविधाओं का विकास तथा इसकी गुणवत्ता से संबंधित अधिकांश कारण उत्तरदायी थे।

यह पाया गया कि प्रभावित परिवार के व्यक्तियों को बच्चों के स्वास्थ्य परीक्षण शिविर तथा पशुओं के टीकाकरण शिविर इन दो कार्यक्रमों से अधिक संख्या में लाभान्वित किया गया। लाभान्वित व्यक्तियों एवं पशुओं की संख्या क्रमशः 611 तथा 604 होने की सूचना मिली। प्रत्येक गांव में लाभान्वित व्यक्तियों/पशुओं का औसत 100 था। प्रभावित परिवारों की सूचना के अनुसार कोई पैसा खर्च किए बिना कुल 297 व्यक्तियों (165 पुरूष और 132 महिला) ने अपने आंख का आपरेशन करवाया। इस कार्य को मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा आयोजित किया गया था। लगभग 95 प्रतिशत प्रतिदर्श परिवारों ने भी बताया कि शिविर के दौरान दवाओं का वितरण किया गया (देखें तालिका 20)। हमने चिन्हित समुदायों से पूछा कि ''अधिग्रहण के पूर्व अवधि की तुलना में यदि आप कुछ नकारात्मक परिवर्तन महसूस करते हैं तो कृपया परिवर्तन के प्रकारों का भी उल्लेख करें?'' इस प्रश्न के उत्तर में लगभग 90 प्रतिशत (206) परिवारों ने माना कि उनका गांव अधिग्रहण पश्चात अवधि में नकारात्मक परिवर्तन का गवाह है, केवल 10 प्रतिशत परिवारों ने इस विचार का समर्थन नहीं किया। लगभग एक चौथाई परिवारों ने विश्वास व्यक्त किया कि अधिग्रहण के कारण पत्थर तोड़ाई का कार्य बंद हो गया और बहुत से लोग बेरोजगार हो गए, 14.6 प्रतिशत ने बताया कि कृषि भूमि खराब हो गयी, 13.1 प्रतिशत ने माना कि खुली जमीन का क्षेत्र कम हो गया तथा 8.3 प्रतिशत परिवारों ने विश्वास व्यक्त किया कि भूमि अधिग्रहण के पश्चात् उनके पुराने रास्ते गायब हो गए (देखें तालिका 21)।

एच्छिक कार्य सूची

आधे से अधिक सामाजिक समूहों ने सुझाव दिया कि ग्रामीणों के लिए रोजगार अवसरों तथा नियमित आधार पर नौकरी का कार्य अत्यधिक महत्वपूर्ण था जिससे प्रभावित परिवारों के आय स्तर में वृद्धि होगी जबकि एक तिहाई समूहों ने उल्लेख किया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा नलकूप प्रदान करना चाहिए इससे गांवों की सिंचाई तीव्रता में वृद्धि होगी। इसी तरह एक तिहाई समूहों ने सुझाव दिया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड को क्षेत्र में अस्पताल की स्थापना करनी चाहिए।

विद्यालयों तथा बच्चों के लिए सामुदायिक विकास गतिविधियों का निष्पादन

मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा कुछ सामुदायिक विकास गतिविधियों का आयोजन किया गया विशेष रूप से प्रभावित गांवों में स्थित विद्यालयों तथा इसमें पढ़ने वाले बच्चों के लिए। ऐसी छः गतिविधियां जिसे मेजा ऊर्जा निगम के पुनर्वास कार्य योजना के अन्तर्गत तैयार किया गया जबकि केवल एक अर्थात् फर्नीचर का वितरण किसी गांव में नहीं किया गया। उल्लेखनीय है कि सभी 36 सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा

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स्कूल बैग का निःशुल्क वितरण किया गया। स्टेशनरी वितरण के मामले में इसे केवल 72.2 प्रतिशत अर्थात् 26 समूहों द्वारा जबकि स्वास्थ्य एवं नेत्र परीक्षण शिविर के मामले में इसे क्रमशः 69.4 प्रतिशत तथा 33.3 प्रतिशत ने निष्पादन की सूचना दी। लगभग 56 प्रतिशत समूहों ने सूचना दी कि गांव में मेजा ऊर्जा निगम द्वारा स्कूल की चहारदीवारी का निर्माण कराया गया (देखें तालिका 22)। अध्ययन से पता चलता है कि स्कूल की चहारदीवारी निर्माण के मामले को छोड़कर पिछले वर्ष की अवधि में इन सभी गतिविधियों का दो बार आयोजन किया गया। वास्तव में स्कूल की चहारदीवारी एक ही समय की गतिविधि है, जिसे स्कूलों की संख्या के आधार पर किया गया है।

विद्यालयों हेतु निष्पादित कार्य की गुणवत्ता एवं समुदायों का संतुष्टि स्तर

निःशुल्क स्कूल बैग के वितरण के मामले में शत–प्रतिशत अर्थात् सभी 36 समूहों ने इसकी गुणवत्ता को बहुत अच्छा अथवा अच्छा माना जबकि स्कूलों की चहारदीवारी निर्माण के मामले में लगभग 85 प्रतिशत अर्थात् 17 समूहों ने इसे अच्छा होना स्वीकार किया। कुल 12 समूहों ने नेत्र परीक्षण शिविर के निष्पादन की सेवा को औसत स्तर का माना। यह भी पाया गया कि समूहों में से 50 प्रतिशत ने माना कि वितरित की गयी स्टेशनरी की गुणवत्ता अच्छी थी। निःशुल्क स्वास्थ्य जांच शिविर के मामले में लगभग 28 प्रतिशत समूहों ने इस सेवा को अच्छा माना, 32 प्रतिशत ने इसे खराब महसूस किया तथा 40 प्रतिशत ने इसकी गुणवत्ता को औसत बताया। स्कूल तथा बच्चों के लिए निष्पादित सामुदायिक विकास गतिविधियों के लाभ के स्तर संबंधी उत्तरों के विश्लेषण से पता चलता है कि स्कूल बैग और स्टेशनरी का निःशुल्क वितरण तथा स्कूल के चहारदीवारी के निर्माण अत्यधिक लाभकारी थे जबकि प्रभावित गांवों में नेत्र परीक्षण कम अथवा बहुत कम स्तर पर लाभान्वित होने की सूचना समुदाय द्वारा दी गयी (देखें तालिका 23)।

विद्यालयों तथा बच्चों हेतु पुनर्वास कार्य योजना की सूची में शामिल न होने वाली महत्वपूर्ण गतिविधियां

सामुदायिक समूहों ने विभिन्न प्रकार की गतिविधियों के संबंध में सुझाव दिया जो स्कूल एवं बच्चों के लिए महत्वपूर्ण थे लेकिन इन्हें सूची में नहीं लिया गया। आधे से थोड़े कम समूहों ने सुझाव दिया कि स्कूली बच्चों को खेल सामग्री तथा पोशाक का वितरण बहुत महत्वपूर्ण कार्य क्षेत्र थे। लगभग एक तिहाई समूहों ने सुझाव दिया कि स्कूली बच्चों को ऊनी वस्त्रों के वितरण से उच्च लाभ प्राप्त होगा (देखें तालिका 24)।

सामुदायिक विकास कार्यों की निगरानी तथा बेहतर क्रियान्वयन हेतु सुझावः समुदायों के विचार

किसी भी कार्यक्रम की सफलता के लिए अनुश्रवण एवं मूल्यांकन एक महत्वपूर्ण घटक है। उल्लेखनीय है कि शत प्रतिशत (36) सामुदायिक समूहों ने स्वीकार किया कि निष्पादन की अवधि में सभी कार्यों की निगरानी स्वयं मेजा ऊर्जा निगम द्वारा किया गया जबकि 52.8 प्रतिशत (19) समूहों ने भी स्वीकार किया कि कार्यों का अनुश्रवण संबंधित ग्राम पंचायत के प्रतिनिधियों द्वारा भी किया गया था। प्रतिदर्श समूहों में हर पांचवें समूह ने बताया कि कार्य की निगरानी सम्बन्धित ठेकेदार के व्यक्तियों द्वारा भी किया गया था। लगभग आधे समूहों ने सुझाव दिया कि इस हेतु मेजा ऊर्जा निगम द्वारा स्थानीय लोगों की भागीदारी सुनिश्चित करनी चाहिए जबकि 17 प्रतिशत समूहों ने सुझाव दिया कि सभी सामुदायिक विकास

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गतिविधियों का निष्पादन ठेकेदारों की अपेक्षा स्वयं मेजा ऊर्जा निगम द्वारा किया जाना चाहिए। आश्चर्य की बात है कि पताई डांडी, इसौटा तथा कोहड़ार गांवों से लगभग 28 प्रतिशत समूहों ने इस प्रश्न का कोई जवाब नहीं दिया (देखें तालिका 25)।

प्रभावित परिवारों पर पुनर्वास कार्य योजना का प्रभाव

सभी (762) प्रभावित व्यक्ति के परिवारों में से 229 प्रभावित व्यक्ति के परिवारों को अध्ययन के लिए चयनित किया गया। इनमें 229 प्रभावित व्यक्ति के परिवारों में 17 प्रतिशत अर्थात् 39 परिवार भूमिहीन हो गये थे, 44.5 प्रतिशत अर्थात् 102 परिवारों ने आंशिक भूमि खो दिया, 20.7 प्रतिशत अर्थात् 47 परिवारों ने भूमि एवं आवासीय भूमि दोनों खो दिया तथा 12.7 प्रतिशत अर्थात् 29 परिवार गैर कृषि श्रमिक की श्रेणी में आ गए, यद्यपि वे पहले कृषि श्रमिक थे (देखें तालिका 26)।

परिवारों के पुनर्स्थापना की स्थिति, रहने की अवधि तथा पुराने निवास स्थल से औसत दूरी

अध्ययन में पाया गया कि उन दो गांवों (सलैया कला और मईखुर्द) के कुल 59 प्रतिदर्श परिवारों को भूमि आबंटित की गयी जिसमें 72.9 प्रतिशत अर्थात् 43 परिवारों को बसाया गया और वे अपने आबंटित भूमि पर रह रहे हैं। यद्यपि मेजा ऊर्जा निगम द्वारा बताया गया कि पुनर्स्थापना उद्देश्य हेतु सभी विस्थापित परिवारों को भूमि प्राप्त हो गयी है। यह भी पाया गया कि नयी जगह पर जहां उन्हें बसाया गया सामान्यतः उनके पुराने निवास स्थल से औसतन 3 किमी0 की दूरी पर स्थित था। इस नयी जगह पर रहने की औसत अवधि दो वर्ष थी। ग्रामवार आंकड़े बताते हैं कि मईखुर्द गांव से प्रतिदर्श शत प्रतिशत परिवार नए स्थान पर बस गए जबकि सलैया कला में केवल 51.5 प्रतिशत प्रतिदर्श परिवार नए स्थान पर बसे (देखें तालिका 27)।

पुनर्वास एवं पुनर्स्थापन हेतु अनुदान तथा प्रभावित व्यक्ति के परिवारों द्वारा अन्य स्थानों पर खरीदी गयी भूमि की स्थिति

प्रभावित व्यक्तियों की विभिन्न श्रेणियों को विभिन्न मद के अन्तर्गत पुनर्वास एवं पुनर्स्थापन हेतु अनुदान प्रदान करने के लिए मेजा ऊर्जा निगम ने पुनर्वास कार्ययोजना के अन्तर्गत विभिन्न प्रावधान बनाया था। 81.7 प्रतिशत अर्थात् 187 परिवारों ने पुष्टि किया कि उन्होंने एकमुश्त अनुदान की राशि प्राप्त किया था, किन्तु वे अनुदान की धनराशि के बारे में प्रत्येक मद के लिए अलग–अलग धनराशि की सूचना नहीं दे सके, जबकि 18.3 प्रतिशत अर्थात् 42 परिवारों ने जागरूकता के अभाव के कारण कोई भी उत्तर देने में असमर्थ थे। अध्ययन से पता चलता है कि प्रत्येक प्रभावित व्यक्ति के परिवारों द्वारा औसतन कुल रू0 3,41,604.00 प्राप्त किया गया था। इसौटा गांव में सबसे अधिक औसत धनराशि (रू0 4,45,214.00) तथा पताई डांडी में सबसे कम धनराशि (रू0 2,32,473.00) प्राप्त की गयी। 96.79 प्रतिशत परिवारों ने बताया कि उन्होंने अनुदान की प्राप्त धनराशि को खर्च कर लिया तथा प्रत्येक परिवार द्वारा औसतन रू0 3,41,264.00 खर्च कर ली गयी थी (देखें तालिका 28)।

यदि भूमि खोने वाले परिवारों ने अपने मूल निवास स्थान से 25 किमी. की परिधि में भूमि खरीदा हो तो उसके पंजीकरण एवं स्टाम्प शुल्क की प्रतिपूर्ति के लिए मेजा ऊर्जा निगम ने प्रावधान बनाया था। प्रभावित व्यक्ति के परिवारों की भेद्यता में कमी करने में मेजा ऊर्जा निगम का यह बहुत व्यावहारिक दृष्टिकोण था। कुल 229 प्रतिदर्श परिवारों में से 10 प्रतिशत अर्थात् 23 प्रभावित व्यक्ति के परिवारों ने भूमि खरीदा था। प्रत्येक परिवारों द्वारा

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औसतन 1.14 एकड़ भूमि खरीदी गयी थी, जो 0.58 एकड़ से लेकर 1.51 एकड़ थी। यहां स्पष्ट करने के लिए महत्वपूर्ण ध्यान देना उचित है कि भूमि खोने वाले परिवारों की पंजीकरण एवं स्टाम्प शुल्क की प्रतिपूर्ति के संबंध में जागरूकता शून्य पायी गयी (देखें तालिका 29)।

परिवारों द्वारा प्राप्त अनुदान धनराशि का विभिन्न प्रयोजनों में व्यय

कुल परिवारों में से 26.3 प्रतिशत ने प्राप्त धनराशि को आवासों के निर्माण एवं मरम्मत में खर्च किया, 10.8 प्रतिशत ने विवाह, 10.3 प्रतिशत ने भूमि के क्रय तथा 7.3 प्रतिशत ने प्राप्त धनराशि को घरेलू जरूरतों के ऊपर व्यय किया जबकि 2.3 प्रतिशत परिवारों ने ऋण के भुगतान में खर्च किया। इस प्रकार समग्र तस्वीर से पता चलता है कि लगभग आधे परिवारों ने अपनी धनराशि को मूल घरेलू आवश्यकताओं या कुछ विलासिता के मदों में व्यय किया (देखें तालिका 30)।

प्राप्त काम के अवसर तथा उनकी संतुष्टि से लाभान्वित परिवार की स्थिति

लगभग 45 प्रतिशत अर्थात् 103 परिवारों ने बताया कि वे मेजा ऊर्जा निगम द्वारा प्रदान किए जाने वाले काम के अवसरों के प्रति सजग थे जबकि 55 प्रतिशत परिवार इसके प्रति सजग नहीं थे। कुल सूचना देने वाले 103 परिवारों में से 74.8 प्रतिशत अर्थात् 77 परिवारों ने बताया कि केवल कुछ लोगों द्वारा यह लाभ प्राप्त किया गया जबकि 25.2 प्रतिशत अर्थात् 26 परिवारों ने बताया कि यह लाभ केवल चुने हुए लोगों को प्राप्त हुआ। अध्ययन से प्रकट होता है कि प्रत्येक गांव से औसतन 21 व्यक्तियों को यह लाभ प्राप्त हुआ जिसमें सबसे अधिक औसत अनुपात सलैया खुर्द तथा सबसे कम कोहड़ार गांव में था। कुल 103 परिवारों में से जिन्होंने बताया कि मेजा ऊर्जा निगम द्वारा कार्य का अवसर उपलब्ध कराया गया, उनमें केवल 58 अर्थात् 56.3 प्रतिशत परिवारों ने बताया कि उनके परिवारों ने लाभ प्राप्त किया अर्थात् रोजगार मिला जबकि 45 अर्थात् 43.7 प्रतिशत परिवारों को इस तरह का लाभ नहीं मिला। उन परिवारों में से वे जिन्हें इस तरह का लाभ प्राप्त हुआ उनमें 70.7 प्रतिशत अर्थात् 41 लाभान्वित परिवारों ने बताया कि इस लाभ के प्रभाव की सीमा कम थी। छः परिवारों ने कम प्रभाव का कारण बताया कि कार्य पूर्ण होने के उपरांत ठेकेदार द्वारा पारिश्रमिक का भुगतान नहीं किया गया जबकि 29.4 प्रतिशत अर्थात् 5 परिवारों ने बताया कि उन्हें मेजा ऊर्जा निगम द्वारा घोषित दर से कम धनराशि का भुगतान किया गया (देखें तालिका 31)।

प्रभावित परिवारों हेतु चयनित चार गतिविधियों के निष्पादन की स्थिति

मेजा ऊर्जा निगम द्वारा पुनर्वास कार्ययोजना के तहत तैयार किए गए चार प्रकार की गतिविधियों के क्रियान्वयन का हमने परीक्षण किया। ये गतिविधियां हैं– (i) पारम्परिक व्यवसाय में कौशल उन्नयन (ii) नए ट्रेडो में आई.टी.आई. प्रशिक्षण (iii) यदि प्रभावित व्यक्ति के परिवारों से निकट आश्रित ने किसी मान्यता प्राप्त शैक्षणिक संस्थान में प्रवेश लिया है तो उसकी शुल्क प्रतिपूर्ति करना और (iv) शारीरिक रूप से विकलांग व्यक्तियों को उपकरणों का वितरण। अध्ययन से प्रकट होता है कि प्रभावित परिवारों ने बताया कि मेजा ऊर्जा निगम द्वारा पारम्परिक व्यवसाय में कौशल उन्नयन तथा शुल्क प्रतिपूर्ति की गतिविधियों को निष्पादित नहीं किया गया जबकि 55 प्रतिशत परिवारों ने बताया कि मेजा ऊर्जा निगम द्वारा आई.टी.आई. का प्रशिक्षण दिया गया तथा 100 प्रतिशत परिवारों ने

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बताया कि शारीरिक रूप से विकलांग व्यक्तियों को उपकरण का वितरण किया गया। कुल 126 परिवारों ने इस बात की पुष्टि किया कि मेजा ऊर्जा निगम ने आई0टी.आई0 के प्रवेश में सहायता किया है, केवल 19.8 प्रतिशत परिवारों ने इस गतिविधि से लाभान्वित होने की सूचना दी जबकि बहुत कम संख्या में (4.8 प्रतिशत) परिवारों ने बताया कि वे आई.टी.आई. में प्रवेश की इंतजारी में थे। उल्लेखनीय है कि लगभग 83 प्रतिशत परिवार या तो आई.टी. आई प्रवेश के योग्य नहीं है या प्रवेश के लिए आई.टी.आई. को भेजी गई सूची में उनके परिवार के सदस्यों का नाम शामिल नहीं किया गया। लगभग 24 प्रतिशत लाभान्वित परिवार इस कार्यक्रम से संतुष्ट थे (देखें तालिका 32)।

सामाजिक, आर्थिक एवं शैक्षिक क्षेत्रों में परिवर्तन

लगभग 67 प्रतिशत प्रभावित व्यक्ति के परिवारों ने बताया कि उन्हें सामाजिक क्षेत्र में कोई परिवर्तन नहीं महसूस हुआ तथा इसी तरह लगभग 64 प्रतिशत ने शैक्षिक मामलों में जबकि 60 प्रतिशत परिवारों ने आर्थिक क्षेत्रों में कोई परिवर्तन महसूस नहीं किया। ग्रामवार विश्लेषण से पता चलता है कि सलैया कला गांव से केवल 4 प्रतिशत परिवारों ने आर्थिक क्षेत्र में सकारात्मक परिवर्तन महसूस किया। समग्र विश्लेषण से पता चलता है कि प्रभावित परिवारों की सामाजिक–आर्थिक स्थिति के उन्नयन के लिए मेजा ऊर्जा निगम को महत्वपूर्ण भूमिका निभानी होगी (देखें तालिका 33)।

सामुदायिक विकास कार्यक्रम के अन्तर्गत चयनित गांवों के संबंध में प्रभावित व्यक्ति के परिवारों का जागरूकता स्तर

यह आश्चर्य की बात है कि केवल 15.3 प्रतिशत अर्थात् 35 प्रभावित व्यक्तियों के परिवार मेजा ऊर्जा निगम द्वारा सामुदायिक विकास कार्यक्रम के अन्तर्गत उनके चयनित गांव के प्रति जागरूक थे जबकि परिवारों की बड़ी संख्या (82 प्रतिशत) ने बताया कि उन्हें इसकी जानकारी नहीं थी। ग्रामवार विवरण से पता चलता है कि सलैया खुर्द और सलैया कला गांवों में जागरूकता स्तर नगण्य था जबकि मईखुर्द गांव में यह सबसे अधिक था (देखें तालिका 34)।

गांव के विकास हेतु पुनर्वास कार्य योजना के अन्तर्गत शामिल न किए जाने वाली प्रभावित परिवारों द्वारा नयी गतिविधियों के संबंध में सुझाव

लगभग 60 प्रतिशत (137) उत्तरदाता परिवारों ने विभिन्न प्रकार की गतिविधियों का सुझाव दिया जबकि 40 प्रतिशत (90) परिवारों ने विश्वास व्यक्त किया कि पुनर्वास कार्य योजना के अन्तर्गत तैयार की गयी गतिविधियां पर्याप्त थीं। उत्तरों के विश्लेषण से पता चलता है कि लगभग 80 प्रतिशत परिवारों ने सुझाव दिया कि मेजा ऊर्जा निगम द्वारा प्रभावित परिवारों को काम का अवसर प्रदान करना चाहिए, 10.2 प्रतिशत परिवारों ने क्षेत्र में वृक्षारोपण का सुझाव दिया तथा प्रभावित परिवारों को भूमि का पट्टा क्रमशः उपलब्ध कराना चाहिए (देखें तालिका 35)।

गांव की संरचनात्मक परिवर्तन के संबंध में प्रभावित व्यक्ति के परिवारों के विचार और इसके कारण

हमने परिवारों से प्रश्न पूछा कि, ''क्या इस भूमि अधिग्रहण के कारण गांव की सामाजिक संरचना में कोई परिवर्तन हुआ है?'' इस प्रश्न के उत्तर में लगभग 54.1 प्रतिशत परिवारों

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ने विश्वास व्यक्त किया कि गांव पहले की तरह है जबकि 43.7 प्रतिशत परिवारों ने महसूस किया कि यह पहले से खराब हो गया है तथा सलैया खुर्द, सलैया कला और मईखुर्द गांवों से केवल 2.2 प्रतिशत परिवारों ने महसूस किया कि पहले की अपेक्षा सामाजिक सुधार हुआ है। परिवारों द्वारा बताये गए सकारात्मक परिवर्तनों को बाक्स में दर्शाया गया है–

परिवारों द्वारा कथित सकारात्मक परिवर्तन

- अब सभी लोग विकास के बारे में सोच रहे हैं जबकि पहले ऐसा नहीं था।
- मेजा ऊर्जा निगम द्वारा बहुत लोगों को रोजगार का अवसर मिला।
- यदि बच्चों को आई.टी.आई. में प्रशिक्षण मिले तब परिवर्तन देखा जा सकता है।
- वर्तमान समय में गांव का विद्युतीकरण हो गया है और ग्रामीणों को बेहतर विद्युत आपूर्ति मिल रही है।
- गांव के लिए बेहतर सड़क की सुविधा उपलब्ध है।
- अब गांव में बेहतर जल निकासी की सुविधा है तथा गांव स्वच्छ एवं साफ हो गए हैं।

प्रभावित एवं तटस्थ गांवों में लोगों की जीवन गुणवत्ता

विश्लेषण से पता चलता है कि प्रभावित गांवों में साक्षरता दर, परिवार संरचना (संयुक्त), वार्षिक आय एवं व्यय, मूलभूत सुविधाओं की उपलब्धता (पेयजल, बिजली तथा शौचालय) और आवास की गुणवत्ता बेहतर है। प्रभावित गांवों में परिवार की वार्षिक आय एवं व्यय अधिक था क्योंकि संभवतः उन्हें मेजा ऊर्जा निगम द्वारा अधिग्रहीत अपनी भूमि का अच्छा मुआवजा प्राप्त हुआ था। हालांकि यह संतोष की बात है कि मेजा ऊर्जा निगम द्वारा की गयी गतिविधियों के कारण मूलभूत सुविधाओं के मामले में प्रभावित गांव बेहतर थे। दूसरी ओर तटस्थ गांवों में लिंगानुपात, प्रति व्यक्ति आय, गरीबी अनुपात, व्यावसायिक पदानुक्रम और जोत का औसत आकार बेहतर होना पाया गया। (देखें तालिका 36)

प्रभावित एवं तटस्थ गांवों में मूलभूत सुविधाओं की उपलब्धता

प्रभावित गांवों में मूलभूत सुविधाओं के स्थिति की तुलना तटस्थ गांवों से करने पर हमने पाया कि प्रभावित गांवों में प्रति 10,000 की जनसंख्या पर पक्की सड़क की लम्बाई 21.2 किमी थी जबकि तटस्थ गांवों में प्रति 10,000 की जनसंख्या पर यह लम्बाई 13.8 किमी थी। हालांकि समग्र आंकड़े कुछ हद तक गुमराह कर रहे हैं। क्योंकि तालिका में देखा जा सकता है कि प्रभावित गांव इसौटा में प्रति दस हजार की जनसंख्या पर पक्की सड़क की लम्बाई 4.2 किमी थी जबकि तटस्थ गांव जोरा में प्रति दस हजार की जनसंख्या पर पक्की सड़क की लम्बाई 36.8 किमी थी। हालांकि तटस्थ गांवों में प्रति दस हजार की जनसंख्या पर खड़ंजा मार्ग की लम्बाई अधिक होना पाया गया। इसी प्रकार तटस्थ गांवों में प्रति दस हजार की जनसंख्या पर कुओं एवं तालाबों की संख्या सामान्यतः अधिक पायी गयी। जहां तक हैण्डपम्प का संबंध है तो दोनों श्रेणी के गांवों में इसकी संख्या में विभिन्नता है तथा इस संबंध में निश्चित प्रवृत्ति नहीं दिखाई दी (देखें तालिका 37)।

वित्तीय प्रगति

मेजा ऊर्जा निगम द्वारा अक्टूबर, 2012 तक किए गए व्यय का विवरण प्रदान किया गया। यह सूचना दर्शाता है कि मेजा ऊर्जा निगम द्वारा पुनर्वास एवं पुनर्स्थापना मद के अन्तर्गत

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स्वीकृत बजट उ0प्र0 सरकार को स्थानान्तरित किया जा चुका है। मेजा ऊर्जा निगम द्वारा प्रदत्त सूचना के अनुसार कुल स्वीकृत बजट 4745 लाख रू0में केवल 15.5 प्रतिशत (रु0 737.04 लाख) विभिन्न मदों के अन्तर्गत व्यय किया गया। यह आश्चर्यजनक है कि प्रदेश सरकार ने पुनर्वास एवं पुनर्स्थापना उद्धेश्यों हेतु केवल 40.6 प्रतिशत (रु0 1382 लाख धनराशि) व्यय किया। प्रारम्भिक चरण की अवधि में प्रभावित लोगों ने तीव्र निवारण की अपेक्षा की थी। इसलिए पंचवर्षीय पुनर्वास कार्य योजना निष्पादन के प्रथम दो वर्ष की अवधि में अधिक धनराशि आवंटित की जानी चाहिए थी। वैसे भी प्रति वर्ष कुल बचत का न्यूनतम 20 प्रतिशत आबंटन किया जानाा चाहिए था। यदि प्रभावित परिवारों की अपेक्षा को देखा जाय तो चालू वित्तीय वर्ष की अवधि में बकाए का भी आबंटन हो तथा वर्ष 2012–13 में कुल बजट का कम से कम 60 प्रतिशत व्यय होना चाहिए।

संस्तुतियां

प्रभावित गांवों में प्रस्तावित क्रियान्वित गतिविधियों के संबंध में प्रभावित समुदायों को और अधिक जागरूक करने की आवश्यकता है।

- इसे पूर्व निष्पादन चरण तथा पश्चात निष्पादन चरण दोनों अवधि में किया जा सकता है। इस उद्देश्य के लिए समूह–चर्चा का आयोजन किया जा सकता है। इस प्रयोजन के लिए गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान के विशेषज्ञों की सेवाओं को लेने का अनुरोध किया जा सकता है जो ऐसे परिचर्चाओं के आयोजन में दक्ष हैं। इससे जन सहभागिता सुनिश्चित करने में सहायता मिलेगी।

- पुनर्वास एवं पुनर्स्थापन गतिविधियों का कार्ययोजना तैयार करने के दौरान प्रभावित समुदाय की प्राथमिकताओं को सुनिश्चत करना आवश्यक है।

- मेजा ऊर्जा निगम को कार्य की प्रगति की निगरानी में स्थानीय लोगों की भागीदारी भी सुनिश्चित करनी चाहिए।

- पुनर्वास एवं पुनर्स्थापन के अन्तर्गत प्राप्त अनुदान तथा मुआवजे की धनराशि से प्रभावित व्यक्ति के परिवारों को उत्पादक परिसम्पत्तियाँ खरीदने के लिए प्रोत्साहन और मार्गदर्शन दिया जाना चाहिए। इसके अतिरिक्त प्रभावित परिवारों को निर्धारित कौशल प्रशिक्षण तथा मौजूदा कौशल उन्नयन प्रदान करने के लिए अधिक जोर देना चाहिए। मेजा ऊर्जा निगम को एक 'सहायक इकाई' का भी सृजन करना चाहिए जिससे प्रभावित व्यक्तियों को रोजगार प्राप्त करने में सहायता मिल सके।

- आई.टी.आई. के अतिरिक्त कम शिक्षित युवाओं को व्यावसायिक प्रशिक्षण देने के लिए कुछ गैर सरकारी संगठनों से सम्पर्क किया जा सकता है।

- प्रभावित लोग आरंभिक चरण में तीव्र निवारण की अपेक्षाएं रखते थे। इसलिए पंचवर्षीय पुनर्वास कार्य निष्पादन योजना के प्रथम दो वर्ष की अवधि में अधिक धनराशि आबंटित की जानी चाहिए। यदि प्रभावित परिवारों की अपेक्षाएं पूर्ण हो रही हों तो पिछले वित्तीय वर्षों की लम्बित बजट धनराशि को चालू वर्ष के लिए मुक्त किया जा सकता है। आबंटित बजट का कम से कम 60 प्रतिशत धनराशि का व्यय वित्तीय वर्ष 2012–13 तक कर लेना चाहिए।

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परिशिष्ट

Table 1: Coverage of Project Affected Persons/Families under R&R Categories

Villages	Land		Land + HSOs		Non-Ag.		Total		
	Total	Sample	Total	Sample	Total	Sample	Total	Sample	As % of total
Kohdar	121	25	0	0	0	0	121	25	20.7
Esauta	65	25	0	0	7	7	72	32	44.4
Pataidandi	137	25	0	0	2	2	139	27	19.4
Maikhurd	140	24	35	26	0	0	175	50	28.6
Salaiyakala	61	9	42	34	11	11	114	54	47.4
Salaiya Khurd	80	32	0	0	9	9	89	41	46.1
Total	656	140	77	60	29	29	762	229	30.1

Table 2: Village-wise Coverage of Focus Grouped Discussions (FGDs)

Representatives from Communities	Kohdar	Esauta	Patai Dandi	Maikhurd	Salaiya Kala	Salaiya Khurd	Total
Scheduled Caste	2	1	1	1	1	1	7
Backward Caste	2	1	1	1	1	1	7
Minority	2	0	0	0	0	1	3
General	2	1	1	1	1	1	7
Women	2	1	1	1	1	1	7
GP/VDAC	1	1	0	1	0	1	4
Total	11	5	5	5	4	6	36

Table 3: Perceptions of Communities regarding Construction of Road/Pathway Activity

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Very much	6	4	5	5	5	11	36
Whether work executed or not	Done	6	4	5	3	3	0	21
	Not done	0	0	0	2	2	11	15
Satisfaction Levels regarding quality of work	Average	3	2	2	2	1	0	10
	Good	3	2	3	1	2	0	11
Impact of work on villagers	Less	0	0	0	0	1	0	1
	Much	6	4	5	3	2	0	20
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Very much	7	7	3	7	7	5	36
Whether work executed or not	Done	4	4	1	5	5	2	21
	Not done	3	3	2	2	2	3	15
Satisfaction Levels regarding quality of work	Average	3	2	0	3	1	1	10
	Good	1	2	1	2	4	1	11
Impact of work on villagers	Less	1	0	0	0	0	0	1
	Much	3	4	1	5	5	2	20

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Table 4: Perceptions of Communities regarding Electrification in the Villages

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Very much	6	4	5	5	5	11	36
Whether work executed or not	NA	6	0	0	5	5	11	27
	Done	0	4	5	0	0	0	9
Satisfaction Levels regarding quality of work	Average	0	1	1	0	0	0	2
	High	0	3	4	0	0	0	7
Impact of work on villagers	Much	0	1	2	0	0	0	3
	Very Much	0	3	3	0	0	0	6
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Very much	7	7	3	7	7	5	36
Whether work executed or not	NA	5	5	3	5	5	4	27
	Done	2	2	0	2	2	1	9
Satisfaction Levels regarding quality of work	Average	1	1	0	0	0	0	2
	High	1	1	0	2	2	1	7
Impact of work on villagers	Much	0	1	0	1	0	1	3
	Very Much	2	1	0	1	2	0	6

Table 5: Perceptions of Communities regarding Construction of PCC Road Activity

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Very much	6	4	5	5	5	11	36
Whether work executed or not	Done	6	4	5	1	2	3	21
	Not done	0	0	0	4	3	8	15
Satisfaction Levels regarding quality of work	Low	1	0	0	0	0	0	1
	Average	4	0	3	0	1	2	10
	High	1	4	2	1	1	1	10
Impact of work on villagers	Less	1	1	1	0	1	2	6
	Much	3	3	2	1	1	1	11
	Very much	2	0	2	0	0	0	4
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Very much	7	7	3	7	7	5	36
Whether work executed or not	Done	5	4	2	4	4	2	21
	Not done	2	3	1	3	3	3	15
Satisfaction Levels regarding quality of work	Low	1	0	0	0	0	0	1
	Average	2	1	1	3	1	2	10
	High	2	3	1	1	3	0	10
Impact of work on villagers	Less	1	2	1	2	0	0	6
	Much	3	2	1	1	4	0	11
	Very much	1	0	0	1	0	2	4

Table 6: Perceptions of Communities regarding Construction of Drainage

Responses of Communities by Group		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Less	1	1	0	0	0	4	6
	Much	5	3	5	5	5	7	30
Whether work executed or not	Done	6	4	5	1	1	3	20
	Not done	0	0	0	4	4	8	16
Satisfaction Levels regarding quality of work	Low	1	0	1	0	0	0	2
	Average	3	2	2	0	1	1	9
	High	2	2	2	1	0	2	9
Impact of work on villagers	Less	3	0	0	0	1	2	6
	Much	3	2	3	1	0	1	10
	Very much	0	2	2	0	0	0	4
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Less	2	2	1	1	0	0	6
	Much	5	5	2	6	7	5	30
Whether work executed or not	Done	4	4	2	4	3	3	20
	Not done	3	3	1	3	4	2	16
Satisfaction Levels regarding quality of work	Low	0	0	1	1	0	0	2
	Average	1	2	0	2	2	2	9
	High	3	2	1	1	1	1	9
Impact of work on villagers	Less	2	1	0	1	0	2	6
	Much	2	1	2	2	2	1	10
	Very much	0	2	0	1	1	0	4

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Table 7: Perceptions of Communities regarding Construction or Renovation of Ponds

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Less	1	4	0	0	0	4	9
	Much	5	0	5	5	5	7	27
Whether work executed or not	Done	0	4	0	0	0	0	4
	Not done	6	0	5	5	5	11	32
Quality of work	Low	0	4	0	0	0	0	4
Impact of work on villagers	Less	0	4	0	0	0	0	4
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Less	2	2	1	2	2	0	9
	Much	5	5	2	5	5	5	27
Whether work executed or not	Done	1	1	0	1	1	0	4
	Not done	6	6	3	6	6	5	32
Quality of work	Very less	1	1	0	1	1	0	4
Impact of work on villagers	Less	1	1	0	1	1	0	4

Table 8: Perceptions of Communities regarding Construction Well

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Very much	6	4	5	5	5	1	36
Whether work executed or not	Done	0	4	0	0	0	0	4
	Not done	6	0	5	5	5	11	32
Quality of work	Under construction	0	4	0	0	0	0	4
Impact of work	Not applicable	0	4	0	0	0	0	4
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Very much	7	7	3	7	7	5	36
Whether work executed or not	Done	1	1	0	1	1	0	4
	Not done	6	6	3	6	6	5	32
Quality of work	Under construction	1	1	0	1	1	0	4
Impact of work	Not applicable	1	1	0	1	1	0	4

Table 9: Perceptions of Communities regarding Installation of Hand-Pumps for Drinking Water

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Very much	6	4	5	5	5	11	36
Execution of work	Done	6	4	5	5	5	11	36
Satisfaction Levels regarding quality of work	Average	2	1	0	1	0	1	5
	High	1	1	1	1	1	6	11
	Very High	3	2	4	3	4	4	20
Impact of work on villagers	Much	0	0	0	4	4	8	16
	Very much	6	4	5	1	1	3	20
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Very much	7	7	3	7	7	5	36
Execution of work	Done	7	7	3	7	7	5	36
Satisfaction Levels regarding quality of work	Average	1	1	0	2	1	0	5
	High	2	3	3	3	0	0	11
	Very High	4	3	0	2	6	5	20
Impact of work on villagers	Much	3	2	1	4	4	2	16
	Very much	4	5	2	3	3	3	20

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Table 10: Perceptions of Communities regarding Organize Farmers Fair

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	None	1	0	0	0	0	0	1
	Less	3	2	0	0	0	3	8
	Much	2	2	5	5	5	8	27
Whether work executed or not	Done	2	1	1	1	1	3	9
	Not done	4	3	4	4	4	8	27
Satisfaction Levels regarding quality of work	Low	0	0	0	0	1	0	1
	Average	1	1	1	1	0	2	6
	High	1	0	0	0	0	1	2
Impact of work on villagers	None	0	0	1	0	0	0	1
	Very much	1	1	0	1	1	2	6
	Less	1	0	0	0	0	1	2
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	None	0	0	0	0	0	1	1
	Less	2	1	2	2	1	0	8
	Much	5	6	1	5	6	4	27
Whether work executed or not	Done	1	2	2	1	1	2	9
	Not done	6	5	1	6	6	3	27
Satisfaction Levels regarding quality of work	Low	0	0	0	0	0	1	1
	Average	1	2	0	1	1	1	6
	High	0	0	2	0	0	0	2
Impact of work on villagers	None	0	1	0	0	0	0	1
	Very less	1	1	1	1	0	2	6
	Less	0	0	1	0	1	0	2

Table 11: Perceptions of Communities regarding Construction of Bathing Ghat

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Less	2	4	0	0	0	4	10
	Much	4	0	5	5	5	7	26
Whether work executed or not	Done	0	0	5	0	0	0	5
	Not done	6	4	0	5	5	11	31
Quality of work	High	0	0	5	0	0	0	5
Impact of work on villagers	Much	0	0	2	0	0	0	2
	Very much	0	0	3	0	0	0	3
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Less	2	2	1	2	3	0	10
	Much	5	5	2	5	4	5	26
Whether work executed or not	Done	1	1	0	1	1	1	5
	Not done	6	6	3	6	6	4	31
Quality of work	High	1	1	0	1	1	1	5
Impact of work on villagers	Much	1	0	0	0	1	0	2
	Very much	0	1	0	1	0	1	3

Table 12: Perceptions of Communities regarding Construction of Wall for Retaining of Soil

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	None	1	0	0	0	0	0	1
	Less	5	4	0	5	0	0	14
	Much	0	0	5	0	5	11	21
Whether the work executed or not	Done	0	0	5	0	0	0	5
	Not done	6	4	0	5	5	11	31
Satisfaction Levels regarding quality of work	Average	0	0	1	0	0	0	1
	High	0	0	4	0	0	0	4
Impact of work on villagers	Much	0	0	2	0	0	0	2
	Very much	0	0	3	0	0	0	3
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	None	0	0	0	0	0	1	1
	Less	6	6	3	6	6	3	30
	Much	1	1	0	1	1	1	5
Whether the work executed or not	Done	1	1	0	1	1	1	5
	Not done	6	6	3	6	6	4	31
Satisfaction Levels regarding quality of work	Average	0	0	0	0	1	0	1
	High	1	1	0	1	0	1	4
Impact of work on villagers	Much	0	1	0	0	0	1	2
	Very much	1	0	0	1	1	0	3

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Table 13: Perceptions of Communities regarding Organized Health Check-up Camps

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Less	0	2	0	0	0	2	4
	Much	6	2	5	5	5	9	32
Execution of Work	Done	6	4	5	5	5	11	36
Satisfaction Levels regarding quality of work	Average	1	1	0	2	2	4	10
	High	5	3	5	3	3	7	26
Impact of work on villagers	Less	1	0	0	2	1	3	7
	Much	2	1	3	2	3	5	16
	Very much	3	3	2	1	1	3	13
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Less	1	1	1	1	0	0	4
	Much	6	6	2	6	7	5	32
Execution of Work	Done	7	7	3	7	7	5	36
Satisfaction Levels regarding quality of work	Average	2	3	0	1	3	1	10
	High	5	4	3	6	4	4	26
Impact of work on villagers	Less	0	3	0	2	1	1	7
	Much	3	2	2	2	4	3	16
	Very much	4	2	1	3	2	1	13

Table 14: Perceptions of Communities regarding Organized Eye Check-up Camps

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Much	6	4	5	5	5	11	36
Executed of Work	Done	6	4	5	5	5	11	36
Quality of Work	High	6	4	5	5	5	11	36
Impact of work on villagers	Much	4	1	3	3	3	8	22
	Very much	2	3	2	2	2	3	14
		SC	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Much	7	7	3	7	7	5	36
Executed of Work	Done	7	7	3	7	7	5	36
Quality of Work	High	7	7	3	7	7	5	36
Impact of work on villagers	Much	3	3	3	3	5	5	22
	Very much	4	4	0	4	2	0	14

Table 15: Perceptions of Communities regarding Organized Health Check-up Camps for Animals

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Less	2	2	0	0	0	1	5
	Much	4	2	5	5	5	10	31
Execution of Work	Done	6	4	5	5	5	11	36
Satisfaction Levels regarding quality of work	Average	1	1	0	0	0	2	4
	High	5	3	5	5	5	9	32
People Benefited Impact of work on villagers	Less	4	1	2	2	1	3	13
	Much	1	2	2	2	3	6	16
	Very much	1	1	1	1	1	2	7
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Less	1	2	1	0	1	0	5
	Much	6	5	2	7	6	0	31
Execution of Work	Done	7	7	3	7	7	5	36
Satisfaction Levels regarding quality of work	Average	1	1	0	1	0	1	4
	High	6	6	3	6	7	4	32
People Benefited Impact of work on villagers	Less	0	4	1	3	3	2	13
	Large	5	2	1	4	3	1	16
	Very large	2	1	1	0	1	2	7

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Table 16: Perceptions of Communities regarding Camps Organized for Vaccination/Immunization of Cattle

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Less	1	0	0	0	0	0	1
	Much	5	4	5	5	5	11	35
Execution of Work	Done	6	4	5	5	5	11	36
Satisfaction Levels regarding quality of work	Average	1	1	0	0	0	2	4
	High	5	3	5	5	5	9	32
People Benefited Impact of work on villagers	Less	2	1	2	2	1	2	7
	Much	3	3	2	2	3	6	19
	Very much	1	0	1	1	1	3	7
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Less	0	0	1	0	0	0	1
	Much	7	7	2	7	7	5	35
Execution of Work	Done	7	7	3	7	7	5	36
Satisfaction Levels regarding quality of work	Average	1	1	0	1	0	1	4
	High	6	6	3	6	7	4	32
People Benefited Impact of work on villagers	Less	1	3	1	3	1	1	7
	Large	4	3	2	2	4	4	19
	Very large	2	1	0	2	2	0	7

Table 17: Perceptions of Communities regarding Distribution Aids for Physical Challenged

Responses of Communities by Village		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Work Needed	Much	6	4	5	5	5	11	36
Execution of Work	Done	6	4	5	5	5	11	36
Satisfaction Levels regarding quality of work	Average	2	1	0	1	1	3	8
	High	4	3	5	4	4	8	28
People Benefited Impact of work on villagers	Less	0	1	1	1	1	4	8
	Much	4	1	2	3	3	6	19
	Very much	2	2	2	1	1	1	9
Responses of Communities by Group		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP**	**Total**
Work Needed	Much	7	7	3	7	7	5	36
Execution of Work	Done	7	7	3	7	7	5	36
Satisfaction Levels regarding quality of work	Average	6	1	0	0	1	0	8
	High	1	6	3	7	6	5	28
People Benefited Impact of work on villagers	Less	4	2	0	1	1	0	8
	Much	2	3	1	4	5	4	19
	Very much	1	2	2	2	1	1	9

Table 18: Types of Works which communities Perceive Beneficial to Villagers

Types of works		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kodhar	Total
Installation of hand-pumps in villages	No.	5	5	2	0	0	5	17
	%	83.3	125.0	40.0	0.0	0.0	45.5	47.2
Eyes check-up/operation	No.	4	2	0	1	1	2	10
	%	66.7	50.0	0.0	20.0	20.0	18.2	27.8
Constructed PCC roads	No.	4	4	2	0	0	0	10
	%	66.7	100.0	40.0	0.0	0.0	0.0	27.8
Electrification of village	No.	5	4	0	0	0	0	9
	%	83.3	100.0	0.0	0.0	0.0	0.0	25.0
Cattle immunization	No.	4	3	2	3	2	4	18
	%	66.7	75.0	40.0	60.0	40.0	36.4	50.0
Constructed drainages in the village	No.	2	0	0	0	0	0	2
	%	33.3	0.0	0.0	0.0	0.0	0.0	5.6
Organized health check-up camps	No.	4	3	2	1	1	4	15
	%	66.7	75.0	40.0	20.0	20.0	36.4	41.7
Total	No.	6	4	5	5	5	11	36
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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Table 19: Types of Impact or Changes Perceived by Communities on Executed Works

Perceptions		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kodhar	Total
Problem for drinking water decreased	No.	5	5	2	0	0	5	17
	%	83.3	125.0	40.0	0.0	0.0	45.5	47.2
Eyes become fine	No.	5	3	0	1	1	0	10
	%	83.3	75.0	0.0	20.0	20.0	0.0	27.8
Kachha roads become pucca	No.	4	4	2	0	0	0	10
	%	66.7	100.0	40.0	0.0	0.0	0.0	27.8
Village electrified*	No.	5	4	0	0	0	0	9
	%	83.3	100.0	0.0	0.0	0.0	0.0	25.0
Immunization of cattle good in first year	No.	2	1	1	1	1	0	6
	%	33.3	25.0	20.0	20.0	20.0	0.0	16.7
Disease among cattle decreased	No.	2	2	1	2	1	4	12
	%	33.3	50.0	20.0	40.0	20.0	36.4	33.3
No cattle fallen ill	No.	2	2	1	2	1	4	12
	%	33.3	50.0	20.0	40.0	20.0	36.4	33.3
People used electric instruments/appliance	No.	4	3	0	0	0	0	7
	%	66.7	75.0	0.0	0.0	0.0	0.0	19.4
Village become neat and clean	No.	2	0	0	0	0	0	2
	%	33.3	0.0	0.0	0.0	0.0	0.0	5.6
Health problems decreased	No.	4	3	2	1	1	4	15
	%	66.7	75.0	40.0	20.0	20.0	36.4	41.7
Better facilities in comparison to earlier	No.	0	0	2	0	0	0	2
	%	0.0	0.0	40.0	0.0	0.0	0.0	5.6
Village become beautiful due to electric light	No.	5	4	0	0	0	0	9
	%	83.3	100.0	0.0	0.0	0.0	0.0	25.0
Total	No.	6	4	5	5	5	11	36
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 20: Number of Persons Benefited under Different CD Activities

Village	Eye Operation		Health check-up Camps for Children	Vaccination Camps for Animal	Medicine Distribution	
	Male	Female			Distributed	Not Distributed
Salaiya Khurd	22	23	112	94	40	1
Salaiya Kala	26	25	99	90	49	5
Mai Khurd	25	19	102	108	47	3
Patai Dandi	32	26	104	106	26	1
Esauta	32	21	90	103	31	1
Kohdar	28	18	104	103	24	1
Total	165	132	611	604	217	12
Average	27	22	102	100	217	12

Table 21: If Villages become Poorer to Earlier than Reasons

Reasons	Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Stone breaking work closed due to acquisition	18.9	13.7	10.6	16.0	43.5	69.6	23.8
Farm land become poor	27.0	21.6	0.0	0.0	0.0	0.0	10.2
Lack of grassing land	10.8	7.8	10.6	32.0	39.1	0.0	14.6
Decreased the employment opportunity in the region	16.2	13.7	0.0	0.0	4.3	13.0	8.3
Our old pathways disappeared in the land acquisition	0.0	0.0	27.7	8.0	8.7	0.0	8.3
Open land area become smaller	0.0	15.7	23.4	28.0	4.3	0.0	13.1
Pathway closed by MUNPL	2.7	0.0	6.4	0.0	0.0	0.0	1.9
Whole environment become polluted due to blasting	5.4	0.0	0.0	0.0	0.0	13.0	2.4
Number of Trees and plants decreased	0.0	3.9	2.1	0.0	0.0	0.0	1.5
Houses creaked due to blasting of MUNPL	0.0	0.0	0.0	12.0	0.0	0.0	1.5
Loss our good farm land	0.0	2.0	2.1	4.0	0.0	0.0	1.5
Others@	18.9	17.7	17	0	0	0	11.7
Total	37	51	47	25	23	23	206

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Table 22: Performance of CD Activities for the School Children and Schools executed in Affected Villages

Activities	Done		Not Done		Cannot Say		Total
	No.	%	No.	%	No.	%	
Health Check-up Camps	25	69.4	6	16.7	5	13.9	36
Eye Check-up Camps	12	33.3	15	41.7	9	25.0	36
Free Distribution of School Bags	36	100.0	0	0.0	0	0.0	36
Construction of School Boundary Wall	20	55.6	6	16.7	10	27.8	36
Distribution of Stationeries among children	26	72.2	5	13.9	5	13.9	36
Distribution of Furniture	0	0.0	0	0.0	0	0.0	36

Table 23: Satisfaction Levels of Communities regarding Quality of Works Performed for Schools & Students

Activities		Very Good	Good	Average	Bad	Very Bad	Total
Health Check-up Camps	No.	0	7	10	8	0	25
	%	0.0	28.0	40.0	32.0	0.0	100.0
Eye Check-up Camps	No.	0	1	9	2	0	12
	%	0.0	8.3	75.0	16.7	0.0	100.0
Free Distribution of School Bags	No.	18	18	0	0	0	36
	%	50.0	50.0	0.0	0.0	0.0	100.0
Construction of School Boundary Wall	No.	1	16	3	0	0	20
	%	5.0	80.0	15.0	0.0	0.0	100.0
Distribution of Stationeries among children	No.	0	13	13	0	0	26
	%	0.0	50.0	50.0	0.0	0.0	100.0

Table 24: Community Member Suggested Important Activities not Included in the List of Performed Activities for the Schools & Children

Suggested Activities	Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kodhar	Total
Provide game kits for children	6	4	0	0	0	5	15
NCC training facility may be available in school	0	1	0	0	0	1	2
Nutrition foods may be distributed among students	1	0	0	0	0	2	3
Provide dress or uniform to school children	0	0	4	3	2	5	14
Provide scholarship to meritorious students	0	0	0	1	0	1	2
Provide employment based education	0	0	0	0	0	1	1
Provide mats for sitting of students	0	0	1	0	1	1	3
Give school bags to children	0	0	0	0	0	1	1
Give facilities to only children from affected family	0	0	0	0	1	1	2
Distribute relevant books among children	0	0	0	1	1	1	3
Distribute woolen cloths	0	0	3	3	4	0	10
Provide more stationery to students	0	0	1	0	0	0	1
Effort to proper playground for school	0	3	0	0	0	0	3
Installed Hammock (*Jhula*) in the schools	4	0	1	0	0	0	5
Installed electric fan in school	2	0	0	0	0	0	2
Provide refreshment to children during interval	1	0	0	0	0	0	1
Total	6	4	5	5	5	11	36

Table 25: Who monitored the CD works when it was under Implementation? Opinions of Communities

Particulars		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kodhar	Total
MUNPL	No.	6	4	5	5	5	11	36
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gram Panchayat	No.	5	4	0	2	1	7	19
	%	83.3	100.0	0.0	40.0	20.0	63.6	52.8
Villagers	No.	2	0	0	0	0	0	2
	%	33.3	0.0	0.0	0.0	0.0	0.0	5.6
Contractor's person	No.	0	0	1	1	2	3	7
	%	0.0	0.0	20.0	20.0	40.0	27.3	19.4
Total	No.	6	4	5	5	5	11	36
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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Table 26: PAP Households Covered under Different Categories

Villages	Landless		Partial Land Loser		Both Land & HSO		Non-Ag. Labour		Total	
	No	%	No	%	No	%	No	%	No	%
Salaiya Khurd	21	51.2	11	26.8	0	0.0	9	22.0	41	100.0
Salaiya Kala	4	7.4	6	11.1	33	61.1	11	20.4	54	100.0
Mai Khurd	0	0.0	24	48.0	26	52.0	0	0.0	50	100.0
Patai Dandi	0	0.0	25	92.6	0	0.0	2	7.4	27	100.0
Esauta	0	0.0	25	78.1	0	0.0	7	21.9	32	100.0
Kohdar	14	56.0	11	44.0	0	0.0	0	0.0	25	100.0
Total	39	17.0	102	44.5	59	25.8	29	12.7	229	100.0

Table 27: Average Distance from Old Residence to New Location

Village	Average Distance in Km.	No. of Resettled Families			Average Duration of stay at New Place
		Number	Percent	Total HHs	
Salaiya Kala	4.6	17	51.5	33	2.5
Mai Khurd	2.0	26	100.0	26	2.8
Total	3.0	43	72.88	59	2.0

Table 28: Status of Receiving of Compensation, Average Amount and its Expenditure of Received Grants

Villages	Received		Cannot say		Total HHs		Average Received Grants Amount	Households Spent Received Amount		
	No.	%	No.	%	No.	%		Average Expenditure Amount (In Rs)	No. of Response	As % of total reporting HHs.
Salaiya Khurd	32	78.0	9	22.0	41	100.0	266065	260039	31	96.88
Salaiya Kala	42	77.8	12	22.2	54	100.0	445214	478369	42	100.00
Mai Khurd	44	88.0	6	12.0	50	100.0	384255	493535	43	97.73
Patai Dandi	21	77.8	6	22.2	27	100.0	357755	191875	20	95.24
Esauta	23	71.9	9	28.1	32	100.0	232473	175300	20	86.96
Kohdar	25	100.0	0	0.0	25	100.0	275997	202020	25	100.0
Total	187	81.7	42	18.3	229	100.0	341604	341264	181	96.79

Table 29: Status of PAP Households regarding Purchase of Land at Other Places

Village	Purchased		Not Purchased		Total HHS		Average Land Purchase in Acre
	Number	Percent	Number	Percent	Number	Percent	
Salaiya Khurd	2	4.9	39	95.1	41	100.0	0.63
Salaiya Kala	8	14.8	46	85.2	54	100.0	0.89
Mai Khurd	11	22.0	39	78.0	50	100.0	1.51
Patai Dandi	0	0.0	27	100.0	27	100.0	0.00
Esauta	2	6.3	30	93.8	32	100.0	0.58
Kohdar	0	0.0	25	100.0	25	100.0	0.00
Total	23	10.0	206	90.0	229	100.0	1.14

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Table 30: Heads for Expenditure of Received Grant Amount by Households

(Figure in %)

Particulars	Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Land	3.7	12.4	17.1	0.0	3.6	0.0	10.3
House	8.7	22.3	42.2	4.8	24.4	37.1	26.3
Two wheeler	0.4	0.4	2.5	0.0	0.0	1.9	1.1
Four wheeler	2.3	1.4	1.5	4.8	0.0	3.6	1.8
Agricultural Assets	0.0	1.5	8.2	0.0	0.0	0.0	3.1
Marriage	20.9	7.4	7.0	19.5	11.9	17.9	10.8
Illness	5.7	1.6	1.4	22.6	6.2	17.7	4.8
Domestic needs	5.2	11.1	1.5	13.0	9.8	14.2	7.3
Loan repayment	5.5	1.7	1.4	1.9	3.9	1.5	2.3
Business	1.1	1.2	0.0	0.0	0.0	0.8	0.6
Saving	16.5	12	1.1	1.9	0	3.4	6.9
Animal	2.1	3.3	0.7	1.9	0.0	2.0	1.9
Other functions	3.6	1.6	1.4	3.5	2.7	0.0	1.9
No Response	24.4	22.2	14.0	25.9	37.5	0.0	21.0
Total Rs.	260039	478369	493535	191875	175300	202020	341264

Table 31: Status of Households Benefited by Getting Employment Opportunity in MUNPL Plant

Village	Some People		Selected People		None		Total HHs.	Average Benefited Persons
	No	%	No	%	No	%		
Salaiya Khurd	5	12.2	2	4.9	34	82.9	41	34
Salaiya Kala	7	13.0	3	5.6	44	81.5	54	16
Mai Khurd	36	72.0	12	24.0	2	4.0	50	20
Patai Dandi	16	59.3	7	25.9	4	14.8	27	20
Esauta	11	34.4	2	6.3	19	59.4	32	24
Kohdar	2	8.0	0	0.0	23	92.0	25	15
Total	77	33.6	26	11.4	126	55.0	229	21

Table 32: Status of Execution of Selected Four Activities for Affected Households

Village	Skill Up-gradation in Traditional Training	ITI Training for Youth	Refund of Fee for admission in Recognized Institutions	Distribution of Aids for Physically Challenged	Total HHs
	Not Executed	Executed	Not Executed	Executed	
Salaiya Khurd	100.0	92.7	100.0	100.0	41
Salaiya Kala	100.0	81.5	100.0	100.0	54
Mai Khurd	100.0	14.0	100.0	100.0	50
Patai Dandi	100.0	14.8	100.0	100.0	27
Esauta	100.0	31.3	100.0	100.0	32
Kohdar	100.0	92.0	100.0	100.0	25
Total	100.0	55.0	100.0	100.0	229

Table 33: PAP Households Perceived Changes due to Execution of Activities under RAP

(Figure in %)

Sectors	Level	Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
Social	No change	97.6	72.2	38.0	33.3	71.9	92.0	66.8
	Low or Very low	0.0	14.8	44.0	29.6	15.6	4.0	19.2
	General	2.4	13.0	18.0	37.0	12.5	4.0	14.0
Economic	No change	92.7	77.8	32.0	7.4	46.9	92.0	59.4
	Low or Very low	0.0	13.0	52.0	44.4	34.4	4.0	24.9
	General	7.3	5.6	16.0	48.1	18.8	4.0	14.8
	Good	0.0	3.7	0.0	0.0	0.0	0.0	0.9
Educational	No change	87.8	77.8	36.0	33.3	68.8	80.0	64.2
	Low or Very low	4.9	13.0	46.0	29.6	15.6	12.0	21.0
	General	7.3	9.3	18.0	37.0	15.6	8.0	14.8
Total Number of HHs		41	54	50	27	32	25	229

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Table 34: Awareness Level of PAP Households regarding Village taken under CD Programme

Village	Households Aware		Total HHs.
	Number	As % of total	
Salaiya Khurd	0	0.0	41
Salaiya Kala	4	7.4	54
Mai Khurd	18	36.0	50
Patai Dandi	8	29.6	27
Esauta	3	9.4	32
Kohdar	2	8.0	25
Total	35	15.3	229

Source: *Field survey, GBPSSI.*

Table 35: New Activities Suggested by PAP Households for Development of Village

Villages		Salaiya Khurd	Salaiya Kala	Mai Khurd	Patai Dandi	Esauta	Kohdar	Total
MUNPL Provide employment opportunities to affected family	No	2	10	49	26	20	3	110
	%	11.1	47.6	98.0	100.0	100.0	100.0	80.3
Plantation	No	12	2	0	0	0	0	14
	%	66.7	9.5	0.0	0.0	0.0	0.0	10.2
MUNPL Provide Lease land	No	0	8	6	0	0	0	14
	%	0.0	38.1	12.0	0.0	0.0	0.0	10.2
MUNPL Provide Employment, MUNPL Provide Irrigation Facility, Provide More Compensation	No	4	2	2	2	0	0	10
	%	22.2	9.5	4.0	7.7	0.0	0.0	7.3
School Facility, Hospital, Transportation, Drinking Water Facility, Carelessness of contractor in work completion, Toilet, MUNPL Provide Lease land	No	2	6	0	0	0	0	7
	%	11.1	28.6	0.0	0.0	0.0	0.0	5.1
Total HHs		18	21	50	26	20	3	137

Table 37: Indicators related to Quality of Life of the People Living in Affected and Neutral Villages

Indicators	Affected Village							Neutral Village		
	Salaiya Kala	Mai Khurd	Kohdar	Esauta	Patai Dandi	Salaiya Khurd	Total	Jora	Sirhir	Total
Sex-ratio (Per '000' Male)	752	902	753	832	681	781	792	953	986	973
Literacy Rate (%)	71.1	78.6	71.3	71.0	82.4	67.2	73.4	60.8	77.1	70.9
Earning Member (%)	27.0	21.1	30.0	19.9	15.9	32.4	24.7	27.7	26.4	26.9
Per Capita Income (Rs.)	7752	14866	9318	7697	6554	9434	9685	9398	10370	10007
Type of Family (%)										
Joint	61.0	63.0	14.0	14.8	21.9	88.0	43.2	44.8	25.5	32.5
Nuclear	39.0	37.0	86.0	85.2	78.1	12.0	56.8	55.2	74.5	67.5
% of BPL & APL Households										
BPL	48.8	20.4	24	22.2	34.4	36	30.1	20.7	25.5	23.8
APL	51.2	79.6	76	77.8	65.6	64	69.9	79.3	74.5	76.3
Type of Ration Card owned by Family (%)										
BPL Card	14.6	11.1	12.0	29.6	21.9	32.0	17.9	24.1	23.5	23.8
APL Card	56.1	72.2	76.0	70.4	46.9	64.0	65.5	75.9	74.5	75.0
Antyoday Card	29.3	9.3	0.0	0.0	3.1	4.0	8.3	0.0	2.0	1.3
Card-Less	0.0	7.4	12.0	0.0	28.1	0.0	8.3	0.0	0.0	0.0
Major Occupation of Households (%)										
Labour	53.7	42.6	48.0	14.8	50.0	52.0	44.5	24.1	33.3	30.0
Cultivation	41.5	50	38.0	81.5	46.9	40.0	48.0	37.9	52.9	47.5
Service	2.4	3.7	4.0	3.7	3.1	0.0	3.1	13.8	5.9	8.8
Skill Labour	0.0	1.9	4.0	0.0	0.0	8.0	2.2	0.0	0.0	0.0
Business	2.4	1.9	6.0	0.0	0.0	0.0	2.2	24.1	7.8	13.8
Average Annual Income and Expenditure of Households (In Rs.)										
Income	48146	57356	76776	50444	57188	60864	59492	53793	56965	55815
Expenditure	46177	50700	65976	48322	47303	50071	52402	35016	49404	44184
Average Land holding (In acre)	1.59	1.97	1.90	2.11	1.36	1.61	1.78	2.27	2.07	2.14
Electricity Available in HHs (%)	34.1	38.9	100.0	74.1	46.9	64.0	59.4	20.7	21.6	21.3
Drinking Water Inside the House (%)	2.4	27.8	4.0	0.0	0.0	4.0	8.3	0.0	0.0	0.0
Availability of Toilet (%)	2.4	0.0	6.0	0.0	3.1	8.0	3.1	0.0	0.0	0.0
Sources of Drinking Water among Households (%)										
Gen. hand-pump	73.2	35.2	90.0	51.9	59.4	80.0	64.2	55.2	64.7	61.3
India Mark-2	0.0	1.9	6.0	3.7	9.4	0.0	3.5	0.0	2.0	1.3
Well	26.8	63	4.0	44.4	31.3	20.0	32.3	44.8	33.3	37.5
Types of House (%)										
Pucca	22.0	29.6	76.0	29.6	31.3	48.0	40.6	17.2	11.8	13.8
Semi-Pucca	7.3	16.7	12.0	14.8	0.0	4.0	10.0	0.0	3.9	2.5
Kuchha	41.5	48.1	12.0	55.6	65.6	40.0	41.5	82.8	76.5	78.8
Hut	29.3	5.6	0.0	0.0	3.1	8.0	7.9	0.0	7.8	5.0
Total HHs	41	54	50	27	32	25	229	29	51	80

Source: Field survey GBPSSI.

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Table 37: Comparative Status of Basic Facilities/Amenities Available in Affected & Neutral Villages by Distance

(Figures in Km.)

Facilities	Kohdar	Esauta	Patai Dandi	Salaiya Khurd	Mai Khurd	Salaiya Kala	Average Distance	Sirhir	Jora	Average Distance
BASIC AMENITIES										
Bus Stop	0	3	5	7	7	7	5	1	5	3
Railway Station	17	20	22	20	25	22	21	22	28	25
Public Phone	0	0	0	0	0	3	1	0	5	3
Medical Shop	0	4	4	7	7	4	4	5	8	7
Post Office	0	0	4	4	6	8	4	5	2	4
Co-operative Society	0	5	4	0	10	3	4	1	4	3
Agriculture Seeds Centre	17	20	22	20	25	22	21	22	28	25
Shop for Fertilizer & Pesticide	0	4	5	2	8	3	4	5	8	7
Govt. Purchage Centre	22	18	18	25	20	22	21	24	20	22
Cold Storage	17	20	22	20	25	22	21	22	28	25
Regional Food Godam	17	20	22	20	25	22	21	22	28	25
Fair Price Shop	0	0	4	3	7	3	3	0	0	0
Weekly Market	0	4	4	0	7	3	3	5	8	7
Daily Regular Market	0	4	5	3	7	3	4	5	8	7
Police Station/Sub-Station	0	4	5	7	7	4	5	5	9	7
Block Headquarter	17	20	22	20	25	22	21	22	28	25
Tehsil Headquarter	17	20	22	20	25	22	21	22	28	25
District Headquarter	36	42	40	40	45	48	42	46	54	50
EDUCATIONAL INSTITUTIONS										
Primary School	0	0	0	0	0	0	0	0	0	0
Upper Primary School	3	0	0	0	3	2	1	1	1	1
Secondary School	3	5	4	3	7	5	5	1	5	3
Senior Secondary School	3	5	4	3	7	5	5	1	5	3
Degree college	9	15	20	28	10	30	19	0	11	6
Industrial Training Institute	30	33	30	35	37	37	34	46	54	50
Aganbadi/Balwadi	0	0	0	0	0	2	0	0	0	0
HEALTH & MEDICAL SERVICES										
Health Sub-centre	3	4	5	7	7	7	6	1	2	2
Primary Health Centre	3	4	5	7	7	7	6	1	7	4
Community Health Centre	17	20	22	20	25	22	21	22	28	25
Mother-child Welfare Centre	17	20	22	20	25	22	21	22	7	15
Private Doctor/Clinic	3	4	5	3	7	3	4	9	14	12
Unregistered Doctor	0	0	0	0	2	4	1	5	0	3
Govt. Veterinary Hospital	3	4	5	7	7	5	5	9	7	8
Private Veterinary Doctor	3	4	5	7	7	7	6	8	10	9
Artificial delivery centre for Cattle	3	4	5	7	7	8	6	9	7	8
FINANCIAL INSTITUTIONS										
Nationalize Bank	5	10	10	3	11	3	7	5	7	6
Regional Rural Bank	3	4	5	7	7	10	6	9	14	12
Land Development Bank	14	20	20	20	22	22	20	22	28	25
Co-Operative Bank	14	20	5	20	7	22	15	22	28	25

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Table 1: Provision and Entitlement of Benefits as Listed under Rehabilitation Action Plan (RAP) of MUNPL

Provisions	Entitlement of Benefits
A. REHABILITATION OF PAPS	
Rehabilitation grant for land owners	▪ One time rehabilitation grant on acquired land Rs. 33,750.00 per acre as per actual land loss subject to maximum for 5 acres. ▪ One time rehabilitation grant for landless (Category-A) is minimum Rs. 1 lakh. ▪ One time rehabilitation grant for other land losers (Category-B, C, D, E & F) is minimum Rs. 75000/.
Land Development and Registration Fee for Purchase of land	▪ If any PAP purchased the land in nearby area the development charges is per acre Rs. 12500/- for maximum 5 acres (A, B, C & D/ Registration and Stamp Duty charges on actual purchase of minimum 1 & maximum 5 acres land will be reimburse subject to land loss. ▪ The E & F category PAP can purchase maximum 1 acre land and the registration and stamp duty charges will be reimburse.
Lump Sum Grant for all Categories PAP	▪ Rs. 30000/- will be paid to each PAPs (Subsistence Allowance)
Employment Opportunity	▪ The MUNPL will give preference to make efforts to engage PAPs through contracting agencies, but it shall be subject to availability and requirement of eligibility of PAP's and/or their wards as per MUNPL policy.
Skill Development , Self Employment and Reimbursement of Fees	▪ Enhance the skill of PAP or any one of their depended for self employment, facility shall be extended as per suggestions of VDAC. ▪ The two types of skill have been visualized, namely first orientation and development of skills in traditional occupations and second skill development in new types of occupations. ▪ The priority for selection of person by HSO, A, B, C and D. ▪ If PAP or any of their dependants who gets admission in ant govt. recognized institutions, they shall be entitled for reimbursement of admission fee, tuition fee, examination fee and other expenses. ▪ MUNPL will provide 'Short Term Training Programme' for PAP or any one of their dependant with consultation of DGET. ▪ Other vocational training programs shall be organize by MUNPL for PAP or family members for time to time special focus on women and vulnerable groups.
Shop Allotment in MUNPL Township	▪ Up to 40% constructed shops of MUNPL township will be allotted to the PAP as per norms and guideline of MUNPL on priority basis.
Health Services	▪ The MUNPL will organize 'Free Health Check-up Camps' on periodical basis for welfare of the PAP and their family members. ▪ The PAP and their family members would be entitled for 80% subsidized treatment in all facilities like outdoor and indoor treatment in MUNPL hospital including operation, hospitalization, investigation etc. as per NTPC rules.
Welfare and Other Activities	▪ The MUNPL will provide free hearing aids, tricycle, wheel chairs etc. for physical challenged PAPs and their family members. ▪ Sport and cultural activities shall be organized by the MUNPL for the PAPs from time to time. ▪ Hiring the vehicles for the various MUNPL departments would be undertaken from PAPs. For this, the MUNPL encouraged & facilitated to PAP for vehicle financed through bank loans.
B. RESETTLEMENT OF PAPS	
Self Resettlement	▪ An amount of Rs. 1,25,000/ will be payable as financial assistance.
Resettlement Grant	▪ Fixed resettlement grant of Rs. 37500/ (including Rs. 5000/ for cattle shed).
Sifting Assistance	▪ All shifting by MUNPL
Other Facilities	▪ The MUNPL will provide drinking water, approach road, drains etc. in self re-settlement areas, namely Jhariyahi & Salaiyakala

Note: *The one time re-settlement package is Rs. 1,92,500/- per HSO.*

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Table 2: Head-wise Activities Proposed under Rehabilitation Action Plan

Heads	Sub-Heads
R & R Package	One time rehabilitation package
	One time resettlement package
Infrastructure	Construction of boundary wall of school
	Construction of one new Junior High School
	Construction of one Intermediate Girls College
	Construction of one Community Centre Building
	Construction of approach road in affected villages
	Alternate approach roads
	Approach road to locked area
	Construction of rain sheds
	Approach road to self Resettlement Area
	Electrification self Resettlement Area
	Internal PCC roads Resettlement Area
	Drainage in Resettlement Area
	Retaining wall to prevent earth slide
	Construction of water for Resettlement Area
	Infrastructure development work at Govt. ITI
Connectivity	Construction of internal roads
	Construction of culverts
Drinking Water	Installation of Hand-Pumps
Sanitation	Provision for drainage system
Restoration of CPRs	Ponds
	Construction of Ponds
	Construction of Community Wells
	Development of Social Forestry/plantation
	Construction of Temple/Religious place
Capacity Building	Training programme at Govt. ITI
	Long term professional courses
	Short term skill oriented Vocational training
	Women empowerment etc.
	Farmer Mela & Agriculture clinics
	Exposure Tour & Miscellaneous
Welfare Health Facilities	Gen. Health/Eye Camps & Gen. Purpose Medicine
	Children health check-up camp at school
	Organizing Vaccination camps
	Family Planning
	Medical equipments & aid to physically challenged
	Self Employment Assistance to PS & vulnerable
	Distribution of chlorine tablets & bleaching powder
	Mobile clinic & Ambulance etc.
	Veterinary Camps
Heads	**Sub-Heads**
Welfare Activities related to School Children	Distribution of books, Bags, Stationary
	Scholarships
	Furniture
	Other need based welfare activities
	Promotion of cultural activities etc.
	Organization of rural sport events & sport kits
	Distribution of computers & peripherals
Need Based	As emerges or as consented by VDAC
Implementation Measures	PAPs Verification, Issue of ID Card & Agreement
	Supervision of implementation of RAP
	Monitoring & Evaluation of implementation of RAP
	Miscellaneous Expenses

Source: *Rehabilitation Action Plan, MUNPL, May 2010.*

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Table 3: Social Audit of Executed R & R Activities of MUNPL

(Reference Period October 2012 to March 2014)

Sectors/Nature of Activities	Particulars	Location
INFRASTRUCTURE		
New Construction	5 Classrooms completed	ITI, Naini
New Construction	5 Workshops completed	ITI, Naini
Physical Support	Provided various tools	ITI, Naini
New Construction	Boundary wall in primary school	Village Jhariyahi
Physical Support	Provided Office Furnitures + Almeria	In 12 schools
Renovation of Pond	Enhancing water storage capacity	Village Salaiya Kala
New Construction	Constructed Pucca Ghat	Village Salaiya Kala
New Construction	Internal roads hamlet to hamlet	Salaiya Khurd
New Construction	Internal road Nai Basti	Nai Basti, Salaiya Kala
New Construction	Approach road Palpatti to khiri road	Palpatti to khiri road
New Construction	Approach road Jhariyahi	Village Jhariyahi
New Construction	Constructed check-dam for irrigation	Village Patai Dandi
New Construction	Constructed 4 rain sheds	Village Salaiya Khurd
New Construction	Well construction through blasting	Village Salaiya Kala
ECO-FRIENDLY ENVIRONMENT		
Harit Patti (Plantation)	30,000 Plants[1] facilitated by Forest Dept.	Plant area
Plantation	Plantation in schools	All affected villages
Plantation	Continuous in processes	Pahari and other places
SKILL UP-GRADATION AND CAPACITY BUILDING		
Admission for Vocational Training in ITI	48 students from PAP households	All affected villages
Admission for Vocational Training in ITI	48 students from PAP households	All affected villages
Farmer Training Camp	Provided hybrid vegetable seeds to farmers	All villages
HEALTH		
Medical Camp	Health check up & free Medicines	All Schools
Eye Camp	Eye Check-up & given eye Glass	All Schools
Eye Check-up Camps	Cataract operation	All villages
Medical Camp	Health check-up & free Medicines	All villages
Medical and Refreshment Camp	Health check-up & provide snakes & tea to pilgrims	In Kumbh Mela
Veterinary Camps in 2 Times in year	Immunization, free medicine for khur paka, Gala ghotu diseases	All villages
RURAL SPORTS		
Organized Canvas ball cricket tournament	2013 (field preparation (leveling) & distributed track suit , kits, prize, shield etc.	GP Mai Kala
Organized Canvas ball cricket tournament	2014 (distributed Prize & Shield)	Village Jhariyahi
COMMUNITY WELFARE		
Identification Physical Handicapped	Identification through project doctor & distributed Artificial Legs, Tricycle, etc.	All villages
Provided basic Infrastructures to Fire Affected Households	Asbestos Sheet, Bamboo, Balli, Patra Foodgrains etc.	Village Salaiya Kala
ENHANCEMENT OF INCOME OF PAP HOUSEHOLDS		
Vehicle Deployment	Hired Vehicle	From PAP households
Petty Contracts	2 Cooperative Society of PAPs	Road leveling, plantation, etc.
SAFE DRINKING WATER		
Installation	Installed 16 Hand-pumps	All villages
Water Filter	Distributed 21 water filters	Nai Basti, Salaya Kala

Note: [1]*Neem, Chilbil, Kanji, Akeria, Awonla, Chitwan, etc.*

Source: *As reported by MUNPL, Meja*.

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मेजा ऊर्जा निगम प्राइवेट लिमिटेड हेतु भूमि अधिग्रहण से प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण








– रिपोर्ट –
हिन्दी रुपान्तण



।।द्वारा।।
भास्कर जमूमदार



।।प्रस्तुत।।
मेजा ऊर्जा निगम प्राइवेट लिमिटेड





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अध्ययन दल

परियोजना निदेशक
भाष्कर मजूमदार

शोध अधिकारी
मदन गोपाल गुप्ता
ज्ञान नाथ झा

शोध सहायक
अरविन्द सिंह

कम्प्यूटर प्रोग्रामर
संदीप कुमार जायसवाल

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प्राक्कथन

''मेजा ऊर्जा निगम प्राइवेट लिमिटेड, इलाहाबाद हेतु भूमि अधिग्रहण द्वारा प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण'' पर यह प्रतिवेदन प्रभावित गांवों, परिवारों तथा व्यक्तियों के पुनर्वास एवं पुनर्स्थापन कार्यक्रम से संबंधित प्रभावों की सम्प्राप्तियों को प्रस्तुत करता है। यह अध्ययन पुनर्वास एवं पुनर्स्थापन गतिविधियों, बुनियादी ढांचे के विकास की गतिविधियों तथा प्रभावित गांवों के व्यक्तियों की तटस्थ गांवों के व्यक्तियों के साथ जीवन गुणवता की तुलनात्मक आकलन को प्रस्तुत करता है।

यह अध्ययन मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा प्रायोजित किया गया था। अध्ययन के लिए हमारे ऊपर विश्वास बनाए रखने के लिए हम मेजा ऊर्जा निगम प्राइवेट लिमिटेड के प्रति आभारी हैं। मेजा ऊर्जा निगम के अधिकारियों एवं कर्मचारियों के सहयोग के बिना इस अध्ययन में गहराई नहीं आ पाती।

हम मेजा ऊर्जा निगम के मुख्य कार्यकारी अधिकारी श्री जे0पी0 सिंह, अपर महा–प्रबन्धक (पुनर्वास एवं पुनर्स्थापन) श्री शिव प्रसाद, सहायक प्रबन्धक (पुनर्वास एवं पुनर्स्थापन) श्री के0एन0 मिश्र, अभियंता (पुनर्वास एवं पुनर्स्थापन) श्री दिलराज, श्री आर0एस0 जुनेजा तथा आर0के0 कमल को अध्ययन को आगे ले जाने के लिए उनके सतत एवं प्रभावी सहयोग के लिए आभार व्यक्त करते हैं।

हम गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान, इलाहाबाद के निदेशक प्रो0 प्रदीप भार्गव के प्रति आभारी हैं, जिन्होंने परियोजना के सुचारू संचालन के लिए अपना समय एवं आवश्यक सहयोग प्रदान किया।

हम प्रभावित क्षेत्रों के गांवों के उन सुविधा प्रदाताओं (फैसिलीटेटर्स) के भी आभारी हैं, जिन्होंने गांव की गतिशीलता की जानकारी एवं सूचना के संग्रह में हमारा सहयोग एवं सहायता की।

सबसे बहुमूल्य सहयोग अध्ययन दल ने उन परिवारों एवं समूहों से प्राप्त किया जिन्होंने अपने अथाह अनुभवों एवं भावनाओं को अध्ययन दल के साथ साझा किया। अपने व्यस्तम दिनचर्या के बावजूद वे पूर्ण सहयोग एवं आतिथ्य के साथ आगे आए। प्रस्तुत रिपोर्ट सफल तब माना जाएगा जब यह चल रहे विकास प्रतिमानों के संदर्भ में अनुकूल सम्भावनाओं को प्रदर्शित करें।

अध्ययन दल के सदस्यों श्री मदन गोपाल गुप्ता, श्री जी0एन0 झा, श्री अरविन्द सिंह, एवं श्री एस0के0 जायसवाल, के निरन्तर प्रयासों, प्रतिबद्धता और समर्पण के बिना अध्ययन पूर्ण नहीं होता। इस अध्ययन का वास्तविक श्रेय अध्ययन दल को जाता है।

तथापि रिपोर्ट में यदि कोई त्रुटियाँ होगी तो वह मेरे हिस्से की चूक का कारण है।

जून, 2015 — भाष्कर मजूमदार

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मेजा ऊर्जा निगम प्राइवेट लिमिटेड हेतु भूमि अधिग्रहण से प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण

अध्ययन की पृष्ठभूमि

एक कल्याणकारी राज्य होने के कारण भारत में लोगों के लाभ के लिए अनेक कार्यक्रमों एवं नीतियों को लागू किया जाता है। आमतौर पर राजनेता एवं नौकरशाह इन नीतियों को नियंत्रित एवं लागू करते हैं। कुछ नीतियां सभी लोगों के लिए सामान्य हैं जबकि कुछ विशेष, जो समाज के विशिष्ट वर्गों के लाभ के लिए होती हैं। इस प्रकार की सभी नीतियों के क्रियान्वयन के लिए धन की व्यवस्था राजकीय कोष से की जाती है, जिसमें प्रत्यक्ष या अप्रत्यक्ष रूप में जनता का योगदान रहता है। इस कोष के निकालने एवं उपयोग पर सामाजिक नियंत्रण को सामाजिक अंकेक्षण कहा जाता है। सामाजिक अंकेक्षण शब्द का प्रयोग 1950 के दशक के पूर्व किया गया। संक्षेप में, यह सरकार या किसी निकाय द्वारा लाभ प्राप्त करने के आशय से वास्तविक लाभान्वित लोगों के लिए किए गए कार्यों को सुनिश्चित करने के कदम को दर्शाता है। यह जहां तक संभव हो संबंधित लोगों की आवश्यकताओं की सहमति एवं पूर्ण समझ के साथ स्थानीय शासन को इससे बाहर किया जाना चाहिए, के सिद्धांत पर आधारित है। यह एक घटना नहीं बल्कि एक प्रक्रिया है। इस प्रकार सामाजिक अंकेक्षण एक समझ, मापन, रिपोर्टिंग एवं सबसे महत्वपूर्ण स्थानीय शासन की दक्षता तथा प्रभाविता में सुधार करना है।

सामाजिक अंकेक्षण की अवधारणा, 'नैगम सामाजिक उत्तरदायित्व' की अवधारणा से भी जुड़ा हुआ है, जिसे विश्व की अधिकांश नैगम संस्थाओं द्वारा अपनाया जा रहा है। यह समुदाय में एक कम्पनी के सामाजिक प्रभाव का निर्धारण करने के लिए एक लोकप्रिय उपकरण बन गया है। यह एक प्रक्रिया है जिसका तात्पर्य है लोगों तक परियोजनाओं/गतिविधियों का लाभ पहुंचाने का प्रयास किया जाता है। सामाजिक अंकेक्षण का मूल उद्देश्य है– यह देखना कि सामाजिक और सार्वजनिक क्षेत्र के उद्यम क्या कर रहे हैं, यह मूल्यांकन करना कि लक्षित लाभार्थियों को मिलने वाली सार्वजनिक संसाधन के वास्तविक आवश्यकताओं का अच्छी तरह उपयोग कैसे हो रहा है, यह पता लगाना कि आवश्यकताओं में कहां सुधार किया जाय तथा वे सुधार किस प्रकार होने चाहिए और लोक कार्यों में जवाबदेही और पारदर्शिता को मजबूत करना। सामान्यतः सरकार एवं सहायक निकाय, निजी उद्यम एवं नागरिक समाज सामाजिक अंकेक्षण प्रतिवेदन के उपयोगकर्ता रहे हैं।

अध्ययन के उद्देश्य, विधि और कवरेज

वर्तमान सामाजिक अंकेक्षण पुनर्वास कार्ययोजना के अन्तर्गत प्रस्तावित गतिविधियों के क्रियान्वयन की सीमा को मापने एवं कोहडार, इसौटा, मईकला तथा सलैया कला ग्राम पंचायत के अन्तर्गत प्रभावित ग्रामों कोहड़ार, इसौटा, पताई डांडी, मईखुर्द, सलैया खुर्द, सलैया कला में पुनर्वास एवं पुनर्स्थापन कार्यक्रमों के प्रभावों का मूल्यांकन करने के लिए किया गया। गैर–आबाद होने के कारण भगदेवा गांव को छोड़ दिया गया। सामाजिक अंकेक्षण अध्ययन पुनर्वास कार्ययोजना के अन्तर्गत निष्पादित गतिविधियों के प्रभावों का

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मूल्यांकन करता है और परिवर्तन की सीमा का पता लगाता है। यह अध्ययन पुनर्वास एवं पुनर्स्थापन गतिविधियों, बुनियादी विकास की गतिविधियों, सामुदायिक विकास गतिविधियों तथा परियोजना से प्रभावित व्यक्तियों के जीवन स्तर का आकलन है। सामाजिक अंकेक्षण पुनर्वास कार्ययोजना के अन्तर्गत तैयार एवं क्रियान्वित की गयी गतिविधियों के बारे में ग्रामीणों के संतुष्टि के स्तर का आकलन किया गया है जो प्रभावित गांवों में लागू गतिविधियों के विस्तार के लिए एक व्यापक तस्वीर प्रस्तुत करता है। वर्तमान अध्ययन मुआवजे की धनराशि के उपयोग के उपायों एवं साधनों, प्रभावित व्यक्तियों द्वारा उन उपायों एवं साधनों को अपनाए गए एवं उसकी स्थिरता, इस समझ को उपलब्ध करवाना कि भेद्यता में वृद्धि हुई या तो स्थिरता के अंश में सुधार हुआ, इन सबका आकलन करता है। मोटे तौर पर सामाजिक अंकेक्षण प्रतिवेदन का उद्देश्य, जिसे मेजा ऊर्जा निगम प्रा0लि0 के सामाजिक एवं नैतिक निष्पादन को पुनर्वास एवं पुनर्स्थापन के अन्तर्गत विशेष समयावधि में निष्पादित किया गया, को मापना, समझना, रिपोर्टिंग और अन्ततः सुधारना है। पुनर्वास एवं पुनर्स्थापन के अन्तर्गत प्रभावित गांवों में लागू की गई संबंधित गतिविधियों को मेजा ऊर्जा निगम प्रा0लि0, ग्राम विकास सलाहकार समिति तथा परियोजना से प्रभावित परिवारों के मध्य संकीर्ण अंतराल को समझने में सहायक होगा एवं दोनों पक्षों की दक्षता तथा प्रभाविता को बढ़ाने के लिए सही मार्ग प्रशस्त करेगा।

अध्ययन के उद्देश्य

सामाजिक अंकेक्षण के मुख्य उद्देश्य निम्न हैं–

- पुनर्वास एवं पुनर्स्थापना के अन्तर्गत प्रस्तावित, कार्यान्वित एवं लम्बित गतिविधियों के बीच अंतराल मापना।
- परियोजना स्थापित करने के उपरांत मूलभूत विकास के स्तर का आकलन करना तथा सामुदायिक विकास योजना के अनुसार विभिन्न सामुदायिक गतिविधियां और प्रभावित व्यक्तियों तथा स्थानीय जनसंख्या विशेष रूप से स्वास्थ्य, शिक्षा एवं पेयजल को कैसे लाभान्वित किया गया, का आकलन करना।
- आवास अधिग्रहण से प्रभावित परिवारों द्वारा प्राप्त पुनर्वास लाभ का आकलन करना और आवास का स्तर, मूलभूत सुविधाओं तथा वर्तमान पुनर्वास स्थल का उनके पूर्व स्थापित स्तर से मूल्यांकन करना।
- मुआवजे की धनराशि की सहायता से प्रभावित व्यक्तियों द्वारा आय एवं आजीविका बहाली का तथा उनके आजीविका के खोए हुए स्तरों से संबंधित सुधारों का पता लगाना।
- अनुमोदित योजना के अनुसार परियोजना से प्रभावित गांवों में सफलतापूर्वक मूलभूत विकास के सृजन में परियोजना की सीमा का आकलन करना तथा प्रभावित व्यक्तियों एवं स्थानीय जनसंख्या को कैसे लाभान्वित किया गया तथा पुनर्वास एवं पुनर्स्थापन सामुदायिक विकास कार्यक्रम की अवधि में हितधारकों के मध्य संचार एवं परामर्श की प्रकृति का आकलन करना।
- प्रभावित व्यक्तियों के सर्वेक्षण के समय प्रभावित और गैर–प्रभावित गांवों के बीच मूलभूत सुविधाओं का तुलनात्मक विश्लेषण प्रस्तुत करना तथा लक्षित समूहों की

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आवश्यकता के अनुसार पुनर्वास कार्ययोजना के अन्तर्गत पुनर्वास एवं पुनर्स्थापन गतिविधियों की दक्षता एवं प्रभाविता में वृद्धि करना।

- प्रभावित एवं तटस्थ गांवों के लिए सामाजिक संकेतकों पर आधारित जीवन स्तर के प्रभावी मूल्यांकन के लिए स्वास्थ्य सेवाओं, शिक्षा, आर्थिक अवसरों, आय, मृत्यु एवं प्रजनन दर, मूलभूत सुविधाओं को दर्शाते हुए जीवन स्तर सूचकांक का मानक विकसित करना।
- गांवों की सामाजिक संरचना तथा गांवों के भीतर विशेष समूहों की बदलती किस्मत का आकलन करना और सामुदायिक विकास योजना के अन्तर्गत प्रदान किए गए विभिन्न पैकेजों (संकुलों) की व्यवहार्यता एवं प्रभाविता निर्धारित करना, और
- अध्ययन से प्राप्त अनुभवों के आधार पर भावी पुनर्वास एवं पुनर्स्थापन गतिविधियों के निवेश के लिए सिफारिशें एवं सुझावों को प्रदान करना।

अध्ययन की विधि

यह अध्ययन द्वितीयक (प्रकाशित एवं अप्रकाशित) तथा प्राथमिक दोनों प्रकार के आंकड़ों पर आधारित है। द्वितीयक आंकड़ों को मेजा ऊर्जा निगम प्राइवेट लिमिटेड तथा ग्राम पंचायत कार्यालय से एकत्र किया गया है। द्वितीयक आंकड़ों में गांव के अनुसार एवं विशेष समय सीमा में पुनर्वास कार्य योजना, प्रस्तावित एवं कार्यान्वित गतिविधियों की सूची, भौतिक एवं वित्तीय निष्पादन, हितधारकों की सूची इत्यादि शामिल हैं। जीवन स्तर की तुलना के लिए सिरहिर और जोरा गांवों का चयन किया गया ये दोनों तटस्थ गांव थे अर्थात् मेजा ऊर्जा निगम प्राइवेट लिमिटेड के कार्यक्रमों से प्रभावित नहीं थे। इन तटस्थ गांवों में निवास करने वाले परिवारों के प्रतिदर्श से चयनित सूचकांको पर विकास ससूचनाएं संग्रहीत किया गया है।

अध्ययन हेतु तीन प्रकार के अध्ययन उपकरणों को विकसित किया गया, जिनके नाम क्रमशः– ग्राम अनुसूची, प्रभावित व्यक्तियों की अनुसूची और विभिन्न समुदायों के लिए समूह चर्चा अनुसूची है। सभी विकसित अध्ययन उपकरणों को टिप्पणियों एवं सुझावों हेतु मेजा ऊर्जा निगम प्राइवेट लिमिटेड को प्रस्तुत किया गया और इन प्रस्तुत किए गए अध्ययन उपकरणों पर मेजा ऊर्जा निगम प्राइवेट लिमिटेड से टिप्पणियाँ एवं सुझाव प्राप्त किया गया। मेजा ऊर्जा निगम प्राइवेट लिमिटेड के सुझावों को शामिल करते हुए अध्ययन उपकरणों को अंतिम रूप दिया गया। इन गांवों से अपने आप को परिचित कराने तथा सुविधा प्रदाताओं (फैसिलीटेटर्स) की पहचान करने के लिए हमने प्रभावित एवं तटस्थ गांवों का कई बार भ्रमण किया। हमने गांवों के स्थानीय समुदायों तथा मुख्य लोगों की सहायता से सुविधा–प्रदाताओं/एनीमेटर्स की पहचान किया। ये सुविधा–प्रदाता/एनीमेटर अध्ययन क्षेत्र में निवास करते हैं। गोविन्द बल्लभ पन्त सामाजिक विज्ञान संस्थान द्वारा दो दिवसीय क्षेत्र आधारित प्रशिक्षण कार्यक्रम का आयोजन किया गया तथा सभी चयनित सुविधा–प्रदाताओं को जमीनी स्तर के सामाजिक अंकेक्षण के पहलुओं पर प्रशिक्षित किया गया। हमने प्राथमिक आंकड़ों को संरचनात्मक अनुसूचियों के माध्यम से एकत्र किया है तथा परियोजना से प्रभावित परिवारों/व्यक्तियों का व्यक्तिगत साक्षात्कार विधि द्वारा सूचना एकत्र की गई। हमने प्रभावित परिवारों के स्तर पर प्रत्येक प्रभावित गांवों से 25 प्रभावित परिवारों का चयन किया, अपने प्रतिदर्श हानि की भरपाई करने के लिए हमने कुछ प्रभावित

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व्यक्तियों/परिवारों का अतिरिक्त प्रतिदर्श लिया। गांवों में क्रियान्वित सामुदायिक विकास की गतिविधियों का आकलन करने के लिए हमने समूह चर्चा का आयोजन करके गांवों के विभिन्न वर्गों एवं सजातीय समुदायों से सूचनाओं को एकत्र किया है। पुनर्वास कार्य योजना के अन्तर्गत संबंधित क्रियान्वित गतिविधियों के तथ्यों का पता लगाने के लिए इन लक्षित समूहों, ग्राम पंचायत के प्रतिनिधियों एवं अन्य सम्बंधित व्यक्तियों से लिंग एवं जाति का समुचित प्रतिनिधित्व करने वाले अन्य संबंधित व्यक्तियों को शामिल किया गया। समूह चर्चा आयोजित करने के लिए प्रत्येक लक्षित समूह की बस्तियों का भ्रमण किया गया तथा इसके लिए समय एवं स्थान का पूर्व निर्धारण समुदाय के सहमति से किया गया। अध्ययन दल के दो सदस्यों द्वारा समूह चर्चा का आयोजन किया गया, जिसमें एक ने चर्चा के लेखन का तथा दूसरे ने संचालन का काम किया। लिखने वाले सदस्य ने समस्त सूचनाओं को अनुसूची/फील्ड डायरी में लिपिबद्ध किया। समूह चर्चा के दौरान हमने वायस रिकार्डर का भी उपयोग किया जिसके बाद में प्रलेखीकरण के लिए कोई महत्वपूर्ण बिन्दु छूट न जाय। इस प्रक्रिया से समूह के समय चर्चा की अवधि में लेखक द्वारा छूटी हुई सूचनाओं को लिखने में सहायता प्राप्त हुई। मूलभूत सुविधाओं की उपलब्धता के बारे में जानकारी लेने के लिए हमने प्रत्येक चयनित गांव में ग्राम अनुसूची का उपयोग किया है। हमने फील्ड डायरी के माध्यम से भी कुछ गुणात्मक सचनाओं को एकत्र किया है। इस तरह की सूचनाएं प्रेक्षण, साक्षात्कार और समूह चर्चा के दौरान लिया गया हैं।

उपागम

क्षेत्र सर्वेक्षण प्रारम्भ होने के साथ ही दो गांवों क्रमशः सलैया कला एवं सलैया खुर्द का सामाजिक वातावरण सर्वेक्षण की दृष्टि से धीरे–धीरे विपरीत एवं विस्फोटक हो गया। इन गावों के निवासी एमयूएनपीएल के विरुद्ध अपनी मांगों को लेकर जोरदार विरोध करने लगे। ग्रामीण एमयूएनपीएल से अपनी मांगों को मनवाने के लिए जो दबाव डाल रहे थे वह धीरे–धीरे बढ़ता जा रहा था। ग्रामों की बिगड़ते सामाजिक वातावरण को ध्यान में रखते हुए हमने क्षेत्र सर्वेक्षण को दो चरणों में बाँट दिया। सुविधा प्रदाताओं की मदद से प्रथम चरण का क्षेत्र सर्वेक्षण प्रभावित ग्रामों क्रमशः कोहडार, इसौटा, पताईडाडी, एवं मई खुर्द तथा तटस्थ क्रमशः सिरहिर एवं जोरा ग्रामों में 11 नवम्बर 2014 को प्रारम्भ किया गया इस प्रकार इन छः ग्रामों का क्षेत्र सर्वेक्षण दिसम्बर 2014 के अन्त तक पूर्ण हो गया। दूसरे चरण के क्षेत्र सर्वेक्षण को प्रारम्भ करने के लिए अध्ययन दल के सदस्यों ने समस्याग्रस्त ग्रामों (सलैया कला एवं सलैया खुर्द) का अनेक बार भ्रमण किया किन्तु ये प्रयास सार्थक न रहा। इन ग्रामों के ग्रामीणों का मानना था कि ऐसे अध्ययन से गांव पर कोई प्रभाव नहीं है। इन परिस्थितियों में हमने द्वितीय चरण का क्षेत्र सर्वेक्षण को टाल दिया कारण ग्रामीणों के जवाब एवं प्रतिक्रियाएं एमयूएनपीएल के प्रति पूर्वाग्रह से ग्रसित हो सकते थे। इन ग्रामों का सामाजिक वातावरण सामान्य होने पर फरवरी 2015 के प्रथम सप्ताह से द्वितीय चरण का क्षेत्र सर्वेक्षण प्रारम्भ हुआ और 15 मार्च 2015 तक इन ग्रामों का सर्वेक्षण कार्य समाप्त किया जा सका।

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अध्ययन में सम्मलित परिवार

अध्ययन के लिए प्रभावित 762 परिवारों से प्रतिदर्श लिया गया है। अध्ययन के उद्देश्यों के अनुसार प्रतिदर्श के तीन प्रकार के नमूनों का गठन किया गया–

(i) अध्ययन की संरचना हेतु प्रतिदर्श संरचना के अन्तर्गत प्रत्येक गांवों से 25–25 परियोजना प्रभावित व्यक्तियों को प्रतिवेदित छः ग्रामों से प्रतिदर्श के रुप में लिया गया है। इस प्रकार कुल 150 प्रभावित व्यक्ति इसमें सम्मिलित हैं।

(ii) जिन दो गांवों में आवास अधिग्रहण के मामले थे, वहां से प्रत्येक गांव से 25 प्रभावित व्यक्तियों को प्रतिदर्श में लिया गया।

(iii) गैर–कृषि श्रमिक के अन्तर्गत शत–प्रतिशत उन प्रभावित व्यक्तियों/परिवारों को शामिल किया गया, जो भूमि अधिग्रहण से अप्रत्यक्ष रूप से प्रभावित थे।

गांवों के भीतर परियोजना से प्रभावित परिवारों को जाति प्रतिनिधित्व सुनिश्चित करते हुए 'व्यवस्थित यादृच्छिक प्रतिदर्श पद्धति' के आधार पर परिवारों के प्रतिदर्श लिए गये।

तटस्थ गांवों के लिए हमने संस्थान द्वारा जनसंख्या सर्वेक्षण में दिए गए कुल परिवारों की संख्या को आधार बनाया है। जनसंख्या सर्वेक्षण के अनुसार सिरहिर गांव में 411 तथा जोरा गांव में 75 परिवार थे। जीवन स्तर की तुलना के लिए हमने तटस्थ गांवों से 75 परिवारों का सर्वेक्षण किया, जिसमें 47 परिवार सिरहिर तथा 28 परिवार जोरा गांव से थे।

गांवों में क्रियान्वित सामुदायिक विकास गतिविधियों में निष्पादित कार्यो के आकलन के लिए हमने विभिन्न वर्गों तथा सजातीय समुदायों के साथ समूह चर्चाओं का आयोजन करके सूचनाओं को एकत्र किया है। सभी प्रभावित छः गांवों में 30 समूह चर्चाओं का आयोजन किया गया। हमने अनुसूचित जाति, अन्य पिछड़ी जाति, सामान्य जातियों तथा महिला प्रतिनिधियों से प्रत्येक से छः समूह चर्चाओं का आयोजन किया जबकि अल्पसंख्यक समूहों के मामले में केवल दो समूह चर्चाओं का आयोजन किया गया क्योंकि केवल दो गांवों में ही अल्पसंख्यक समूह पाए गए। हमने ग्राम पंचायतों तथा ग्राम विकास सलाहकार समिति के प्रतिनिधियों के साथ केवल चार समूह चर्चा आयोजित किये, क्योंकि सभी प्रभावित गांवों में केवल चार ग्राम पंचायते हैं। संरचनात्मक अनुसूची द्वारा चर्चा में प्रत्येक संबंधित समुदायों से औसतन 6–7 व्यक्तियों को शामिल किया गया जिसे विशेष रूप से कहे गए उद्देश्य के लिए तैयार किया गया था।

उपरोक्त सूचनाओं के अतिरिक्त अध्ययन के अन्तर्गत चयनित प्रभावित एवं गैर–प्रभावित ग्रामों की आधारभूत सुविधाएं एवं भौतिक संरचना के बारे में सूचनाओं को संग्रहीत किया गया। इन सूचनाओं के संग्रहण हेतु गांव के प्रबुद्ध नागरिकों, ग्राम पंचायत के प्रतिनिधियों एवं प्रभावित परिवारों के सदस्यों से समूह चर्चा का आयोजन किया गया। इस प्रकार प्रस्तुत अध्ययन के अन्तर्गत संरचित अनुसूची के द्वारा 190 परियोजना प्रभावित परिवार/व्यक्ति, 30 समूह चर्चा तथा 8 ग्राम अनुसूची हेतु समूह चर्चा का आयोजन किया गया। सन्दर्भ अवधि में आरएपी के अन्तर्गत संचालित गतिविधियों की वास्तविक स्थिति को जानने के लिए एमयूएनपीएल से सूचनाएं प्राप्त किया गया।

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अध्ययन की सम्प्राप्तियाँ

अध्ययन की सम्प्राप्तियों को नीचे प्रस्तुत किया जा रहा है–

समुदाय की जागरूकता

अध्ययन से पता चलता है कि अधिकांश समूहों को मुख्यतः सड़क/मार्ग निर्माण, पेयजल सुविधाओं, स्वास्थ्य जाँच शिविर, मोतियाबिन्द का ऑपरेशन एवं आईटीआई में युवाओं का प्रशिक्षण जैसी गतिविधियों से परिचित थे।

क्रियान्वयन पूर्व तैयारी : समुदाय के विचार

लगभग 67 प्रतिशत उत्तरदाता समूहों ने माना कि कार्य के क्रियान्वयन के पूर्व स्थानीय आवश्यकता आकलन का स्तर उच्च या बहुत उच्च था, जबकि 26.7 प्रतिशत उत्तरदाता समूहों को स्थानीय आवश्यकता आकलन के कार्य की जानकारी नहीं थी। इस प्रकार केवल 7 प्रतिशत उत्तरदाताओं ने महसूस किया कि स्थानीय आवश्यकता आकलन का स्तर कम या बहुत कम था। इन गतिविधियों के क्रियान्वयन के संबंध में स्थानीय लोगों की सहमति ली गयी या चर्चा की गयी। यह पाया गया कि लगभग 87 प्रतिशत उत्तरदाता समूहों ने महसूस किया कि गतिविधियों के क्रियान्वयन के पूर्व चर्चा का स्तर अधिक अथवा बहुत अधिक था जबकि केवल 10 प्रतिशत का मत है कि यह स्तर कम अथवा बहुत कम था। जहां तक जन–सहभागिता के संबंध में उत्तरदाता समूहों का विचार है, लगभग 67 प्रतिशत उत्तरदाता समूहों ने बताया कि जन सहभागिता का स्तर उच्च या बहुत उच्च था।

सामुदायिक विकास कार्य : आवश्यकता, क्रियान्वयन तथा प्रभाव

अध्ययन के दौरान हमने प्रत्येक प्रभावित गांवों में सभी चयनित समुदायों से तीन प्रकार के प्रश्नों को पूछा। पहला प्रश्न कार्य की आवश्यकता तथा इसके क्रियान्वयन के स्तर से संबंधित था। आगे यदि गतिविधि क्रियान्वित की गयी तो हमने समुदाय से दूसरा प्रश्न पूछा जो कार्य की गुणवत्ता के संतुष्टि स्तर से संबंधित था। तीसरा प्रश्न गांव में क्रियान्वित गतिविधि के प्रभाव से संबंधित था। इस कार्य संरचना के अन्तर्गत 18 सामुदायिक विकास गतिविधियों को सूचीबद्ध किया गया, जिसे मेजा ऊर्जा निगम प्राइवेट लिमिटेड के पुनर्वास कार्य योजना के अन्तर्गत सम्मिलित किया गया था। मेजा ऊर्जा निगम प्राइवेट लिमिटेड की प्रगति रिपोर्ट के अनुसार सभी गतिविधियों को सन्दर्भ अवधि क्रियान्वित किया गया था। हमने प्रत्येक संचालित गतिविधियों के लिए अलग–अलग प्रश्नों को पूछा, ये प्रश्न कार्य की आवध्यकता, कार्य की गुणवत्ता तथा कार्य के प्रभावों/लाभों से सम्बन्धित थे। इन गतिविधियों की सम्प्राप्तियों को निम्नलिखित अनुच्छेदों के अन्तर्गत प्रस्तुत किया गया है–

(i) गांवों के अंदर सड़क/मार्ग का निर्माण

सभी 30 सामाजिक समूहों ने स्वीकार किया कि इस कार्य की बहुत अधिक आवश्यकता अपने गांव में थी तथापि 15 सामुदायिक समूहों ने सूचित किया कि यह कार्य उनके गांवों में क्रियान्वित किया गया। विश्लेषण स्पष्ट करता है कि कोहडार, इसौटा और पताई डांडी ग्रामों में यह कार्य नहीं क्रियान्वित किया गया। इस तथ्य को लेकर एमयूएनपीएल से जानकारी ली गई तो पता चला कि इन ग्रामों में ग्रामसभा की भूमि के अनुपलब्धता के कारण सड़क/मार्ग निर्माण का कार्य क्रियान्वित नहीं किया जा सका। साथ ही एमयूएनपीएल ने बताया कि वे गांवों में कल्याणकारी गतिविधियों का क्रियान्वयन चरणबद्ध रूप से कर रहें हैं। मई खुर्द, सलैया कला एवं सलैया खुर्द ग्रामों के सभी सामाजिक समूहों

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ने स्वीकार किया कि प्रस्तावित कार्य गांव में क्रियान्वित किया गया। कार्य गुणवत्ता की दृष्टि से देखा जाय तो सभी 15 सामाजिक समूह जिन्होंने स्वीकार किया कि गांव में कार्य क्रियान्वित किया गया था, उसमें 11 समूहों ने कार्य की गुणवत्ता को अच्छा या बहुत अच्छा माना जबकि 4 समूहों ने कार्य गुणवत्ता को औसत माना था। सार्थक रूप से सभी 15 सामाजिक समूह ने सड़क/मार्ग निर्माण को गांव के लिए उच्च लाभकारी मानते हुए स्वीकार किया कि ग्रामीणों को इससे बहुत लाभ हो रहा है।

(ii) वैकल्पिक सम्पर्क मार्ग का निर्माण

सभी सामुदायिक समूहों द्वारा बताया गया कि कार्य की आवश्यकता गांव में उच्च स्तर पर थी। कुल 3 ग्राम में 40 प्रतिशत (12) समूहों ने स्वीकार किया कि कार्य गांव में क्रियान्वित की गयी थी। इन समूहों में 80 प्रतिशत (4) समूह सलैया कला, 75 प्रतिशत (3) समूह सलैया खुर्द, 50 प्रतिशत (3) समूह कोहडार तथा 33 प्रतिशत समूह मई खुर्द ग्रामों के थे। जबकि शेष 60 प्रतिशत (18) समुदाय समूहों ने बताया कि इस कार्य का क्रियान्वयन उनके गांव में नहीं किया गया। यह आश्चर्यजनक है कि सलैया कला, सलैया खुर्द, कोहडार एवं मई खुर्द ग्रामों के समूहों ने दोनो प्रकार का जबाब दिया हैं। वास्तव में सभी (18) समुदाय समूहों ने इस प्रश्न को अपने टोला या मजरा को दृष्टिगत रखते हुए जबाब दिया है। जिसके कारण उनके जबाब में विरोधाभाष है। कुल 12 समूह जिन्होंने स्वीकार किया है कि उनके गांव में कार्य क्रियान्वित किया गया, उसमें लगभग 58 प्रतिशत (7) समूहों ने बताया कि क्रियान्वित कार्य उच्च गुणवत्ता स्तर की थी तथा 34 प्रतिशत (4) समूह मानते है कि कार्य गुणवत्ता का स्तर औसत था जबकि 8 प्रतिशत (1) समूह विश्वास करता है कि कार्य गुणवत्ता का स्तर निम्न था। प्रशंसनीय है कि 66.7 प्रतिशत (8) समुदाय समूह मानते हैं कि गांव में निर्मित वैकल्पिक सम्पर्क मार्ग से गांव के लोगों को उच्च स्तर का लाभ प्राप्त हुआ है, 4 समुदाय समूह जिन्होंने बताया कि निर्मित कार्य से गांव के लोगों को अल्प/कम लाभ हुआ है वे या तो उस बस्ती/मजरा में नहीं रहते या उस मार्ग का उपयोग नहीं करते हैं।

(iii) तालाबों का निर्माण/जीर्णोद्धार

90 प्रतिशत (अर्थात् 28) से अधिक सामुदायिक समूहों ने स्वीकार किया कि गांवों में इस कार्य की अत्यधिक आवश्यकता थी। तथापि ध्यान देने योग्य यह है कि ग्राम समूहों में केवल दो गांव सलैया कला एवं सलैया खुर्द में सूचना मिली कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया जबकि अन्य दूसरे गांवों से सभी समूहों ने बताया कि उनके गांवों में इस प्रकार का कोई कार्य नहीं किया गया, इस संदर्भ में एमयूएनपीएल ने बताया कि ग्राम सभा की भूमि की अनुपलब्धता के कारण यह कार्य सम्बन्धित ग्रामों में नहीं किया गया। सलैया कला एवं सलैया खुर्द गांवों के सभी समूहों ने इस किए गए कार्य के बारे में बताया कि कार्य की गुणवत्ता औसत स्तर की थी तथा प्रत्येक गांव से केवल एक समूह ने माना कि कार्य की गुणवत्ता अच्छी थी।

(iv) सामुदायिक कुओं का निर्माण

यह माना जाता है कि सिंचाई एवं पेयजल उद्देश्यों के लिए कुएं जल के स्थायी स्रोत हैं। इस महत्व के कारण सभी गांवों से शत–प्रतिशत समूहों ने स्वीकार किया कि इस कार्य की आवश्यकता गांव में उच्च स्तर पर थी। किन्तु यह पाया गया कि केवल सलैया कला गांव में यह कार्य किया गया जहॉ विस्थापित लोगों को पुनर्वासित किया गया था। इस सन्दर्भ

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में एमयूएनपीएल ने बताया कि इस कार्य के लिए अन्य गांव में गाम सभा की जमीन उपलब्ध नही थी। कुल 4 समूहों में शत–प्रतिशत (अर्थात 4) समुदाय समूहों ने बताया कि निर्मित कुआं की गुणवत्ता अच्छी या बहुत अच्छी है। सार्थक रूप से 75 प्रतिशत (अर्थात 3) समूह ने माना कि निर्मित कुआं से गांव के लोगों को उच्च स्तर पर लाभ मिल रहा है जबकि 25 प्रतिशत (अर्थात 1) समूह मानता है कि इससे गांव के लोगों को अल्प लाभ हुआ है।

(v) पेयजल हेतु हैण्डपम्पों की स्थापना

यह भी प्रेक्षित किया गया कि सभी चयनित गांवों में हैण्डपम्प पेयजल के प्रमुख स्रोत थे। इस कारण सभी गांवों से शत–प्रतिशत समूहों ने स्वीकार किया कि गांव में इसकी अत्यधिक आवश्यकता है। गौरतलब है कि सभी 30 समूहों ने सूचित किया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा उनके गांवों में यह कार्य किया गया। आंकड़े बताते हैं कि लगभग 75.0 प्रतिशत अर्थात् 22 समूह इस कार्य की गुणवत्ता से अत्यधिक संतुष्ट थे जबकि 25 प्रतिशत अर्थात 8 समूह मानते है कि इस कार्य की गुणवत्ता औसत स्तर की है। गौरतलब है कि शत प्रतिशत (30) सामुदायिक समूहों ने माना कि हैण्डपम्पों की स्थापना से ग्रामीण अत्यधिक लाभान्वित हुए।

(vi) किसान मेला

पुनर्वास कार्य योजना के अन्तर्गत तैयार किए गए किसान मेलों का आयोजन एक महत्वपूर्ण कार्य है। इस कार्य का मूल उद्देश्य आधुनिक कृषि पद्धतियों के बारे में किसानों के जागरूकता स्तर में वृद्धि करना है। सभी गांवों से 90 प्रतिशत (28) से अधिक सामुदायिक समूहों ने स्वीकार किया कि गांवों में इसकी अधिक आवश्यकता थी, जबकि 10 प्रतिशत (अर्थात 2) समूहों ने बताया कि गांव में इस प्रकार के कार्य की आवश्यकता नही थी, ये गांव सलैया कला एवं सलैया खुर्द थे। कुल 30 ग्राम समुदाय समूहों में 60 प्रतिशत (8) समूहों ने बताया कि गांव में किसान मेला का आयोजन एमयूएनपीएल के द्वारा किया गया था जबकि 40 प्रतिशत (अर्थात 12) समूहों ने बताया कि यह कार्य गांव में नहीं हुआ। यह आश्चर्य है कि इसके आयोजन को लेकर सभी गांवों में सामुदायिक समूहों ने सकारात्मक एवं नकारात्मक दोनों प्रकार की सूचनाएं दी है। यहां ध्यान देना उचित है कि कार्यक्रम का आयोजन क्लस्टर स्तर पर किया गया तथा मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सभी गांवों में सूचना प्रचारित की गयी थी। सार्थक रूप से 50 प्रतिशत (अर्थात 10) से अधिक समुदाय समूहों ने माना कि किसान मेला से गांव के किसानों को बहुत लाभ हुआ है जबकि शेष 50 प्रतिशत (अर्थत 8) समूहों का मानना था कि इससे गांव के किसानों को कम या बहुत कम लाभ मिला है।

(vii) स्नान घाट का निर्माण

सामान्यतः स्नान घाट की आवश्यकता उन गांवों को होती है जो गांव या तो नदी के तट पर है या उनके गांव में नाल या नहर स्थित है। उल्लेखित है कि मई खुर्द, सलैया कला, सलैया खुर्द एवं कोहडार ग्राम ऐसे स्थानों पर स्थित है। विश्लेषण उद्घाटित करता है कि लगभग 90 प्रतिशत अर्थात् 28 सामुदायिक समूहों ने स्वीकार किया कि इसकी अत्यधिक आवश्यकता थी जबकि 2 समूहों ने, जो सलैया खुर्द एवं सलैया कला गांव के थे, ने माना कि इसकी आवश्यकता कम थी। यह कार्य केवल मईखुर्द, सलैया खुर्द एवं सलैया कला गांव में किया गया जहां सभी सामुदायिक समूहों ने माना कि कार्य की गुणवत्ता उच्च स्तर

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की थी। सार्थक रूप से शत–प्रतिशत (अर्थात 5) समुदाय समूह जो मई खुर्द गांव के थे, माना कि स्नान घाट से लोगों को अत्यधिक लाभ हो रहा है और यह बहुत उपयोगी है। उल्लेखनीय है कि एमयूएनपीएल ने स्नान घाट का निर्माण वही पर कराया जहां विस्थापित परिवारों को पुर्नवासित किया गया है।

(viii) सामाजिक वानिकी के अन्तर्गत वृक्षारोपण

लगभग 93 प्रतिशत (अर्थात 28) समुदाय समूहों ने माना कि वृक्षारोपण की जरुरत गांव में उच्च स्तर पर थी जबकि सलैया खुर्द एवं सलैया कला गांव के 7 प्रतिशत (2) समूहों ने इस कार्य की आवश्यकता गांव में निम्न स्तर पर माना। यह कार्य सभी गांवों में किया गया, ऐसे गांव जो कार्य की आवश्यकता को स्वीकार करते है उनमें 18 में 12 समुदाय समूहों का मानना है कि कार्य की गुणवत्ता उच्च स्तर की थी जबकि 5 समूहों ने इस कार्य की गुणवत्ता को औसत स्तर पर माना। अनुसूचित जाति के एक समूह ने इस कार्य की गुणवत्ता को औसत स्तर का माना है। सार्थक रूप से लगभग 78 प्रतिशत (14) समुदाय समूहों ने माना कि वृक्षारोपण से गांव के लोगों को बहुत अधिक लाभ हुआ है। एमयूएनपीएल के अभिलेखों के अनुसार लगभग एक लाख वृक्षों का रोपण सामाजिक वानिकी के अन्तर्गत किया गया है।

(ix) सामान्य स्वास्थ्य परीक्षण शिविर

प्रभावित गांव में स्वास्थ्य सेवाएं एक प्रमुख आवश्यकता थी। शत–प्रतिशत अर्थात् 30 सामुदायिक समूहों ने इसकी अत्यधिक आवश्यकता को स्वीकार किया। उल्लेखनीय है कि सभी 30 समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा इस कार्य को किया गया। 50.0 प्रतिशत समूहों (15) ने विश्वास जताया कि स्वास्थ्य परीक्षण शिविर की गुणवत्ता उच्च स्तर की थी, जबकि शेष 50 प्रतिशत (अर्थात 15) समूहों ने माना कि शिविर की गुणवत्ता औसत स्तर की थी। सार्थक रूप से 76.7 प्रतिशत अर्थात् 23 समूहों ने महसूस किया कि स्वास्थ्य परीक्षण शिविर से ग्रामीणों को अत्यधिक लाभ मिला, जबकि 23. 3 प्रतिशत (अर्थात 7) समूह जो सभी समुदाय से सम्बन्धित थे, माना कि इन शिविरों से लोगों को बहुत कम लाभ प्राप्त हुआ।

(x) नेत्र परीक्षण शिविर

स्वास्थ्य से सम्बन्धित अन्य गतिविधियों में नेत्र जाँच हेतु शिविर का आयोजन किया गया। यह प्रशंसनीय है कि सभी 30 समूहों ने स्वीकार किया कि नेत्र परीक्षण शिविर की अत्यधिक आवश्यकता गांव के लोगों को थी तथा सभी 30 समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया। सार्थक रूप से 75 प्रतिशत (अर्थात 22) सामुदायिक समूहों ने यह विश्वास व्यक्त किया कि आयोजित किए गए नेत्र परीक्षण शिविर की गुणवत्ता उच्च थी। इसी तरह सभी 30 समूहों ने माना कि नेत्र जांच शिविर से ग्रामीणों को अधिक लाभान्वित किया गया। हमारा सर्वेक्षण उद्घाटित करता है कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड की इस गतिविधि की अत्यधिक सराहना तथा स्वीकृति स्थानीय लोगों के द्वारा मिली तथा सभी गांवों में इसके लाभ एवं गुणवत्ता के संदर्भ में सभी समूहों द्वारा सराहना की गयी।

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(xi) पशु स्वास्थ्य परीक्षण शिविर

यह प्रेक्षित किया गया कि पशु स्वास्थ्य सेवाओं की आवश्यकता मूलरूप से लगभग सभी गांवों में थी। यह सेवा प्रभावित गांवों से अधिक दूरी पर स्थित होने के कारण भी ज्यादातर लोग अथवा पशुपालक इस सेवा का लाभ उठाने में सक्षम नहीं थे। सभी गांवों से लगभग 93 प्रतिशत अर्थात् 28 समूहों ने स्वीकार किया कि इसकी अधिक आवश्यकता गांव में थी जबकि 6.7 प्रतिशत (अर्थात 2) समूह जो सलैया खुर्द एंव सलैया कला गांव के थे, वे इसकी आवश्यकता को कम महसूस करते हैं। सभी समूहों (30) में, 80 प्रतिशत (अर्थात 24) समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य गांव में किया गया। इनमें से 37.5 प्रतिशत अर्थात् 9 समूहों ने माना कि इस सेवा की गुणवत्ता उच्च स्तर की थी जबकि इतने ही समूहों ने इसकी गुणवत्ता औसत स्तर का माना है। 50.0 प्रतिशत (12) समूहों ने माना कि पशु शिविर से ग्रामीणों को अत्यधिक लाभ हुआ।

(xii) पशुओं का टीकाकरण/प्रतिरक्षण

एमयूएनपीएल द्वारा पशुओं को विभिन्न रोगो से बचाव एवं रोक–थाम के लिए प्रतिरक्षण/टीकाकरण शिविरों का आयोजन किया गया। लगभग 93 प्रतिशत अर्थात् 28 सामुदायिक समूहों ने स्वीकार किया कि इसकी अत्यधिक आवश्यकता गांव में थी जबकि 2 समूहों ने माना कि इसकी आवश्यकता कम थी। सार्थक रूप से 24 समुदाय समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया। 41.7 प्रतिशत (अर्थात 10) समूहों ने विश्वास व्यक्त किया कि टीकाकरण शिविर की सेवाओं की गुणवत्ता उच्च थी जबकि इतने ही समूहों का मानना था कि इसकी गुणवत्ता औसत स्तर की थी। यहां यह उल्लेख करना आवश्यक है कि इन शिविरों का आयोजन संकुल स्तर पर किया गया था। विशेषकर 62.5 प्रतिशत अर्थात् 15 समूहों ने माना कि टीकाकरण शिविर से ग्रामीण अधिक लाभान्वित हुए जबकि शेष समूह इसे कम लाभकारी मानते हैं।

(xiii) शारीरिक रुप से विकलांग व्यक्तियों को सहायक उपकरणों का वितरण

प्रभावित गांव में शारीरिक रूप से विकलांग व्यक्ति हासिये पर रहने वाले मुख्य समूहों में एक है और इन्हें भौतिक संसाधन देना, इनके जीवन को सरल बनाना है। प्रशंसनीय रुप से सभी 30 समूहों ने स्वीकार किया कि इसकी अत्यंत आवश्यकता गांव में थी तथा केवल 5 सामुदायिक समूहों ने बताया कि इस कार्य को मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सम्पादित भी किया गया। सार्थक रूप से शत–प्रतिशत अर्थात् 5 समूहों ने विश्वास व्यक्त किया कि विकलांगों को वितरित सहायता सामग्रियों की गुणवत्ता उच्च थी। ध्यान देने योग्य है कि शत–प्रतिशत अर्थात् 5 समूहों ने माना कि वितरित सहायता सामग्रियों से विकलांग व्यक्तियों के जीवन शैली में सार्थक रूप से काफी सुधार हुआ।

(xiv) क्रिकेट प्रतियोगिता का आयोजन

खेल से सम्बन्धित क्रिकेट प्रतियोगिता का आयोजन एक अन्य महत्वपूर्ण गतिविधि थी। आयोजन की सार्थकता को सभी समूहों ने स्वीकार किया तथा 90 प्रतिशत (27) समुदाय समूहों ने बताया कि इसका आयोजन एमयूएनपीएल द्वारा किया गया। सार्थक रूप से लगभग 33 प्रतिशत (9) समुदाय समूहों का विश्वास था कि इस गतिविधि की गुणवत्ता उच्च स्तर की थी। इसी प्रकार लगभग 50 प्रतिशत (अर्थात 13) समुदाय समूहों का मानना था कि क्रिकेट प्रतियोगिता का आयोजन सभी ग्रामीणों के लिए सर्वाधिक प्रशंसनीय एवं स्वीकार्य गतिविधि थी जिसकी गुणवत्ता एवं लाभ को लेकर सभी समूहों ने प्रशंसा की थी।

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(xv) वर्षा से बचाव हेतु छाया स्थल का निर्माण

वर्षा से बचाव हेतु छाया स्थल का निर्माण एक अन्य गतिविधि थी। सभी (30) समूहों ने इसकी आवश्यकता को स्वीकार्य किया तथा शत–प्रतिशत (30) समुदाय समूहों ने बताया कि एनयूएनपीएल द्वारा यह कार्य किया गया था। सार्थक रूप से 80 प्रतिशत (24) समुदाय समूहों का विश्वास था कि निर्मित छाया स्थल की गुणवत्ता उच्चकोटि की थी। इसी प्रकार लगभग 67.0 प्रतिशत (अर्थात 20) समुदाय समूहों का मानना है कि छाया स्थल के गांव के लोगों को अत्यधिक लाभ हुआ है।

(xvi) कौशल स्तरोन्नयन एवं क्षमता निर्माण

युवाओं एवं प्रौढ़ो में कौशल का स्तरोन्नयन एवं क्षमता निर्माण एक अन्य महत्पूर्ण गतिविधि थी। प्रशंसनीय रूप से सभी (30) समुदाय समूहों द्वारा इसकी आवश्यकता एवं महत्व को स्वीकार किया गया तथा सभी (30) समुदाय समूहों ने बताया कि यह कार्य एमयूएनपीएल द्वारा किया गया तथा कौशल स्तरोन्नयन एवं क्षमता निर्माण की गुणवत्ता अच्छी या बहुत अच्छी थी। इसी प्रकार 80 प्रतिशत अर्थात 24 समुदाय समूहों का मानना था कि इस गतिविधि से गांव के युवाओं को बहुत अधिक लाभ हुआ।

(xvii) लघु बांधों का निर्माण

प्रभावित गांवों में जल संचय हेतु लघु बांधों का निर्माण एमयूएनपीएल द्वारा संचालित एक अन्य महत्वपूर्ण गतिविधि थी। प्रशंसनीय है कि सभी (30) समूहों ने इस कार्य की आवश्यकता को स्वीकार किया तथा 23.3 प्रतिशत अर्थात 7 समुदाय समूहों ने बताया कि एनयूएनपीएल द्वारा उनके गांव में यह कार्य कराया गया था। सार्थक रूप से सभी 7 समूहों ने विश्वास व्यक्त किया कि निर्मित बन्धी की गुणवत्ता उच्चकोटि की है। इसी प्रकार 57 प्रतिशत अर्थात 4 समुदाय समूहो का मानना था कि निर्मित बन्धी से गांव के लोगों को बहुत लाभ हुआ। यह उल्लेखनीय है कि इस योजना का लाभ सलैया कला एवं सलैया खुर्द ग्रामों को ही प्राप्त हुआ है।

(xviii) अग्नि आपदा से प्रभावित परिवारों में सामग्रियों का वितरण

अग्नि आपदा से प्रभावित परिवारों को आवश्यक सामग्रियों का वितरण एमयूएनपीएल की एक अन्य महत्वपूर्ण गतिविधि थी। सार्थक रूप से सभी (30) समूहों ने स्वीकार किया कि ऐसे महत्वपूर्ण मदद की आवश्यकता लोगो को थी तथा 30 प्रतिशत अर्थात 9 समुदाय समूहों ने बताया कि एमयूएनपीएल ने यह कार्य किया था। सार्थक रूप से 77.8 प्रतिशत (7) समुदाय समूहों का विश्वास था कि वितरित सामग्रियों की गुणवत्ता उच्च कोटि की थी। इसी प्रकार शत–प्रतिशत अर्थात 9 समूहों का मानना था कि अग्नि आपदा से प्रभावित परिवारों का इस मदद से बहुत लाभ हुआ।

समुदायों और प्रभावित परिवारों के पसंदीदा सामुदायिक विकास गतिविधियों का निष्पादन तथा प्रभाव

विद्यालयों तथा बच्चों के लिए सामुदायिक विकास गतिविधियों का निष्पादन

मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा कुछ सामुदायिक विकास गतिविधियों का आयोजन किया गया विशेष रूप से प्रभावित गांवों में स्थित विद्यालयों तथा इसमें पढ़ने वाले बच्चों के लिए। ऐसी चार गतिविधियां थी जिसे मेजा ऊर्जा निगम के पुनर्वास कार्य योजना के

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अन्तर्गत तैयार किया था। मुख्यतः ये गतिविधियों क्रमशः स्वास्थ्य शिविर का आयोजन, नेत्र परीक्षण शिविर, स्कूल चहारदीवारी का निर्माण तथा फर्नीचर का वितरण है। उल्लेखनीय है कि सभी 93 प्रतिशत अर्थात 28 सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा स्वास्थ्य परीक्षण शिविर का आयोजन किया गया। नेत्र परीक्षण शिविर के मामले में इसे केवल 70.0 प्रतिशत अर्थात् 21 समूहों द्वारा जबकि चहारदीवारी निर्माण एवं फर्नीचर के वितरण के मामले में इसे क्रमशः 43.4 प्रतिशत तथा 6.7 प्रतिशत ने निष्पादन की सूचना दी। आगे हमने समुदाय समूहों से इन चारों गतिविधियों के आयोजन की आवृत्ति के बारे में जानकारी ली, जिससे स्पष्ट होता है कि चहारदीवारी को छोड़कर सभी कार्य वर्ष में औसत रुप से एक बार कराये गये।

वास्तव में स्कूल चहारदीवारी एक ही समय की गतिविधि है, जिसे स्कूलों की संख्या के आधार पर किया गया है। स्वास्थ्य परीक्षण शिविर के मामले में 25 प्रतिशत अर्थात 7 समुदाय समूहों ने माना कि इसकी गुणवत्ता अच्छी या बहुत अच्छी थी जबकि नेत्र परीक्षण शिविर को लगभग 33 प्रतिशत अर्थात 7 समूहों ने स्वीकार किया कि यह अच्छा या बहुत अच्छा था। सभी (13) समूह जिन्होंने स्कूल में चहारदीवारी के निर्माण के बारे में बताया था, उनमें 58.8 प्रतिशत समूह मानते है कि अच्छी थी जबकि 7.7 प्रतिशत समूह इसकी गुणवत्ता को खराब मानते हैं। समुदाय समूहों ने एमयूएनपीएल के निष्पादन कार्यो से स्कूल के वातावरण पर पड़ने वाले अनेक सकारात्मक प्रभावों के बारे में बताया। समुदाय समूहों के प्रतिक्रियाओं का विश्लेषण स्पष्ट करता है कि चहारदीवारी का निर्माण, स्वास्थ्य परीक्षण शिविर एवं नेत्र परीक्षण शिविर जैसे कार्यो को समुदाय समूहों ने अत्यधिक लाभकारी माना।

विद्यालयों तथा बच्चों हेतु पुनर्वास कार्य योजना की सूची में शामिल न होने वाली महत्वपूर्ण गतिविधियाँ

सामुदायिक समूहों ने विभिन्न प्रकार की गतिविधियों के संबंध में सुझाव दिया जो स्कूल एवं बच्चों के लिए महत्वपूर्ण थे लेकिन इन्हें सूची में सम्मिलित नहीं किया गया। लगभग 67 प्रतिशत समूहों ने सुझाव दिया कि स्कूली बच्चों को स्कूल बैग का वितरण बहुत महत्वपूर्ण कार्य क्षेत्र थे। लगभग 40 प्रतिशत समूहों ने सुझाव दिया कि स्कूली बच्चों को खेल सामग्री एवं लगभग 37 प्रतिशत समूहों का मानना है कि ऊनी वस्त्रों के वितरण से उच्च लाभ प्राप्त होगा। जबकि 37 प्रतिशत समूहों ने हैण्डपम्प की स्थापना करने का सुझाव दिया था।

हमने समुदाय समूह से एक और प्रश्न किए 'सामुदायिक विकास गतिविधियों का क्रियान्वयन गांव में किस प्रकार किया जाय जिससे कार्य की गुणवत्ता बनी रहे? इस प्रश्न के जवाब में बहुसंख्यक समूहों ने सुझाव दिया कि यह स्थानीय ग्रामीण लोगों के माध्यम से कराया जाय। आधे से अधिक समूहों ने सुझाव दिया कि एमयूएनपीएल गांव की पंचायत एवं स्थानीय लोगों से सहमति ले कि उनकी प्रतिभागिता सुनिश्चित होगी।

समुदायों द्वारा पंसदीदा सामुदायिक विकास गतिविधियों का निष्पादन एवं प्रभाव

एमयूएनपीएल द्वारा जिन 18 सामुदायिक गतिविधियों को सम्मिलित किया गया था उन गतिविधियों की गांव में आवश्यकता, क्रियान्वयन एवं प्रभावों से सम्बन्धित सूचनाएं एकत्र किया गया। हम अब यह जानना चाहते थे कि इनमें से कौन–कौन सी गतिविधि गांव के लोगों के लिए महत्वपूर्ण एवं लाभकारी थी। अतः हमने समुदाय समूहों से पूछा कि कौन सी गतिविधि गांव के लोगों के लिए सबसे अधिक लाभकारी थी। इस प्रश्न के जवाब में समुदाय समूहों ने अनेक गतिविधियों का उल्लेख किया। कुल (30) समुदाय समूहों में 93.3

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प्रतिशत (अर्थात 28) समूहों ने बताया कि हैण्डपम्पों की स्थापना से लोगों को बहुत लाभ हुआ। अन्य गतिविधियाँ जो लाभकारी थी, उनमें 66.7 प्रतिशत (अर्थात 20) समूहों ने नेत्र शिविर एवं आँख के आपरेशन को स्वीकार किया, 40 प्रतिशत ने युवाओं को आई0टी0आई0 प्रशिक्षण, 33.3 प्रतिशत ने सम्पर्क मार्ग/सड़क निर्माण तथा 23.3 प्रतिशत समुदाय समूहों ने वर्षा से बचने के लिए बनाये गये छाया स्थल को गांव के लोगों के लिए बहुत उपयोगी बताया।

(i) ग्रामीणों ने जिन गतिविधियों को अपने लिए ज्यादा लाभकारी माना उनका प्रभाव

सामुदायिक विकास गतिविधियों का मुख्य उद्देश्य ग्रामीण समुदाय के दैनिक समस्याओं को न्यूनतम स्तर पर लाना है। अध्ययन के दौरान हमने समुदाय समूहों से पूछा कि 'यदि आप मानते है कि कुछ गतिविधियों से ग्रामीणों को लाभ हुआ है तो गांव में इससे किस प्रकार का परिवर्तन आया?'' इस प्रश्न के जवाब में अनेक प्रकार के परिवर्तनों को समुदाय समूहों ने बताया। समुदाय समूहों के जबाबों से स्पष्ट होता है कि पेयजल, वृद्ध लोगों के स्वास्थ्य एवं यातायात मार्ग के क्षेत्र में ग्रामीण लोगों की जीवन शैली में सार्थक परिवर्तन हुआ है।

ग्राम समुदाय द्वारा अनुभव किए गये विभिन्न प्रकार के परिवर्तन (प्रतिशत में)

पेयजल की सुविधा बढ़ी	90.0
आँख आपरेशन के बाद आत्मनिर्भर हुए	63.3
रोजगार मिलने की सम्भावना बढ़ी	40.0
गांव विकसित दिखता है	23.3
छाया स्थल लम्बे प्रतीक्षा में लाभदायक	16.7
बीमारियों के प्रति जागरुकता आयी	10.0
यातायात के साधन एवं सम्पर्क में वृद्धि	10.0
पक्का मार्ग बना	6.7
जीविकोपार्जन के लिए रोजगार मे मदद	6.7

(ii) निष्पादित कार्यों से लाभ न मिलने के कारण

कुछ मामले में समुदाय समूहों ने बताया कि कुछ गतिविधि से गांव के लोगों को आपेक्षित लाभ नहीं मिला। अध्ययन के दौरान हमने समुदाय समूहों से पूछा कि ''यदि गांव के लोगों को निष्पादित गतिविधि से वांछित लाभ नहीं प्राप्त हुआ तो उसका मुख्य कारण क्या था?'' इस प्रश्न के जबाब में समुदाय समूहों ने अनेक कारणों का उल्लेख किया। उनके द्वारा बताए गये अधिकांश कारण एमयूएनपीएल द्वारा किए गये भूमि अधिग्रहण के परिणाम थे जिसके कारण ग्रामीणों ने अपनी भूमि एवं रोजगार के अवसरों को खो दिए थे। वास्तव में ग्रामीण अपेक्षा रखते थे कि एमयूएनपीएल प्रभावित परिवारों को पर्याप्त आधार–भूत सुविधाएं एवं रोजगार के अवसर प्रदान करेगा। ग्रामीणों की प्रतिक्रियाओं से स्पष्ट होता है कि ज्यादातर कारण पेयजल, पशु सम्बन्धी समस्याएं, रोजगार के अवसर की अनुपलब्धता तथा भौतिक संसाधनों के विकास से जुड़ी हुई थी।

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(iii) ग्रामीण लोगों की आकांक्षा

ग्रमीण समुदाय समूहों से आगे पूछा गया कि ''क्या वे महसूस करते है कि सामुदायिक विकास की गतिविधियों में कुछ गतिविधि को एमयूएनपीएल के कार्ययोजना में सम्मिलित किया जाना चाहिए? यदि हां, तो ये क्या हैं?'' इस प्रश्न के जबाब में समुदाय समूहों ने अनेक गतिविधियों को जोड़ने के लिए सुझाव दिया जो उनके गांव के लिए बहुत महत्वपूर्ण थे किन्तु सामुदायिक विकास के कार्ययोजना में सम्मिलित नही थे। आधे से अधिक समुदाय समूहों ने सुझाव दिया कि एमयूएनपीएल प्रभावित ग्रामों को निःशुल्क विद्युत आपूर्ति एवं सिंचाई स्रोतों का विकास एवं विस्तार करे। अन्य 50 प्रतिशत समूहों ने सुझाया कि एमयूएनपीएल गांव में ढांचागत आधारभूत संरचना के विकास में धन का निवेश करें। इसी प्रकार 23.3 प्रतिशत समूह सुझाव देते हैं कि एमयूएनपीएल गांव में रोजगार के अवसर पैदा करें, प्रत्येक परिवारों में नल द्वारा पेयजल आपूर्ति एवं स्थानीय स्तर पर स्कूल/कालेज प्रभावित परिवारों के लिए प्रदान करें। अन्य महत्पूर्ण सुझावों के अन्तर्गत अत्यधिक गरीब परिवारों को आवास, नालियों का सुधार एवं क्षेत्र में स्वास्थ्य केन्द्र की स्थापना जैसे कार्य सम्मिलित हैं।

हमने समुदाय समूहों से यह भी पूछा कि ''आपका गांव कैसे विकास कर सकता है और एक समृद्ध गांव बन सकता है?'' इस प्रश्न के जबाब में समूहों ने अनेक गतिविधियों को करने का सुझाव दिया, जो स्थानीय समुदायों के आधार–भूत आवश्यकता से जुड़ी हुई है। इन गतिविधियों में ट्यूवेल की स्थापना, हैण्डपम्प की स्थापना, विद्युत आपूर्ति, नियमित रोजगार, स्कूलों की आवश्यकता इत्यादि जैसे थे।

परिवारों का जीवन स्तर : अधिग्रहण पूर्व एवं पश्चात की स्थिति

(i) परिवार की कोटि और प्रकार

पारिवारिक संरचना के अनुसार प्रभावित कुल 190 परिवारों का विवरण स्पष्ट करता है कि एकल परिवारों का अनुपात अधिग्रहण के दौरान 54.7 प्रतिशत था, जो वर्तमान में बढ़ कर 58.9 प्रतिशत हो गया है। यह परिवर्तन मई खुर्द गांव में विशेष रूप से रेखांकित की गई जहां एकल परिवारों की संख्या 12 प्रतिशत बढ़ गई तथा एकल परिवारों की वृद्धि दर की दृष्टि से पताई डांडी (7.4 प्रतिशत) ग्राम दूसरे स्थान पर है।

(ii) व्यवसायिक परिवर्तन

भूमि अधिग्रहण के कारण अनेक प्रभावित परिवारों के व्यवसायों में परिवर्तन हुआ है। विश्लेषण से स्पष्ट होता है कि ऐसे परिवार जिनका मुख्य व्यवसाय मजदूरी था उनका अधिग्रहण के पूर्व अनुपात 15.3 प्रतिशत था जबकि अधिग्रहण के पश्चात ऐसे परिवारों का प्रतिशत 49.5 हो गया। भूमि अधिग्रहण के पूर्व प्रतिदर्श परिवारों के 40 प्रतिशत परिवारों का मुख्य व्यवसाय कृषि थी जो वर्तमान में बढ़कर 43.2 प्रतिशत हो गई। इस प्रकार भूमि अधिग्रहण के पश्चात परिवारों के व्यवसायिक संरचना में हुए परिवर्तन स्पष्ट करता है कि अधिग्रहण के पूर्व परिवारों का व्यवसाय कृषि भूमि पर निर्भर थे जो अधिग्रहण के पश्चात बदल कर गैर–भूमि आधारित हो गये। यह बदलाव 65 प्रतिशत के स्तर तक है। साथ ही ऐसे परिवार जो पत्थर तोड़ने का काम अधिग्रहण के पूर्व करते थे उनकी संख्या अधिग्रहण पश्चात लगभग 61 प्रतिशत कम हो गयी।

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(iii) परिवारों की आय एवं व्यय

स्पष्ट होता है कि भूमि अधिग्रहण के पश्चात परिवारों की आय (6.3 प्रतिशत से 22.1 प्रतिशत) रुपये 5000 से अधिक आय वर्ग में केन्द्रीकृत थी जिनका औसत आय रुपये 9500 से रु0 7929 के बीच थी। अधिग्रहण के पूर्व रुपये 3000 से कम आय वाले परिवारों की प्रतिशत अनुपात 57.3 था जो अधिग्रहण के पश्चात 76.3 प्रतिशत हो गया, जो लगभग 35 प्रतिशत बिन्दु तक बढ़ गया। व्यय के मामले में सबसे अधिक वृद्धि कोहडार एवं सलैया कला गांव में देखा गया। आधार–भूत आवश्यकता जैसे भोजन, स्वास्थ्य एवं शिक्षा पर लगभग सभी ग्रामों में परिवारों के व्यय विभिन्न अनुपातों में बढ़े हैं। कोहडार गांव में शिक्षा पर व्यय लगभग 123 प्रतिशत बिन्दु तक बढ़े हैं जबकि झड़ियाही ग्राम में लगभग 51.6 प्रतिशत कम हो गया है। भोजन मद पर व्यय वृद्धि सभी ग्रामों में पायी गयी। भूमि खोने वाले परिवारों में शिक्षा मद में व्यय 63.3 प्रतिशत वृद्धि हो गयी जबकि गैर–कृषि श्रमिकों के परिवारों में कोई परिवर्तन नहीं हुआ। आवास खोने वाले परिवारों में व्यय की प्रवृति रोचक दिखाई देता है तथा पशुपालन पर व्यय में सार्थक वृद्धि हुई है। साथ ही मनोरंजन एवं विद्युत उपभोग पर व्यय अनुपात में सार्थक वृद्धि हुई है।

(iv) आधार–भूत सुविधाओं की उपलब्धता

यद्यपि एमयूएनपीएल द्वारा पिछले तीन वर्षो से सामुदायिक विकास के अनेक गतिविधियों का क्रियान्वयन किया जा रहा है किन्तु प्रतिदर्श परिवारों में विद्युत, पेयजल तथा उनके आवासों में शौचालय की उपलब्धता जैसी सुविधाओं में कोई सार्थक परिवर्तन नहीं दिखाई देता है। भूमि अधिग्रहण के पश्चात का दृश्य स्पष्ट करता है कि परिवारों द्वारा आधार–भूत सुविधाओं के उपयोग में सुधार हुआ है। प्रभावित परिवारों में विद्युत सुविधा लगभग 20 प्रतिशत तक बढ़ गई। सार्थक रूप से ये परिवर्तन मुख्यतः सलैया कला एवं सलैया खुर्द ग्रामों में हुआ है।

(v) पेयजल स्रोत

भूमि अधिग्रहण के पूर्व एवं पश्चात पेयजल स्रोतों में हुए अनेक परिवर्तन स्पष्ट करता है कि परिवारों द्वारा सामान्य हैण्डपम्प (घटाव 51.6 प्रतिशत से 28.9 प्रतिशत) का उपयोग बदल कर इण्डिया मार्क–2 (वृद्धि 11.6 प्रतिशत से 56.8 प्रतिशत) हो गया। परिवारों द्वारा कुओं का उपयोग भी 36.8 प्रतिशत से घट कर 14.2 प्रतिशत हो गया। ग्राम झड़ियाही, जहां भूमि अधिग्रहण के पूर्व केवल 12 प्रतिशत परिवार इण्डिया मार्क–2 हैण्डपम्प से जल लेते थे वहां अधिग्रहण पश्चात सभी परिवार इस स्रोत से जल लेने लगे।

(vi) आवास का प्रकार

अधिग्रहण के पूर्व 53.7 प्रतिशत परिवार कच्चे मकानों में रहते थे, जिसकी संख्या अधिग्रहण के पश्चात घट कर 21.1 प्रतिशत हो गई। दूसरे शब्दों में पक्के आवासों में रहने वाले परिवारों की संख्या अधिग्रहण पूर्व 23.2 प्रतिशत से बढ़कर अधिग्रहण के पश्चात 43.7 प्रतिशत हो गई। यह स्पष्ट करता है कि कच्चे मकानों की संख्या में गिरावट आयी तथा पक्के मकानों की संख्या में वृद्धि हुआ।

(vii) ईंधन उपयोग

भोजन पकाने के लिए साधनों में परिवर्तन हुआ है जहां पहले लोग कण्डा एवं लकड़ी पर भोजन पकाते थे जिससे धुआं निकलता था, वहीं अब लोग एलपीजी का भी उपयोग करने

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लगे। ग्राम झड़ियाही एवं मई खुर्द ग्रामों में जहां एलपीजी का उपयोग पूर्णतः अनुपस्थित था, वहीं क्रमशः 8 प्रतिशत एवं 12 प्रतिशत लोगों ने इसका उपयोग प्रारम्भ कर दिया।

(viii) पशुधन

भूमि अधिग्रहण के पश्चात प्रभावित परिवारों में गायों की संख्या 456 से घटकर 152, भैसों की संख्या 177 से घटकर 105, बकरी की संख्या 219 से घटकर 41 तथा बैलों की संख्या 180 से घटकर 22 हो गयी। अतः स्पष्ट है कि भूमि अधिग्रहण के पश्चात पशुधन से होने वाले आय में गिरावट आ गई।

प्रभावित परिवारों पर पुनर्वास कार्य योजना का प्रभाव

सभी (762) प्रभावित व्यक्ति के परिवारों में से 190 प्रभावित व्यक्ति के परिवारों को अध्ययन के लिए चयनित किया गया। इनमें 190 प्रभावित व्यक्ति के परिवारों में 65.8 प्रतिशत अर्थात् 125 परिवार भूमि खोने वाले थे, 24.7 प्रतिशत अर्थात् 47 परिवारों ने अपने आवास खो दिये, 9.5 प्रतिशत अर्थात् 18 परिवार पूर्व में कृषि श्रमिक थे।

(i) परिवारों के पुनर्स्थापना की स्थिति, रहने की अवधि तथा पुराने निवास स्थल से औसत दूरी

अध्ययन में पाया गया कि दो गांवों क्रमशः सलैया कला और मईखुर्द के विस्थापित परिवारों को नये स्थान पर पुनर्वास किया गया है। कुल 47 प्रतिदर्श परिवारों में सभी परिवार अपने आबंटित भूमि पर रह रहे हैं। मेजा ऊर्जा निगम द्वारा बताया गया कि पुनर्स्थापना उद्देश्य हेतु सभी विस्थापित परिवारों को भूमि उपलब्ध करायी गयी है। नयी जगह जहां उन्हें बसाया गया सामान्यतः उनके पुराने निवास स्थल से औसतन 3 किमी0 की दूरी पर स्थित था। इस नयी जगह पर रहने की औसत अवधि दो वर्ष थी।

(ii) परिवारों द्वारा प्राप्त अनुदान धनराशि का विभिन्न प्रयोजनों में व्यय

प्रभावित परिवारों से पूछा गया कि वे प्राप्त सहायता धनराशि का व्यय किन उद्देश्यों में किए थे? कुल परिवारों में से 32.8 प्रतिशत ने प्राप्त धनराशि को आवासों के निर्माण एवं मरम्मत में खर्च किया, 32.2 प्रतिशत ने विवाह, 10.4 प्रतिशत ने भूमि के क्रय तथा 9.0 प्रतिशत ने प्राप्त धनराशि को इलाज के ऊपर व्यय किया जबकि 8.7 प्रतिशत परिवारों ने घरेलू जरुरतों को पूर्ण करने में खर्च किया। इस प्रकार समग्र तस्वीर से पता चलता है कि लगभग आधे परिवारों ने अपनी धनराशि को मूल घरेलू आवश्यकताओं या विलासिता के मदों में व्यय किया है।

(iii) प्राप्त काम के अवसर तथा उनकी संतुष्टि से लाभान्वित परिवार की स्थिति

यद्यपि एमयूएनपीएल ने अपने कार्य–योजना में अनेक गतिविधियों को सम्मिलित किया था। प्रभावित परिवारों में जागरुकता के स्तर का आकलन करने के लिए उनसे पूछा गया कि क्या आपको मालूम है कि प्राथमिकता के आधार पर प्रभावित परिवार रोजगार के अवसर उपलब्ध कराने के लिए एमयूएनपीएल ने प्रयास किया है यदि हाँ, तो किस सीमा तक प्रभावित परिवारों को इसका लाभ मिला है? इस प्रश्न के जवाब में लगभग 86 प्रतिशत अर्थात् 163 परिवारों ने बताया कि वे मेजा ऊर्जा निगम द्वारा प्रदान किए जाने वाले काम के अवसरों के प्रति सजग थे जबकि 14 प्रतिशत परिवार इसके प्रति सजग नहीं थे। कुल

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सूचना देने वाले 163 परिवारों में से 98.1 प्रतिशत अर्थात् 160 परिवारों ने बताया कि इसका लाभ लोगों को कम या बहुत कम प्राप्त हुआ जबकि केवल 1.9 प्रतिशत अर्थात् 3 परिवारों ने बताया कि यह लाभ व्यापक स्तर पर लोगों हमें प्राप्त हुआ।

एमयूएनपीएल द्वारा रोजगार में संलग्नता हेतु नूतन पहल

- एमयूएनपीएल ने 12 प्रभावित परिवारों से चार पहिया वाहन को मासिक आधार पर अपने संयन्त्र में किराये पर संलग्न किया है जो इन परिवारों के नियमित आय का स्रोत है।
- एमयूएनपीएल द्वारा 'किसान सहकारी समूह' का गठन किया गया। प्रत्येक समूह में प्रभावित परिवार से 21 किसानों को छोटे–छोटे ठेकों का काम संयन्त्र में दिया गया जिससे इनको रोजगार प्राप्त हुए। साथ ही लाइसेन्स शुल्क से इन समूहों को छूट दी गई।
- एमयूएनपीएल ने संयन्त्र के अन्दर काम करने वाले सभी ठेकेदारों को निर्देशित किया कि संयन्त्र में काम के दौरान प्रभावित परिवार के सदस्यों को प्राथमिकता के आधार पर काम में संलग्न करें। यह प्रेक्षित किया गया कि इससे अनेक लोगों को लाभ हुआ है।

(iv) प्रभावित परिवारों हेतु चयनित तीन गतिविधियों के निष्पादन की स्थिति

मेजा ऊर्जा निगम द्वारा पुनर्वास कार्ययोजना के तहत तैयार किए गए तीन प्रकार की गतिविधियों के क्रियान्वयन का हमने परीक्षण किया। ये गतिविधियां हैं– (i) पारम्परिक व्यवसाय में कौशल उन्नयन (ii) नए ट्रेडो में आई.टी.आई. प्रशिक्षण (iii) शारीरिक रूप से विकलांग व्यक्तियों को उपकरणों का वितरण। लगभग 13 प्रतिशत प्रभावित परिवारों ने बताया कि मेजा ऊर्जा निगम द्वारा पारम्परिक व्यवसाय में कौशल उन्नयन गतिविधियों को निष्पादित नहीं किया गया जबकि 39.5 प्रतिशत परिवारों ने बताया कि मेजा ऊर्जा निगम द्वारा आई.टी.आई. का प्रशिक्षण युवाओं को दिया गया तथा 22.1 प्रतिशत परिवारों ने बताया कि शारीरिक रूप से विकलांग व्यक्तियों को सहायक उपकरण का वितरण किया गया। ये सभी कार्य मुख्यतः सलैया खुर्द, सलैया कला, तथा मई खुर्द ग्रामों में क्रियान्वित किया गया था। कुल 75 परिवारों ने इस बात की पुष्टि किया कि मेजा ऊर्जा निगम ने आई0टी.आई0 के प्रवेश में सहायता किया था, तथा 33.7 प्रतिशत परिवारों ने इस गतिविधि से लाभान्वित होने की सूचना दी जबकि बहुत कम संख्या में (5.8 प्रतिशत) परिवारों ने बताया कि वे आई.टी.आई. में प्रवेश की इंतजारी में हैं। सार्थक रुप से लगभग 61 प्रतिशत परिवार या तो आई.टी.आई प्रवेश के योग्य नहीं थे या प्रवेश के लिए आई.टी.आई. को भेजी गई सूची में उनके परिवार के सदस्यों का नाम शामिल नहीं किया गया।

(v) सामाजिक, आर्थिक एवं शैक्षिक क्षेत्रों में परिवर्तन

हमने प्रभावित परिवारों से पूछा कि ''एमयूएनपीएल द्वारा अनेक गतिविधियों के क्रियान्वयन के बाद आप सामाजिक, आर्थिक तथा शैक्षिक क्षेत्रों में कितना परिवर्तन महसूस करते हैं?'' इस प्रश्न के जवाब में लगभग 34 प्रतिशत प्रभावित व्यक्ति के परिवारों ने बताया कि उन्हें सामाजिक क्षेत्र में कोई परिवर्तन नहीं महसूस हुआ जबकि 38 प्रतिशत परिवारों ने शैक्षिक क्षेत्रों में कोई परिवर्तन महसूस नहीं करते हैं तथा लगभग 39 प्रतिशत प्रभावित परिवार के लोग आर्थिक क्षेत्र में कोई परिवर्तन नहीं महसूस करते हैं। समग्र विश्लेषण से पता चलता

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है कि लगभग 64 प्रतिशत परिवार सामाजिक क्षेत्र में, 61.6 प्रतिशत शैक्षिक क्षेत्र में तथा 61. 1 प्रतिशत प्रभावित परिवार आर्थिक क्षेत्र में विभिन्न स्तर से सकारात्मक परिवर्तन महसूस करते हैं। इस प्रकार स्पष्ट है कि एमयूएनपीएल प्रभावित परिवारों के सामाजिक एवं आर्थिक विकास में व्यापक भूमिका प्रदान कर रही हैं।

(vi) सामुदायिक विकास कार्यक्रम के अन्तर्गत चयनित गांवों के संबंध में प्रभावित व्यक्ति के परिवारों का जागरूकता स्तर

यह आश्चर्य की बात है कि 85.3 प्रतिशत अर्थात् 162 प्रभावित व्यक्तियों के परिवार मेजा ऊर्जा निगम द्वारा सामुदायिक विकास कार्यक्रम के अन्तर्गत उनके चयनित गांव के प्रति जागरूक थे जबकि परिवारों की कम संख्या (14.2 प्रतिशत) ने बताया कि उन्हें इसकी जानकारी नहीं थी। ग्रामवार विवरण से पता चलता है कि सलैया खुर्द और झड़ियाही गांवों में जागरूकता स्तर शत–प्रतिशत था जबकि सलैया खुर्द गांव में यह सबसे कम था।

(vii) गांव के विकास हेतु पुनर्वास कार्य योजना के अन्तर्गत शामिल न किए जाने वाली प्रभावित परिवारों द्वारा नयी गतिविधियों के संबंध में सुझाव

हमने प्रभावित परिवारों से आगे पूछा कि ''गांव की समृद्धि के लिए क्या आप कोई सुझाव देना चाहेगें?'' इस प्रश्न के जवाब में लगभग 97 प्रतिशत (185) उत्तरदाता परिवारों ने विभिन्न प्रकार की गतिविधियों का सुझाव दिया जबकि 3 प्रतिशत (5) परिवारों ने विश्वास व्यक्त किया कि पुनर्वास कार्य योजना के अन्तर्गत तैयार की गयी गतिविधियां पर्याप्त थीं। उत्तरों के विश्लेषण से पता चलता है कि लगभग 60 प्रतिशत परिवारों ने सुझाव दिया कि मेजा ऊर्जा निगम द्वारा क्षेत्र में अस्पताल का निर्माण करना चाहिए, 49.2 प्रतिशत परिवारों ने क्षेत्र में स्कूल प्रदान करने का सुझाव दिया तथा 49 प्रतिशत प्रभावित परिवारों ने निःशुल्क विद्युत आपूर्ति के लिए अपना सुझाव दिया।

प्रभावित एवं तटस्थ गांवों में लोगों की जीवन गुणवत्ता

विश्लेषण से पता चलता है कि प्रभावित गांवों में औसतन लिंगानुपात तटस्थ गांवों की तुलना में कम है जबकि साक्षरता दर तटस्थ ग्रामों की तुलना में प्रभावित ग्रामों में अधिक है। इस प्रकार प्रति व्यक्ति आय के मामले में तटस्थ गांवों की तुलना में प्रभावित गांव में यह अधिक है। तटस्थ ग्रामों की तुलना में कार्यशील जनसंख्या का औसत सदस्य अनुपात प्रभावित गांव के समतुल्य है। आंकड़े उद्घाटित करते है कि औसत संयुक्त परिवारों की संख्या तटस्थ गांवों की तुलना में प्रभावित गांवों में अधिक है जबकि गरीबी रेखा से नीचे रहने वाले परिवारों की औसत संख्या प्रभावित गांवों में कम है। आंकड़े स्पष्ट करते है कि प्रभावित गांवों में 49.5 प्रतिशत परिवारों का मुख्य व्यवसाय दैनिक श्रम तथा 43.2 प्रतिशत परिवारों का व्यवसाय खेती है जबकि तटस्थ ग्रामों मे इसका अनुपात क्रमशः 25.5 प्रतिशत एवं 45.4 प्रतिशत है।

आंकड़े स्पष्ट करते हैं कि प्रभावित गांवों में परिवारों के वार्षिक औसत आय तटस्थ ग्रामों की तुलना में कम है। सार्थक रूप से औसतन 89.5 प्रतिशत प्रभावित गांवों के परिवारों के पास विद्युत की सुविधा, 11.1 प्रतिशत के पास पेयजल सुविधा तथा 8.4 प्रतिशत परिवारों के पास शौचालय की सुविधा उपलब्ध है जबकि तटस्थ ग्रामों में मात्र 23. 4 प्रतिशत परिवारों के पास विद्युत सुविधा, 1.5 प्रतिशत के पास पेयजल सुविधा उपलब्ध है जबकि प्रतिदर्श के किसी भी परिवार के पास शौचालय की सुविधा उपलब्ध नहीं है। दोनों

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प्रकार के ग्रामों में पेयजल स्रोत एक जैसे हैं। आंकड़े स्पष्ट करते हैं कि सार्थक रूप से औसतन तटस्थ गांवों में इसका प्रतिशत 22.0 है। अतः उपरोक्त विश्लेषण स्पष्ट करता है कि साक्षरता दर, परिवार संरचना (संयुक्त), आधार–भूत सुविधाओं (पेयजल, विद्युत एवं शौचालय) की उपलब्धता तथा आवासों की गुणवत्ता प्रभावित ग्रामों में बेहतर है।

प्रभावित एवं तटस्थ गांवों में मूलभूत सुविधाओं की उपलब्धता

आधार–भूत सुविधाओं की उपलब्धता प्रभावित तथा तटस्थ गांवों से सुदूर क्षेत्र में स्थित हैं। आंकड़ों से स्पष्ट होता है कुछ सुविधाएं जैसे– रेलवे स्टेशन, कृषि बीज भण्डार, सरकारी क्रय केन्द्र, कोल्ड स्टोर, क्षेत्रीय खाद्य गोदाम, विकास खण्ड, तहसील मुख्यालय, सामुदायिक स्वास्थ्य केन्द्र, भूमि विकास बैंक, तथा सहकारी बैंक औसतन 25 किमी0 की दूरी पर स्थित हैं। इन ग्रामों से जनपद मुख्यालय एवं आई0टी0आई कॉलेज औसतन 50 किमी0 दूर है।

संस्तुतियां

- सामुदायिक विकास गतिविधियों के निष्पादन के पूर्व एमयूएनपीएल द्वारा समुचित सूचना विभिन्न माध्यमों जैसे– समाचार पत्र एवं सम्बन्धित ग्राम पंचायत कार्यालय, ध्वनिविस्तारक यंत्र, सूचना पर्ची वितरण इत्यादि द्वारा ग्रामीणों को दिया जाना चाहिए। सूचना सम्प्रेषण की गतिविधि सम्बन्धित ग्राम पंचायतों से प्रचारित किया जाना चाहिए।

- प्रभावित समुदायों को नियमित एवं स्थाई रोजगार के मामले में सशक्त करने की आवश्यकता है जिसे उत्पादक कार्यो, आधुनिक खेती की तकनीकों, परम्परागत कौशलों का स्तरोन्नयन, अन्य नये क्षेत्र जिससे महिलाओं की आय तथा गुणात्मक शिक्षा के माध्यम से किया जा सकता है।

- एमयूएनपीएल पुनर्वास एव पुनर्स्थापन योजना के अन्तर्गत रखे गये रूपरेखा (गतिविधियों) की प्राथमिकताओं को स्थानीय ग्राम समुदायों से साझा करें ताकि आपसी संचार अन्तर को दूर किया जा सके।

- एमयूएनपीएल को सुनिश्चित करना चाहिए कि सम्बन्धित ग्राम पंचायते कार्य की प्रगति एवं अनुश्रवण मे स्थानीय लोगों की भागीदारी लें।

- प्रभावित परिवारों को प्रोत्साहित एवं निर्देशित करना चाहिए कि वे अपने सहायता की क्षतिपूर्ति धनराशि से उत्पादन करने वाले परिसम्पत्तियों को खरीदें। इससे ज्यादा महत्व उन्हें कौशल प्रशिक्षण एवं उन्नयन पर दिया जाना चाहिए। एमयूएनपीएल उन कुशल युवाओं को आय जनित रोजगार में संलग्न करने में मदद कर सकता है जो कौशल प्रशिक्षण कार्यक्रम का लाभ ले चुके हैं।

- एमयूएनपीएल को ग्राम समुदायों में व्याप्त अन्तर को कम करेने के लिए विशेष ध्यान देना चाहिए तथा विवादित मुद्दों का समाधान स्थानीय समुदाय एवं प्रशासन की मदद से किया जाय। इस कार्य हेतु एमयूएनपीएल विशेषज्ञों की सेवाएं ले सकती है।

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- प्रभावित लोग आरंभिक चरण मे तीब्र निवारण की अपेक्षा रखते थे। इसलिए आगामी वर्षो के पुनर्वास कार्य योजना की गतिविधियों को क्रियान्वित करने के लिए अधिक बजट धनराशि का उपयोग किया जाना चाहिए।
- जनपद प्रशासन राजस्व विभाग के सम्बन्धित अधिकारियों को सलाह दे सकता है कि वे सम्बन्धित गांव में भूमि उपलब्धता का आकलन करें तथा हर सम्भव मदद प्रदान करें जिससे विकास की गतिविधियों के लिए गांव में भूमि उपलब्ध हो सके।

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परिशिष्ट

Table 2.1: Head-wise Budget Proposed under Rehabilitation Action Plan (Budget Amount in Lakh Rs.)

Heads	Proposed Budget	
	Amount	Percent
Resettlement & Rehabilitation Package	1382	26.5
Infrastructure including construction & Development Works	1466	28.1
Connectivity including internal roads and Culverts	672	12.9
Drinking Water (Installation of Hand-Pumps)	112	2.2
Sanitation (Provision for drainage system)	210	4.0
Restoration of CPRs	158	3.0
Capacity Building including Training and skill development	205	3.9
Welfare Health Facilities	330	6.3
Need Based work as required and consented by VDAC	100	1.9
Implementation Measures	100	1.9
Add Variation up to 10%	473	9.1
Total	**5208**	100.0

Source: *Rehabilitation Action Plan, MUNPL, May 2010*

Table 2.2: Immunization of Animals for *Galaghotu* Disease under Veterinary Camps

Location	Benefited Animals	
	Number	Percent
Kohdar Ghat	230	25.3
Esauta	250	27.5
Patai Dandi	116	12.7
Mai Kala	66	7.3
Mai Khurd	126	13.8
Jhariyahi	96	10.5
Raipuri	26	2.9
Total	910	100.0

***Source*:** Information provided by the MUNPL.

Table 2.3: Number of Hand-pumps Installed in the Villages by MUNPL

Villages	Number
Kohdar Ghat	4
Esauta	6
Patai Dandi	5
Mai Khurd	4
Mai Kala	4
Jhariyahi	5
Salaiya Khurd	7
Salaiya Kala	5
Salaiya Kala Nai Basti	4
Total	44

***Source*:** Information provided by the MUNPL.

Table 2.4: Head-wise-Expenditure Incurred by MUNPL

(Figure in Lakh Rs.)

Heads	Total Approved Budget	Budget Amount Transferred to State Govt.	Expended Budget Amount Up to October 2012	
			Amount	As % of approved Budget
Rehabilitation Grant	1382	1382	561.18	40.6
Welfare	3263	NA	175.86	5.4
Implementation	100	NA	0	0.0
Total	4745	1382	737.04	15.5

Source: Information provided by the MUNPL.

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Table 3.1: Coverage of Project Affected Families under R&R Categories

Revenue Village	Land Looser		HSO+ Land Loosers		Non-Ag. Labour		Total	
	No.	%	No.	%	No.	%	No.	%
Kohdar	25	20.0	0	0.0	0	0.0	25	13.2
Esauta	25	20.0	0	0.0	7	38.9	32	16.8
Pataidandi	25	20.0	0	0.0	2	11.1	27	14.2
Mai Khurd	25	20.0	0	0.0	0	0.0	25	13.2
Jhariyahi	0	0.0	25	53.2	0	0.0	25	13.2
Salaiya Kala	7	5.6	22	46.8	7	38.9	36	18.9
Salaiya Khurd	18	14.4	0	0.0	2	11.1	20	10.5
Total	125	100.0	47	100.0	18	100.0	190	100.0

***Source*:** Field Survey, GBPSSI.

Table 3.2: Village-wise Coverage of Focus Group Discussions (FGDs)

Gram Panchayat	Revenue Village	Number of Groups from Different Communities						Total
		SC	OBC	Minority	General	Women	GP/VDAC	
Kohdar	Kohdar	1	1	1	1	1	1	6
Esauta	Esauta	1	1	0	1	1	1	5
	Pataidandi	1	1	0	1	1	0	4
Mai Kala	Mai Khurd	1	1	1	1	1	1	6
Salaiya Kala	Salaiya Kala	1	1	0	1	1	0	4
	Salaiya Khurd	1	1	0	1	1	1	5
Total		6	6	2	6	6	4	30

***Source*:** Field Survey, GBPSSI.

Table 4.1: Number of Community Members Associated with FGDs

Village	SC	OBC	Minority	General	Women	GP/VDAC	Total
Kohdar	5	6	4	5	5	6	31
Esauta	6	5	0	5	6	5	27
Pataidandi	5	5	0	6	5	0	21
Mai Khurd	7	5	5	5	5	6	33
Salaiya Kala	6	6	0	5	6	0	23
Salaiya Khurd	5	6	0	5	5	5	26
Total	34	33	9	31	32	22	161

***Source*:** Field Survey, GBPSSI.

Table 4.2: Opinion of Community Members on prior information of Activities performed by the MUNPL

Activities	Unaware		Very low		Low		High		Very High		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Local need assessed	8	26.7	0	0.0	2	6.7	17	56.7	3	10.0	30	100.0
Consent of local people	1	3.3	0	0.0	3	10.0	13	43.3	13	43.3	30	100.0
People participation in work execution	3	10.0	2	6.7	5	16.7	19	63.3	1	3.3	30	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.2.1: Opinion of Community Members on prior local need assessment

Villages	Unaware		Very low		Low		High		Very High		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kohdar	3	50.0	0	0.0	0	0.0	3	50.0	0	0.0	6	100.0
Esauta	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	5	100.0
Pataidandi	0	0.0	0	0.0	0	0.0	3	75.0	1	25.0	4	100.0
Mai Khurd	0	0.0	0	0.0	0	0.0	6	100.0	0	0.0	6	100.0
Salaiya Kala	2	50.0	0	0.0	1	25.0	0	0.0	1	25.0	4	100.0
Salaiya Khurd	3	60.0	0	0.0	1	20.0	0	0.0	1	20.0	5	100.0
Total	8	26.7	0	0.0	2	6.7	17	56.7	3	10.0	30	100.0

***Source*:** Field Survey, GBPSSI.

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Table 4.2.2: Opinion of Community Members in on prior consent of local people was taken by the MUNPL

Villages	Unaware		Very low		Low		High		Very High		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kohdar	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	6	100.0
Esauta	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	5	100.0
Pataidandi	1	25.0	0	0.0	0	0.0	2	50.0	1	25.0	4	100.0
Mai Khurd	0	0.0	0	0.0	3	50.0	3	50.0	0	0.0	6	100.0
Salaiya Kala	0	0.0	0	0.0	0	0.0	1	25.0	3	75.0	4	100.0
Salaiya Khurd	0	0.0	0	0.0	0	0.0	2	40.0	3	60.0	5	100.0
Total	1	3.3	0	0.0	3	10.0	13	43.3	13	43.3	30	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.2.3: Opinion of Community Members on Participation of Local People Prior to execution of Works by MUNPL

Villages	Unaware		Very low		Low		High		Very High		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kohdar	3	50.0	0	0.0	0	0.0	3	50.0	0	0.0	6	100.0
Esauta	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	5	100.0
Patai dandi	0	0.0	1	25.0	0	0.0	2	50.0	1	25.0	4	100.0
Mai Khurd	0	0.0	1	16.7	5	83.3	0	0.0	0	0.0	6	100.0
Salaiya Kala	0	0.0	0	0.0	0	0.0	4	100.0	0	0.0	4	100.0
Salaiya Khurd	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	5	100.0
Total	3	10.0	2	6.7	5	16.7	19	63.3	1	3.3	30	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.3: Perception of Communities regarding Construction of Road/Pathway Activities

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Very high	6	5	4	6	4	5	30
Work executed or not	Done	0	0	0	6	4	5	15
	Not done	6	5	4	0	0	0	15
Satisfaction levels regarding quality of work	Moderate	0	0	0	2	1	1	4
	Good	0	0	0	2	2	2	6
	Very good	0	0	0	2	1	2	5
Impact of work villages	High	0	0	0	3	2	2	7
	Very high	0	0	0	3	2	3	8
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	Very high	6	6	2	6	6	4	30
Work executed or not	Done	3	3	1	3	3	2	15
	Not done	3	3	1	3	3	2	15
Satisfaction levels regarding quality of work	Moderate	0	1	0	1	1	1	4
	Good	3	0	0	2	1	0	6
	Very good	0	2	1	0	1	1	5
Impact of work on villages	High	1	1	0	2	2	1	7
	Very high	2	2	1	1	1	1	8

***Source*:** Field Survey, GBPSSI.

Table 4.4: Perception of Communities regarding Construction of PCC Road Activity

Responses of communities by villages		Kohdar	Esauta*	Patai Dandi*	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	High	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Whether work executed or not	Done	3	0	0	2	3	4	12
	Not done	3	5	4	4	1	1	18
Satisfaction levels regarding quality of work	Bad	0	0	0	1	0	0	1
	Moderate	1	0	0	1	1	1	4
	Good	2	0	0	0	1	2	5
	Very good	0	0	0	0	1	1	2
Impact of work on villages	Very less	0	0	0	0	1	2	3
	Less	0	0	0	1	0	0	1
	High	1	0	0	1	1	1	4
	Very high	2	0	0	0	1	1	4
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	High	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Whether work executed or not	Done	1	3	0	3	2	3	12
	Not done	5	3	2	3	4	1	18
Satisfaction levels regarding quality of work	Bad	0	0	0	0	1	0	1
	Moderate	0	0	0	2	1	1	4
	Good	1	1	0	1	0	2	5
	Very good	0	2	0	0	0	0	2
Impact of work on villages	Very less	0	0	0	1	1	1	3
	Less	0	0	0	0	1	0	1
	High	0	2	0	1	0	1	4
	Very high	1	1	0	1	0	1	4

***Note*: *** Non-availability of land was major reason for non-execution of programme as reported by MUNPL.
***Source*:** Field Survey, GBPSSI.

//True Copy//

Table 4.5: Perception of Communities regarding Installation of Hand-Pumps for Drinking Water

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Very high	6	5	4	6	4	5	30
Executed of work	Done	6	5	4	6	4	5	30
Satisfaction levels regarding quality of work	Moderate	0	1	1	3	1	2	8
	Good	4	2	1	1	1	1	10
	Very good	2	2	2	2	2	2	12
Impact of work on villages	Less	1	3	0	1	1	0	6
	High	4	1	2	1	1	1	10
	Very high	1	1	2	4	2	4	14
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	Very high	6	6	2	6	6	4	30
Executed of work	Done	6	6	2	6	6	4	30
Satisfaction levels regarding quality of work	Moderate	2	2	0	2	0	2	8
	Good	2	4	2	1	0	1	10
	Very good	2	0	0	3	6	1	12
Impact of work on villages	Less	3	0	1	0	1	1	6
	High	2	4	0	2	1	1	10
	Very high	1	2	1	4	4	2	14

***Source*:** Field Survey, GBPSSI.

Table 4.6: Perception of Communities regarding Organize Farmers Fair

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Less	0	0	0	0	1	1	2
	Very High	6	5	4	6	3	4	28
Work executed or not	Done	3	4	3	3	2	3	18
	Not done	3	1	1	3	2	2	12
Satisfaction levels regarding quality of work	Bad	1	1	1	1	1	0	5
	Moderate	1	2	1	1	1	2	8
	Good	1	1	1	1	0	1	5
Impact of work on villages	Very less	0	0	0	0	1	2	3
	Less	1	1	0	2	1	0	5
	High	1	1	2	1	0	1	6
	Very high	1	2	1	0	0	0	4
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	Less	1	0	0	0	1	0	2
	Very High	5	6	2	6	5	4	28
Work executed or not	Done	2	3	2	5	3	3	18
	Not done	4	3	0	1	3	1	12
Satisfaction levels regarding quality of work	Bad	0	2	0	2	0	1	5
	Moderate	1	1	2	2	0	2	8
	Good	1	0	0	1	3	0	5
Impact of work on villages	Very less	0	0	0	1	1	1	3
	Less	0	2	1	1	0	1	5
	High	0	1	0	3	1	1	6
	Very high	2	0	1	0	1	0	4

***Source*:** Field Survey, GBPSSI.

Table 4.7: Perception of Communities regarding Plantation under Social Forestry

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Very less	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work executed or not	Done	3	3	3	2	3	4	18
	Not done	3	2	1	4	1	1	12
Satisfaction levels regarding quality of work	Bad	0	1	0	0	0	0	1
	Moderate	1	0	1	1	1	1	5
	Good	0	2	1	1	1	2	7
	Very good	2	0	1	0	1	1	5
Impact of work on villages	Very less	0	0	0	0	1	2	3
	Less	0	1	0	0	0	0	1
	High	2	2	1	1	0	2	8
	Very high	1	0	2	1	2	0	6
Work Required	Very less	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
work executed or not	Done	3	5	1	3	4	2	18
	Not done	3	1	1	3	2	2	12
Satisfaction levels regarding quality of work	Bad	1	0	0	0	0	0	1
	Moderate	1	0	0	1	3	0	5
	Good	1	1	0	2	1	2	7
	Very good	0	4	1	0	0	0	5
Impact of work on villages	Very less	0	0	0	1	1	1	3
	Less	1	0	0	0	0	0	1
	High	0	4	0	1	3	0	8
	Very high	2	1	1	1	0	1	6

***Source*:** Field Survey, GBPSSI.

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Table 4.8: Perception of Communities regarding Organized Health Check-up Camps

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	High	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work Executed	Done	6	5	4	6	4	5	30
Satisfaction levels regarding quality of work	Moderate	3	1	3	2	3	3	15
	Good	1	2	1	2	1	1	8
	Very good	2	2	0	2	0	1	7
Impact of work on villages	Very Less	1	0	0	1	2	3	7
	High	3	3	3	1	1	2	13
	Very high	2	2	1	4	1	0	10
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	High	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Work Executed	Done	6	6	2	6	6	4	30
Satisfaction levels regarding quality of work	Moderate	3	3	0	4	3	2	15
	Good	3	1	0	1	2	1	8
	Very good	0	2	2	1	1	1	7
Impact of work on villages	Very Less	2	0	0	1	2	2	7
	High	3	4	1	2	3	0	13
	Very high	1	2	1	3	1	2	10

***Source*:** Field Survey, GBPSSI.

Table 4.9: Perceptions of Communities regarding Organized Eye Check-up Camps

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	High	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work Executed	Done	6	5	4	6	4	5	30
Satisfaction levels regarding quality of work	Moderate	3	0	1	1	2	1	8
	Good	1	5	1	3	1	3	14
	Very good	2	0	2	2	1	1	8
Impact of work on villages	High	2	2	2	5	2	2	15
	Very high	4	3	2	1	2	3	15
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	High	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Work Executed	Done	6	6	2	6	6	4	30
Satisfaction levels regarding quality of work	Moderate	1	2	0	3	0	2	8
	Good	2	3	1	3	3	2	14
	Very good	3	1	1	0	3	0	8
Impact of work on villages	High	2	4	1	3	4	1	15
	Very high	4	2	1	3	2	3	15

***Source*:** Field Survey, GBPSSI.

Table 4.10: Perception of Communities regarding Organized Health Check-up Camps for Animals

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Very less	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work Executed	Done	4	3	4	4	4	5	24
	Not done	2	2	0	2	0	0	6
Satisfaction levels regarding quality of work	Bad	1	1	2	0	1	1	6
	Moderate	2	0	1	2	2	2	9
	Good	1	1	1	1	1	2	7
	Very good	0	1	0	1	0	0	2
Impact of work on villages	Very less	0	0	0	0	1	1	2
	Less	1	1	2	2	1	3	10
	High	1	1	0	2	1	1	6
	Very high	2	1	2	0	1	0	6
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	Very less	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Work Executed	Done	5	5	1	5	5	3	24
	Not done	1	1	1	1	1	1	6
Satisfaction levels regarding quality of work	Bad	1	1	0	2	2	0	6
	Moderate	1	2	1	3	0	2	9
	Good	3	2	0	0	2	0	7
	Very good	0	0	0	0	1	1	2
Impact of work on villages	Very less	1	0	0	0	1	0	2
	Less	1	2	0	4	2	1	10
	High	0	2	1	1	1	1	6
	Very high	3	1	0	0	1	1	6

***Source*:** Field Survey, GBPSSI.

//True Copy//

Table 4.11: Perception of Communities regarding Camps Organized for Vaccination/Immunization of Cattle

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Very less	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work Executed	Done	4	3	4	4	4	5	24
	Not done	2	2	0	2	0	0	6
Satisfaction levels regarding quality of work	Bad	0	1	0	1	1	1	4
	Moderate	2	2	1	0	3	2	10
	Good	1	0	2	0	0	2	5
	Very good	1	0	1	3	0	0	5
Impact of work on villages	Very less	0	0	0	0	1	1	2
	Less	0	0	1	1	1	4	7
	High	4	2	0	1	1	0	8
	Very high	0	1	3	2	1	0	7
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	Very less	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Work Executed	Done	5	5	1	5	5	3	24
	Not done	1	1	1	1	1	1	6
Satisfaction levels regarding quality of work	Bad	1	1	0	1	1	0	4
	Moderate	1	3	1	4	1	0	10
	Good	0	1	0	0	2	2	5
	Very good	3	0	0	0	1	1	5
Impact of work on villages	Very less	1	0	0	0	1	0	2
	Less	1	1	0	3	1	1	7
	High	2	2	1	1	1	1	8
	Very high	1	2	0	1	2	1	7

***Source*:** Field Survey, GBPSSI.

Table 4.12: Perception of Communities regarding Organized Cricket Tournament

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	Very less	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work Executed	Done	6	5	4	3	4	5	27
	Not done	0	0	0	3	0	0	3
Satisfaction levels of quality of work	Moderate	6	2	1	2	3	4	18
	Good	0	3	3	1	1	1	9
Impact of work on villages	Less	3	2	1	2	2	4	14
	High	3	3	3	1	2	1	13
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	Very less	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Work Executed	Done	5	5	1	6	6	4	27
	Not done	1	1	1	0	0	0	3
Satisfaction levels of quality of work	Moderate	3	4	1	3	4	3	18
	Good	2	1	0	3	2	1	9
Impact of work on villages	Less	2	2	0	4	3	3	14
	High	3	3	1	2	3	1	13

***Source*:** Field Survey, GBPSSI.

Table 4.13: Perceptions of Communities regarding Construction of Rain-shed

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	High	0	0	0	0	1	1	2
	Very high	6	5	4	6	3	4	28
Work Executed	Done	6	5	4	6	4	5	30
Satisfaction levels regarding quality of work	Moderate	0	2	2	2	0	0	6
	Good	3	2	1	2	3	3	14
	Very good	3	1	1	2	1	2	10
Impact of work on villages	Less	2	2	2	4	0	0	10
	High	2	2	1	2	3	3	13
	Very high	2	1	1	0	1	2	7
Work Required	High	1	0	0	0	1	0	2
	Very high	5	6	2	6	5	4	28
Work Executed	Done	6	6	2	6	6	4	30
Satisfaction levels regarding quality of work	Moderate	0	2	1	1	2	0	6
	Good	5	1	1	2	2	3	14
	Very good	1	3	0	3	2	1	10
Impact of work on villages	Less	4	1	1	1	1	2	10
	High	1	2	0	3	5	2	13
	Very high	1	3	1	2	0	0	7

***Source*:** Field Survey, GBPSSI.

//True Copy//

Table 4.14: Perceptions of Communities regarding Skill Upgradation and Capacity Building

Responses of communities by villages		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Work Required	High	6	6	2	6	6	4	30
Work Executed	Done	6	6	2	6	6	4	30
Satisfaction levels regarding quality of work	Moderate	2	2	1	2	2	1	10
	Good	2	2	1	2	1	1	9
	Very good	2	1	2	2	1	3	11
Impact of work on villages	Less	3	0	1	0	1	1	6
	High	2	2	1	5	1	1	12
	Very high	1	3	2	1	2	3	12
Responses of communities by groups		**SC**	**OBC**	**Minority**	**General**	**Women**	**GP/VDAC**	**Total**
Work Required	High	6	6	2	6	6	4	30
Work Executed	Done	6	6	2	6	6	4	30
Satisfaction levels regarding quality of work	Moderate	3	2	0	0	3	2	10
	Good	2	1	1	4	0	1	9
	Very good	1	3	1	2	3	1	11
Impact of work on villages	Less	2	2	0	2	0	0	6
	High	3	2	1	1	2	3	12
	Very high	1	2	1	3	4	1	12

***Source*:** Field Survey, GBPSSI.

Table 4.15: Types of Activities Perceived as Beneficial to Villagers

Types of works		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Installation of hand-pumps in villages	No.	6	3	4	6	4	4	28
	%	100.0	60.0	100.0	100.0	100.0	80.0	93.3
Constructed pathways/roads	No.	3	0	0	0	3	4	10
	%	50.0	0.0	0.0	0.0	75.0	80.0	33.3
Youths Availed ITI training	No.	0	2	3	5	1	1	12
	%	0.0	40.0	75.0	83.3	25.0	20.0	40.0
Organized eye check-up camp and operated cataract	No.	6	3	1	1	4	4	20
	%	100.0	60.0	25.0	16.7	100.0	80.0	66.7
Organized health check-up camps	No.	0	3	0	0	0	0	3
	%	0.0	60.0	0.0	0.0	0.0	0.0	10.0
Constructed rain-shed for travelers	No.	0	0	0	0	3	4	7
	%	0.0	0.0	0.0	0.0	75.0	80.0	23.3
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.16: Perception of the Village Communities w.r.t. Executed Works

Perceptions		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Accessibility to potable water Improved	No.	6	3	3	6	4	5	27
	%	100.0	60.0	75.0	100.0	100.0	100.0	90.0
Mettaled roads	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Employment Possibilities Improved	No.	0	2	4	6	0	0	12
	%	0.0	40.0	100.0	100.0	0.0	0.0	40.0
Aged became Self dependent after eye operation	No.	6	3	1	0	4	5	19
	%	100.0	60.0	25.0	0.0	100.0	100.0	63.3
Transportation and Connectivity improved	No.	3	0	0	0	0	0	3
	%	50.0	0.0	0.0	0.0	0.0	0.0	10.0
Village looks developed	No.	0	0	0	0	3	4	7
	%	0.0	0.0	0.0	0.0	75.0	80.0	23.3
Livelihood support with job	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Awareness on diseases	No.	0	3	0	0	0	0	3
	%	0.0	60.0	0.0	0.0	0.0	0.0	10.0
Rain sheds eased long waits for transport	No.	0	0	0	0	2	3	5
	%	0.0	0.0	0.0	0.0	50.0	60.0	16.7
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Note*:** * Only for rehabilitation area.
***Source*:** Field Survey, GBPSSI.

//True Copy//

Table 4.17: Reasons the Executed CD Activities had not delivered expected benefits to villagers: Opinion of the Communities

Reasons		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Ground water strata dries up in summer	No.	0	0	0	0	4	5	9
	%	0.0	0.0	0.0	0.0	100.0	100.0	30.0
Animals died after immunization	No.	0	0	0	0	2	3	5
	%	0.0	0.0	0.0	0.0	50.0	60.0	16.7
Villagers could not avail benefits of distributed medicines	No.	0	0	0	1	2	3	6
	%	0.0	0.0	0.0	16.7	50.0	60.0	20.0
Many hand-pumps did not installed at proper place	No.	6	5	3	3	0	0	17
	%	100.0	100.0	75.0	50.0	0.0	0.0	56.7
More hand-pumps should be installed	No.	0	0	0	1	0	0	1
	%	0.0	0.0	0.0	16.7	0.0	0.0	3.3
MUNPL should effort to providing the jobs	No.	0	0	1	0	0	0	1
	%	0.0	0.0	25.0	0.0	0.0	0.0	3.3
MUNPL ensure participation of villagers along with Gram Pradhans	No.	0	0	0	2	0	0	2
	%	0.0	0.0	0.0	33.3	0.0	0.0	6.7
Provide economic assistance and house after disaster	No.	0	0	1	0	1	1	3
	%	0.0	0.0	25.0	0.0	25.0	20.0	10.0
Villagers unaware about the various camps	No.	0	0	1	0	0	0	1
	%	0.0	0.0	25.0	0.0	0.0	0.0	3.3
Did not proper examine in health check-up camps	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Plants become dry due to bad quality nurseries	No.	0	0	0	0	1	2	3
	%	0.0	0.0	0.0	0.0	25.0	40.0	10.0
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.18: Desired Activities Other than Executed under RAP As Suggested by Communities

Suggested Activities		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Provide free electricity to affected villages	No.	6	5	2	2	4	5	24
	%	100.0	100.0	50.0	33.3	100.0	100.0	80.0
Construct hospital	No.	0	0	1	0	1	1	3
	%	0.0	0.0	25.0	0.0	25.0	20.0	10.0
Increase sources of irrigation	No.	6	5	3	5	3	3	25
	%	100.0	100.0	75.0	83.3	75.0	60.0	83.3
Provide tap water in each household	No.	0	0	0	0	3	4	7
	%	0.0	0.0	0.0	0.0	75.0	80.0	23.3
Construct roads/CC road	No.	6	0	2	4	1	2	15
	%	100.0	0.0	50.0	66.7	25.0	40.0	50.0
Provide school/collage	No.	0	2	0	3	1	1	7
	%	0.0	40.0	0.0	50.0	25.0	20.0	23.3
Ensure employment opportunities	No.	0	3	2	2	0	0	7
	%	0.0	60.0	50.0	33.3	0.0	0.0	23.3
Ensure toilet facility in the villages	No.	0	2	1	1	0	0	4
	%	0.0	40.0	25.0	16.7	0.0	0.0	13.3
Establish community health centre	No.	0	2	0	0	0	0	2
	%	0.0	40.0	0.0	0.0	0.0	0.0	6.7
Construct drainages	No.	0	0	2	0	0	0	2
	%	0.0	0.0	50.0	0.0	0.0	0.0	6.7
Provide house to economically extreme poor families	No.	0	0	1	3	0	0	4
	%	0.0	0.0	25.0	50.0	0.0	0.0	13.3
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

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Table 4.19: Expected Outcome of the Suggested Community Activities if Implemented: Perception of the Community Members

Suggested Activities		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Develop our village	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Provide health facility to all villagers	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Increase crop production	No.	6	5	3	3	3	3	23
	%	100.0	100.0	75.0	50.0	75.0	60.0	76.7
Drinking water facility available in the house	No.	0	0	0	0	3	4	7
	%	0.0	0.0	0.0	0.0	75.0	80.0	23.3
Increase production of vegetables	No.	0	0	0	0	1	2	3
	%	0.0	0.0	0.0	0.0	25.0	40.0	10.0
Increase facility by electricity	No.	6	5	2	1	3	4	21
	%	100.0	100.0	50.0	16.7	75.0	80.0	70.0
Village will appear like town/city	No.	0	0	0	0	1	2	3
	%	0.0	0.0	0.0	0.0	25.0	40.0	10.0
Uplift status of education of children	No.	0	2	0	1	1	1	5
	%	0.0	40.0	0.0	16.7	25.0	20.0	16.7
Improve transportation facility	No.	6	0	2	4	0	0	12
	%	100.0	0.0	50.0	66.7	0.0	0.0	40.0
Households will become better	No.	0	3	2	2	0	0	7
	%	0.0	60.0	50.0	33.3	0.0	0.0	23.3
Migration for work will be retained	No.	0	4	1	0	0	0	5
	%	0.0	80.0	25.0	0.0	0.0	0.0	16.7
Pathway will become good	No.	0	0	2	0	0	0	2
	%	0.0	0.0	50.0	0.0	0.0	0.0	6.7
Proved shelter	No.	0	0	0	3	0	0	3
	%	0.0	0.0	0.0	50.0	0.0	0.0	10.0
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.20: Performance of CD Activities for the School Children and Schools executed in Affected Villages

Activities	Done		Not Done		Total
	No.	%	No.	%	
Health Check-up Camps	28	93.3	2	6.7	30
Eye Check-up Camps	21	70.0	9	30.0	30
Construction of School Boundary Wall	13	43.3	17	56.7	30
Distribution of Furniture	2	6.7	28	93.3	30

***Source*:** Field Survey, GBPSSI.

Table 4.21: Activities Performed by Average Number of Schools

Activities	Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Health Check-up Camps	1	1	1	1	1	1	1
Eye Check-up Camps	1	1	1	1	1	1	1
Construction of School Boundary Wall	0	0	1	1	1	1	1
Distribution of Furniture	0	0	0	0	1	1	1

***Source*:** Field Survey, GBPSSI.

Table 4.22 Satisfaction Level of Communities regarding Quality of Work Performed for Schools & Students

Activities	Bad		Average		Good/ Very good		Total
	No.	%	No.	%	No.	%	
Health Check-up Camps	2	7.1	19	67.9	7	25.0	28
Eye Check-up Camps	1	4.8	13	61.9	7	33.3	21
Construction of School Boundary Wall	1	7.7	1	7.7	7	53.8	13
Distribution of Furniture	2	100.0	2	100.0	0	0.0	2

***Source*:** Field Survey, GBPSSI.

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Table 4.23: Types of quality or Inferiority Experienced or Perceived regarding Activities performed for Schools & Students: Perception of Communities Members

Quality		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Not Treated Properly	No.	0	3	0	5	3	4	15
	%	0.0	60.0	0.0	83.3	75.0	80.0	50.0
Weak strength and low height	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Awareness on various diseases	No.	6	0	1	0	0	0	7
	%	100.0	0.0	25.0	0.0	0.0	0.0	23.3
Villagers do not get information about the MUNPL camps	No.	0	3	2	0	0	0	5
	%	0.0	60.0	50.0	0.0	0.0	0.0	16.7
Now school and children safe	No.	0	0	1	5	2	3	11
	%	0.0	0.0	25.0	83.3	50.0	60.0	36.7
Did not get eyeglass	No.	0	0	0	0	1	2	3
	%	0.0	0.0	0.0	0.0	25.0	40.0	10.0
Proper treatment not taken post eye check-ups eyes	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
All children do not get	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Not sustainable due to poor quality	No.	0	0	0	0	1	1	2
	%	0.0	0.0	0.0	0.0	25.0	20.0	6.7
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.24: Benefit Levels of Executed CD Activities for School & Students: Perceptions of Community Member

Activity	Very less		Less		High		Very high		Total
	No.	%	No.	%	No.	%	No.	%	
Health Check-up Camps	2	7.1	18	64.3	8	28.6	0	0.0	28
Eye Check-up Camps	2	9.5	11	52.4	8	38.1	0	0.0	21
Construction of School Boundary Wall	1	7.7	0	0.0	5	38.5	7	53.8	13
Distribution of Furniture	0	0.0	2	100.0	0	0.0	0	0.0	2

***Source*:** Field Survey, GBPSSI.

Table 4.25: Community Member Suggested Important Activities not Included in the List of Performed Activities for the Schools & Children

Suggested Activities	Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Game kits should be provided	0	0	0	3	4	5	12
Open the new school in affected villages	0	0	0	0	3	3	6
Organize game competition in the schools	0	0	0	0	2	3	5
Organize cultural programmes on national festivals	0	0	0	0	1	2	3
Develop patriotic emotion among children through drama etc.	0	0	0	0	1	2	3
Appoint staff for sanitation and care of children in schools	0	0	0	0	1	2	3
Need girls school in the region	0	0	0	0	1	1	2
Distribute bags among school children	6	5	3	6	0	0	20
Distribute shoes and socks among school children	0	3	0	0	0	0	3
Distribute woolen cloths	0	2	4	5	0	0	11
Distribute mats	0	2	0	0	0	0	2
Distribute furniture	0	0	2	4	0	0	6
Distribute stationeries	0	0	1	4	0	0	5
Provide scholarship	0	0	0	2	0	0	2
Computer education	0	0	0	1	0	0	1
Total	6	5	4	6	4	5	30

***Source*:** Field Survey, GBPSSI.

Table 4.26: Who monitored the CD works when it was under Implementation? Opinions of Communities

Particulars		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
MUNPL	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VDAC	No.	0	0	0	0	4	5	9
	%	0.0	0.0	0.0	0.0	100.0	100.0	30.0
Gram Panchayat	No.	3	0	1	0	2	2	8
	%	50.0	0.0	25.0	0.0	50.0	40.0	26.7
Villagers	No.	0	0	0	0	2	3	5
	%	0.0	0.0	0.0	0.0	50.0	60.0	16.7
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

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Table 4.27: Suggestions for better Implementation of CD Works so that Quality of Works could be maintained

Suggestions		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
MUNPL should not compromise with their norms	No.	0	0	1	0	2	3	6
	%	0.0	0.0	25.0	0.0	50.0	60.0	20.0
MUNPL officials should monitor the activities during implement	No.	0	0	1	0	2	3	6
	%	0.0	0.0	25.0	0.0	50.0	60.0	20.0
Work should be implemented by Gram Panchayat instead of contractor	No.	0	2	1	0	2	2	7
	%	0.0	40.0	25.0	0.0	50.0	40.0	23.3
Install new hand-pumps where polluted or inadequate water	No.	0	0	0	0	2	2	4
	%	0.0	0.0	0.0	0.0	50.0	40.0	13.3
Install hand-pumps on the basis of earlier survey	No.	6	3	1	1	0	0	11
	%	100.0	60.0	25.0	16.7	0.0	0.0	36.7
Get consent from villagers along with Gram Panchayat	No.	6	5	3	3	0	0	17
	%	100.0	100.0	75.0	50.0	0.0	0.0	56.7
MUNPL should prioritize the proposed activities for each village	No.	0	3	0	0	0	0	3
	%	0.0	60.0	0.0	0.0	0.0	0.0	10.0
Activity must be based on need of affected families	No.	0	2	1	0	0	0	3
	%	0.0	40.0	25.0	0.0	0.0	0.0	10.0
Ensure participation of villagers for monitoring of the work	No.	0	0	1	2	0	0	3
	%	0.0	0.0	25.0	33.3	0.0	0.0	10.0
Give weight to implementation of activity as per need of the village	No.	0	0	0	2	0	0	2
	%	0.0	0.0	0.0	33.3	0.0	0.0	6.7
Total	No.	6	5	4	6	4	5	30
		100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

Table 4.28: Types of Support which Villagers would provide if suggested Works would get implemented in the Villages

Types		Kohdar	Esauta	Patai Dandi	Mai Khurd	Salaiya Kala	Salaiya Khurd	Total
Provide help by all villages	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All farmers will help	No.	0	0	0	0	2	2	4
	%	0.0	0.0	0.0	0.0	50.0	40.0	13.3
Almost people will help	No.	0	2	4	2	0	0	8
	%	0.0	40.0	100.0	33.3	0.0	0.0	26.7
Help as per requirement	No.	0	0	4	5	0	0	9
	%	0.0	0.0	100.0	83.3	0.0	0.0	30.0
Total	No.	6	5	4	6	4	5	30
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

***Source*:** Field Survey, GBPSSI.

Table 5.1: PAP Households Covered under Different Categories

Villages	Landlooser		HSO		Non-Ag. Labour		Total	
	No	%	No	%	No	%	No	%
Kohdar	25	20.0	0	0.0	0	0.0	25	13.2
Esauta	25	20.0	0	0.0	7	38.9	32	16.8
Pataidandi	25	20.0	0	0.0	2	11.1	27	14.2
Mai Khurd	25	20.0	0	0.0	0	0.0	25	13.2
Jhariyahi	0	0.0	25	53.2	0	0.0	25	13.2
Salaiya Kala	7	5.6	22	46.8	7	38.9	36	18.9
Salaiya Khurd	18	14.4	0	0.0	2	11.1	20	10.5
Total	125	100.0	47	100.0	18	100.0	190	100.0

***Source*:** Field survey GBPSSI.

Table 5.2: Status of Resettlement of Households, Duration of Stay and Average Distance from Old Residence to New Location

Village	Average Distance in Km.	Resettled Families			Average Duration of stay at New Place
		Number	Percent	Total Displaced HHs.	
Salaiya Kala	4.6	22	52.4	42	2.5
Jhariyahi	2.0	25	71.4	35	2.8
Total	3.0	47	61.0	77	2.0

Note: All 77 HSO Households have taken possession of Rehabilitation place but 11 Households does not reside there.
***Source*:** Field survey GBPSSI.

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Table 5.3: Status of PAP Households regarding Purchase of Land at Other Places

Village	Purchased		Not Purchased		Total HHs.	
	Number	Percent	Number	Percent	Number	Percent
Kohdar	0	0.0	25	100.0	25	100.0
Esauta	3	9.4	22	68.8	32	100.0
Pataidandi	0	0.0	27	100.0	27	100.0
Mai Khurd	1	4.0	24	96.0	25	100.0
Jhariyahi	4	16.0	21	84.0	25	100.0
Salaiya Kala	4	11.1	32	88.9	36	100.0
Salaiya Khurd	0	0.0	20	100.0	20	100.0
Total	12	6.3	178	93.7	190	100.0

***Source*:** Field survey GBPSSI.

Table 5.4: Heads for Expenditure of Received Grant Amount by Households

(Figure in %)

Expenditure on Items	Kohdar	Esauta	Pataidandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total
Land	0.0	7.8	0.0	8.6	33.0	16.2	0.0	10.4
House	33.7	9.7	10.0	40.2	53.8	41.2	17.2	32.8
Two wheeler	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.4
Four wheeler	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agricultural assets	5.5	1.0	1.3	0.0	0.0	0.0	0.0	1.0
Marriage	33.0	42.0	26.6	22.1	4.3	27.2	76.1	32.2
Other function	1.1	1.9	2.5	7.6	0.0	0.4	0.0	2.0
Illness	11.9	21.1	33.9	4.4	1.1	7.2	0.2	9.0
Domestic Exp.	12.0	11.0	23.2	6.7	5.0	7.8	3.1	8.7
Loan repayment	0.0	3.5	2.5	2.2	0.0	0.0	0.0	0.9
Business	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.1
Investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saving	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.5
Animal	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Others	1.5	1.9	0.0	7.6	0.0	0.0	0.0	1.8
Total Rs. In Lakh	75.87	51.30	39.82	92.70	69.85	117.62	70.92	518.08

***Source*:** Field survey GBPSSI.

Table 5.5: Status of Households Benefited by Getting Employment Opportunity in MUNPL

Villages	Large		Less/Very Less		None		Total Sample
	No.	%	No.	%	No.	%	
Kohdar	1	4.0	24	96.0	0	0.0	25
Esauta	0	0.0	28	87.5	4	12.5	32
Pataidandi	0	0.0	21	77.8	6	22.2	27
Mai Khurd	2	8.0	15	60.0	8	32.0	25
Jhariyahi	0	0.0	20	80.0	5	20.0	25
Salaiya Kala	0	0.0	33	91.7	3	8.3	36
Salaiya Khurd	0	0.0	19	95.0	1	5.0	20
Total	3	1.6	160	84.2	27	14.2	190

***Source*:** Field survey GBPSSI.

Table 5.6: Status of Execution of Selected Four Activities for Affected Households

Villages	Skill Up-gradation in Traditional Training		ITI Training for Youth		Distribution of Aids for Physically Challenged		Total
	Executed	Not Executed	Executed	Not Executed	Executed	Not Executed	
Kohdar	0.0	100.0	24.0	76.0	0.0	100.0	25
Esauta	3.1	96.9	28.1	71.9	6.3	93.8	32
Pataidandi	3.7	96.3	22.2	77.8	3.7	96.3	27
Mai Khurd	0.0	100.0	72.0	28.0	20.0	80.0	25
Jhariyahi	0.0	100.0	4.0	96.0	4.0	96.0	25
Salaiya Kala	27.8	72.2	63.9	36.1	47.2	52.8	36
Salaiya Khurd	60.0	40.0	60.0	40.0	80.0	20.0	20
Total	12.6	87.4	39.5	60.5	22.1	77.9	190

***Source*:** Field survey GBPSSI.

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Table 5.7: Number of Households whose Wards got Admissions in ITI through MUNPL and their Satisfaction Levels

Villages	HHs Benefited				Satisfaction Level of HHs			
	Benefited	Awaited	Not Benefited	Total	Much Satisfied	Less Satisfied	Not Satisfied	Total
Kohdar	24.0	0.0	76.0	25	0.0	83.3	16.7	6
Esauta	21.9	6.3	71.9	32	28.6	71.4	0.0	7
Pataidandi	18.5	3.7	77.8	27	20.0	40.0	40.0	5
Mai Khurd	56.0	16.0	28.0	25	14.3	71.4	14.3	14
Jhariyahi	4.0	0.0	96.0	25	0.0	100.0	0.0	1
Salaiya Kala	52.8	11.1	36.1	36	0.0	63.2	36.8	19
Salaiya Khurd	60.0	0.0	40.0	20	0.0	100.0	0.0	12
Total	33.7	5.8	60.5	190	7.8	73.4	18.8	64

***Source*:** Field survey GBPSSI.

Table 5.8: Status of CD Activities Executed in Affected Villages

(Figure in %)

Activities	HHs. Benefited		Quality of Service			Success of Camps		
	Number	Percent	Good	Average	Low	Much	Average	Low
General Health Check-up camps	118	62.1	33.9	54.2	11.9	41.5	45.8	12.7
Eye Check-up camps	56	24.2	46.4	50.0	3.6	57.1	33.9	8.9
Health check-up in School children	59	31.1	16.9	81.4	1.7	18.6	79.7	1.7
Health Check-up for animal	32	16.8	3.1	15.6	81.3	18.8	12.5	68.8
Vaccination camps for animal	41	21.6	0.0	31.7	68.3	9.8	34.1	56.1

***Source*:** Field survey GBPSSI.

Table 5.9: PAP Households Perceived Changes due to Execution of Activities under RAP

	Social		Economically		Educational	
	Number	Percent	Number	Percent	Number	Percent
Very low	23	12.1	26	13.7	18	9.5
Low	32	16.8	35	18.4	23	12.1
General	67	35.3	55	28.9	73	38.4
Good	0	0.0	0	0.0	3	1.6
None	68	35.8	74	38.9	73	38.4
Total	190	100.0	190	100.0	190	100.0

***Source*:** Field survey GBPSSI.

Table 5.10: Awareness Level of PAP Households regarding Villages taken under CD Programme

Village	Households Aware		Total HHs.
	Number	As % of total	
Kohdar	21	84.0	25
Esauta	27	84.4	32
Pataidandi	26	96.3	27
Mai Khurd	25	100.0	25
Jhariyahi	25	100.0	25
Salaiya Kala	28	77.8	36
Salaiya Khurd	10	50.0	20
Total	162	85.3	190

***Source*:** Field survey GBPSSI.

Table 5.11: Level of Consent taken from Locals for Execution of CD Activities

	Land Looser		HSO		Non-Ag. Labour		Total	
	No.	%	No.	%	No.	%	No.	%
Very high	85	68.0	20	42.6	18	100.0	123	64.7
High	29	23.2	21	44.7	0	0.0	50	26.3
Less	10	8.0	6	12.8	0	0.0	16	8.4
None	1	0.8	0	0.0	0	0.0	1	0.5
Total	125	100.0	47	100.0	18	100.0	190	100.0

***Source*:** Field survey GBPSSI.

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Table 5.12: Status of Execution of CD Activities and its Impact: Opinion of PAP Households

(Figure in %)

Activities	Status of Work			Level of Changes Perceived by PAP Households			
	Done	Not Done	Under Progress	Same	Little	Good	Very good
Construction of Link Road	43.7	56.3	0.0	2.4	44.6	21.7	31.3
Construction of Alternative Link Road	13.7	73.2	13.2	7.8	72.5	19.6	0.0
Renovation/Construction of Pond	27.9	72.1	0.0	28.3	26.4	41.5	3.8
Renovation/Construction of Well	26.8	72.6	0.5	3.8	42.3	40.4	13.5
Plantation under Social Forestry	100.0	0.0	0.0	0.0	34.2	43.7	22.1
Hand-pump for Drinking water	100.0	0.0	0.0	12.1	37.4	20.5	30.0
Farmer Fair/Training	100.0	0.0	0.0	34.2	32.1	33.7	0.0
Construction Ghat	38.9	61.1	0.0	47.3	13.5	24.3	14.9
Check-dam construction	55.3	44.7	0.0	42.9	22.9	24.8	9.5
Health check-up Camp	100.0	0.0	0.0	28.9	31.1	24.2	15.8
Eye Camp/Operation	100.0	0.0	0.0	21.1	23.2	22.1	33.7
Veterinary Camp	100.0	0.0	0.0	20.0	35.3	26.8	17.9
Veterinary immunization	100.0	0.0	0.0	29.5	42.1	19.5	8.9
Organized Cricket Tournament	52.6	47.4	0.0	22.0	30.0	32.0	16.0
Shed for Yatri/Rain Shed	14.2	85.8	0.0	0.0	3.7	51.9	44.4
Other work for Disaster	28.9	71.1	0.0	0.0	14.5	72.7	12.7
Boundary wall for School	30.5	69.5	0.0	69.0	17.2	13.8	0.0

***Source*:** Field survey GBPSSI.

Table 5.13: Nature of Improvement felt by PAP Households due to Execution of CD Activities

Types of Improvements	Kohdar	Esauta	Pataidandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total
Improved communication due to construction of roads	41.7	0.0	0.0	0.0	72.0	77.8	122.2	54.5
Improve drinking water facilities in village	25.0	80.0	66.7	100.0	92.0	25.0	77.8	64.9
Increased probability of employment for ITI degree holders	16.7	20.0	22.2	8.3	4.0	25.0	77.8	23.9
Vision Improved through cataract operation and eye check-ups	0.0	0.0	0.0	4.2	0.0	22.2	44.4	12.7
Comfortable bathing and washing due to Construction of Snanghats	0.0	0.0	0.0	0.0	36.0	0.0	0.0	6.7
Rain shed provide shelter to travelers	0.0	0.0	0.0	0.0	0.0	2.8	22.2	3.7
Increased sale and revenue of local shopkeepers	16.7	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Increased transportation of vehicles	25.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
improved Long distance accessibility	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Increased gathering in the market	16.7	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Water use for multi-purposes by construction of check-dam	0.0	40.0	0.0	0.0	4.0	0.0	0.0	3.7
Physically challenged people got benefit of aid instruments	0.0	0.0	11.1	0.0	0.0	0.0	0.0	0.7
Health check-up camps provide benefits to ill cattle	0.0	0.0	0.0	8.3	0.0	0.0	0.0	1.5
Got significant relief from MUNPL during fire disaster	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.7
Total	12	10	9	24	25	36	18	134

***Source*:** Field survey GBPSSI.

Table 5.15: New Activities Suggested by PAP Households for Development of Village

Activities	Kohdar	Esauta	Pataidandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total
Construct canal in the region	23.8	15.6	51.9	12.0	0.0	0.0	0.0	14.6
Provide employment opportunities	33.3	18.8	7.4	0.0	12.5	8.3	0.0	11.4
Increased irrigation source/tub-well/lift canal	33.3	37.5	59.3	88.0	8.3	22.2	70.0	43.8
Provide house	28.6	28.1	33.3	4.0	20.8	8.3	10.0	18.9
Allot agricultural land/housing land	4.8	0.0	3.7	0.0	41.7	61.1	0.0	18.4
Construct hospital	47.6	43.8	59.3	76.0	70.8	55.6	80.0	60.5
Digging well in the village	4.8	0.0	7.4	0.0	0.0	0.0	0.0	1.6
Provide free electricity	33.3	34.4	33.3	60.0	25.0	77.8	70.0	48.6
Provide cricket ground in the region	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Construct pathways/roads (canal's road)	38.1	43.8	51.9	76.0	41.7	11.1	0.0	37.3
Install hand pump for drinking water	14.3	65.6	37.0	20.0	20.8	50.0	60.0	40.0
Construct school	14.3	25.0	74.1	44.0	62.5	75.0	40.0	49.7
Construct drainages	4.8	3.1	22.2	16.0	8.3	0.0	0.0	7.6
Economic aid/assistance to poor	0.0	21.9	7.4	0.0	0.0	0.0	10.0	5.9
Help in issue of ration cards	0.0	3.1	3.7	0.0	0.0	0.0	0.0	1.1
Construct Panchayat Bhawan/Community building	0.0	15.6	11.1	36.0	66.7	63.9	0.0	30.3
Construct girls school	0.0	15.6	14.8	12.0	0.0	0.0	40.0	10.8
Construct toilets	0.0	6.3	14.8	0.0	62.5	2.8	40.0	16.2
Others	0.0	3.1	3.7	8.0	37.5	83.4	40.0	27.4
Total	21	32	27	25	24	36	20	185

***Note*:** **Others includes** Ensure Cricket stadium, Gate of MUNPL should be facing the village (Maikhurd, Construct community health centre, Construct Pullia, Provide free treatment and medicines, Deploy Tractor and vehicle in the plant, Provide free education, Construct park, Ensure transportation facilities, MUNPL control pollution etc.

***Source*:** Field survey GBPSSI.

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Table 5.15: New Activities Suggested by PAP Households for Development of Villages

Activities	Kohdar	Esauta	Pataidandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total
Construct canal in the region	23.8	15.6	51.9	12.0	0.0	0.0	0.0	14.6
Provide employment opportunities	33.3	18.8	7.4	0.0	12.5	8.3	0.0	11.4
Increased irrigation source/tub-well/lift canal	33.3	37.5	59.3	88.0	8.3	22.2	70.0	43.8
Provide house	28.6	28.1	33.3	4.0	20.8	8.3	10.0	18.9
Allot agricultural land/housing land	4.8	0.0	3.7	0.0	41.7	61.1	0.0	18.4
Construct hospital	47.6	43.8	59.3	76.0	70.8	55.6	80.0	60.5
Digging well in the village	4.8	0.0	7.4	0.0	0.0	0.0	0.0	1.6
Provide free electricity	33.3	34.4	33.3	60.0	25.0	77.8	70.0	48.6
Provide cricket ground in the region	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Construct pathways/roads (canal's road)	38.1	43.8	51.9	76.0	41.7	11.1	0.0	37.3
Install hand pump for drinking water	14.3	65.6	37.0	20.0	20.8	50.0	60.0	40.0
Construct school	14.3	25.0	74.1	44.0	62.5	75.0	40.0	49.7
Construct drainages	4.8	3.1	22.2	16.0	8.3	0.0	0.0	7.6
Economic aid/assistance to poor	0.0	21.9	7.4	0.0	0.0	0.0	10.0	5.9
Help in issue of ration cards	0.0	3.1	3.7	0.0	0.0	0.0	0.0	1.1
Construct Panchayat Bhawan/Community building	0.0	15.6	11.1	36.0	66.7	63.9	0.0	30.3
Construct girls school	0.0	15.6	14.8	12.0	0.0	0.0	40.0	10.8
Construct toilets	0.0	6.3	14.8	0.0	62.5	2.8	40.0	16.2
Others	0.0	3.1	3.7	8.0	37.5	83.4	40.0	27.4
Total	21	32	27	25	24	36	20	185

***Note*:** **'Others' includes** Ensure Cricket stadium, Gate of MUNPL should be facing the village (Maikhurd, Construct community health centre, Construct Pullia, Provide free treatment and medicines, Deploy Tractor and vehicle in the plant, Provide free education, Construct park, Ensure transportation facilities, MUNPL control pollution etc.

Source: Field survey, GBPSSI.

Table 5.16: Expectations of PAP Households from MUNPL

Suggestions	Kohdar	Esauta	Pataidandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total
Provide service to affected households	60.0	65.6	81.5	80.0	96.0	80.6	70.0	76.3
Free electrification/transformer/supply	60.0	25.0	29.6	24.0	32.0	36.1	70.0	37.9
Construct hospital in the region	16.0	53.1	44.4	68.0	24.0	8.3	10.0	32.1
Increased irrigation facility/tub-well/renovation of canal	20.0	46.9	55.6	76.0	0.0	19.4	50.0	37.4
Provide employment	8.0	28.1	11.1	12.0	40.0	44.4	40.0	26.8
Hand-pump/tap water	8.0	6.3	25.9	4.0	16.0	33.3	60.0	21.1
Construct pathways beside canals	40.0	15.6	18.5	68.0	24.0	0.0	0.0	22.6
Give agriculture land/residential land	0.0	0.0	0.0	0.0	40.0	72.2	0.0	18.9
Provide house	24.0	34.4	11.1	12.0	8.0	0.0	10.0	14.2
MUNPL give more compensation to farmers	8.0	0.0	18.5	16.0	32.0	27.8	0.0	15.3
Construct school	12.0	34.4	55.6	20.0	8.0	5.6	0.0	20.0
Cash money/economic assistance	0.0	21.9	7.4	0.0	4.0	0.0	10.0	6.3
Ensure toilet facility in the village	0.0	3.1	3.7	0.0	32.0	2.8	30.0	8.9
Construct Panchayat Ghar/community building	0.0	0.0	0.0	0.0	20.0	5.6	0.0	3.7
Immediate release grant	0.0	0.0	0.0	0.0	0.0	19.4	0.0	3.7
Construct drainages	20.0	0.0	3.7	0.0	0.0	0.0	0.0	3.2
Support transportation facility	0.0	0.0	0.0	0.0	0.0	0.0	20.0	2.1
Construct girls school	0.0	6.3	3.7	0.0	0.0	0.0	0.0	1.6
Others	0.0	0.0	3.7	0.0	0.0	5.6	0.0	1.6
Total	25	32	27	25	25	36	20	190

Note: Construct Barat Ghar/Community building, Construct Pullia, Provide free education.

Source: Field survey, GBPSSI.

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Table 5.17: Indicators related to Quality of Life of the People Living in Affected and Neutral Villages

Indicators	Affected Village								Neutral Village		
	Kohdar	Esauta	Patai Dandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total	Jora	Sirhir	Total
Sex-ratio (Per '000' Male)	854	852	929	887	786	817	892	859	905	923	914
Literacy Rate (%)	71	70.4	82.6	77.5	68.6	72.1	68.3	72.9	62	74.5	68.25
Earning Member (%)	32.6	22.3	24.3	23.8	25.3	28	34.7	27.3	27.7	26.4	27.05
Per Capita Income (Rs.)	10200	8545	8125	13622	11200	8720	9600	10002	9428	10065	9746
Type of Family (%)											
Joint	68	53.1	70.4	36	4	5.6	65	41.1	45	28	36.5
Nuclear	32	46.9	29.6	64	96	94.4	35	58.9	55	72	63.5
% of BPL & APL Households											
BPL	28	0	14.8	28	0	11.1	80	20	20.7	25.5	23.1
APL	72	100	85.2	72	100	88.9	20	80	79.3	74.5	76.9
Major Occupation of Households (%)											
Labour	44.0	25.0	25.9	0.0	88.0	75.0	95.0	49.5	22	29	25.5
Cultivation	56.0	62.5	66.7	88.0	8.0	16.7	0.0	43.2	37.9	52.9	45.4
Small business	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.5	6.7	4	5.35
Average Annual Income (In Rs.) and Availability of Basic Facilities inside the House											
Income	34752	26287	32666	50976	30384	38600	50940	37023	56004	58060	57032
Average Land holding (In acre)	1.9	1.5	2.5	2.1	0.8	0.8	0.0	1.4	2.2	2.0	2.1
Electricity Available in HHs (%)	96	87.5	88.9	96.0	100	72.2	95	89.5	22.6	24.2	23.4
Drinking Water in House (%)	28	18.8	18.5	8.0	0.0	0	5	11.1	1.1	2.0	1.5
Availability of Toilet (%)	20	9.4	14.8	8.0	0.0	2.8	5	8.4	0.0	0.0	0.0
Sources of Drinking Water among Households (%)											
Gen. hand-pump	64	62.5	40.7	12	0.0	8.3	10.0	28.9	56.2	62.0	59.1
India Mark-2	36	31.3	33.3	60	100	63.9	85	56.8	0.0	2.0	1
Well	0	6.3	25.9	28	0.0	27.8	5	14.2	43.8	26.0	34.9
Types of House (%)											
Pucca	64	34.4	37	32	80	33.3	30	43.7	23	21	22
Semi-pucca	28	28.1	33.3	28	20	41.7	35	31.1	0	6	3
Kutcha	8	31.3	29.6	36	0	22.2	15	21.1	77	63	70
Hut	0	6.3	0	4	0	2.8	20	4.2	0	10	5

***Source*:** Field survey GBPSSI.

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Table 5.18: Comparative Status of Basic Facilities/Amenities Available in Affected & Neutral Villages by Distance

(Figures in Km.)

Facilities	Kohdar	Esauta	Patai Dandi	Salaiya Khurd	Mai Khurd	Salaiya Kala	Average Distance	Sirhir	Jora	Average Distance
BASIC AMENITIES										
Bus Stop	0	3	5	7	7	7	5	1	5	3
Railway Station	17	20	22	20	25	22	21	22	28	25
Public Phone	0	0	0	0	0	3	1	0	5	3
Medical Shop	0	4	4	7	7	4	4	5	8	7
Post Office	0	0	4	4	6	8	4	5	2	4
Co-operative Society	0	5	4	0	10	3	4	1	4	3
Agriculture Seeds Centre	17	20	22	20	25	22	21	22	28	25
Shop for Fertilizer & Pesticide	0	4	5	2	8	3	4	5	8	7
Govt. Purchage Centre	22	18	18	25	20	22	21	24	20	22
Cold Storage	17	20	22	20	25	22	21	22	28	25
Regional Food Godam	17	20	22	20	25	22	21	22	28	25
Fair Price Shop	0	0	4	3	7	3	3	0	0	0
Weekly Market	0	4	4	0	7	3	3	5	8	7
Daily Regular Market	0	4	5	3	7	3	4	5	8	7
Police Station/Sub-Station	0	4	5	7	7	4	5	5	9	7
Block Headquarter	17	20	22	20	25	22	21	22	28	25
Tehsil Headquarter	17	20	22	20	25	22	21	22	28	25
District Headquarter	36	42	40	40	45	48	42	46	54	50
EDUCATIONAL INSTITUTIONS										
Primary School	0	0	0	0	0	0	0	0	0	0
Upper Primary School	3	0	0	0	3	2	1	1	1	1
Secondary School	3	5	4	3	7	5	5	1	5	3
Senior Secondary School	3	5	4	3	7	5	5	1	5	3
Degree college	9	15	20	28	10	30	19	0	11	6
Industrial Training Institute	30	33	30	35	37	37	34	46	54	50
Aganbadi/Balwadi	0	0	0	0	0	2	0	0	0	0
HEALTH & MEDICAL SERVICES										
Health Sub-centre	3	4	5	7	7	7	6	1	2	2
Primary Health Centre	3	4	5	7	7	7	6	1	7	4
Community Health Centre	17	20	22	20	25	22	21	22	28	25
Mother-child Welfare Centre	17	20	22	20	25	22	21	22	7	15
Private Doctor/Clinic	3	4	5	3	7	3	4	9	14	12
Unregistered Doctor	0	0	0	0	2	4	1	5	0	3
Govt. Veterinary Hospital	3	4	5	7	7	5	5	9	7	8
Private Veterinary Doctor	3	4	5	7	7	7	6	8	10	9
Artificial delivery centre for Cattle	3	4	5	7	7	8	6	9	7	8
FINANCIAL INSTITUTIONS										
Nationalize Bank	5	10	10	3	11	3	7	5	7	6
Regional Rural Bank	3	4	5	7	7	10	6	9	14	12
Land Development Bank	14	20	20	20	22	22	20	22	28	25
Co-Operative Bank	14	20	5	20	7	22	15	22	28	25

***Source*:** GBPSSI Field Survey.
***Note*:** '0' Shows that facility is available within the village.

Table 6.1: Caste-wise Coverage of Households

Villages	SC		OBC		General		Total	
	No.	%	No.	%	No.	%	No.	%
Kohdar	6	21.4	6	6.8	13	17.6	25	13.2
Esauta	0	0.0	13	14.8	19	25.7	32	16.8
Pataidandi	2	7.1	5	5.7	20	27.0	27	14.2
Mai Khurd	0	0.0	3	3.4	22	29.7	25	13.2
Jhariyahi	0	0.0	25	28.4	0	0.0	25	13.2
Salaiya Kala	3	10.7	33	37.5	0	0.0	36	18.9
Salaiya Khurd	17	60.7	3	3.4	0	0.0	20	10.5
Total	28	100.0	88	100.0	74	100.0	190	100.0

Source: Field Survey, GBPSSI.

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Table 6.2: Distribution of PAPs by Types of family

Village	Before				Current				Total	
	Joint		Nuclear		Joint		Nuclear			
	No.	%	No.	%	No.	%	No.	%	No.	%
Kohdar	17	68.0	8	32.0	17	68.0	8	32.0	25	100.0
Esauta	18	56.3	14	43.8	17	53.1	15	46.9	32	100.0
Pataidandi	21	77.8	6	22.2	19	70.4	8	29.6	27	100.0
Mai Khurd	12	48.0	13	52.0	9	36.0	16	64.0	25	100.0
Jhariyahi	1	4.0	24	96.0	1	4.0	24	96.0	25	100.0
Salaiya Kala	4	11.1	32	88.9	2	5.6	34	94.4	36	100.0
Salaiya Khurd	13	65.0	7	35.0	13	65.0	7	35.0	20	100.0
Total	86	45.3	104	54.7	78	41.1	112	58.9	190	100.0

Source: Field Survey, GBPSSI.

Table 6.3: Distribution of PAPs by Economic Category

Village	Before				Current				Total	
	BLP		APL		BLP		APL			
	No.	%	No.	%	No.	%	No.	%	No.	%
Kohdar	7	28.0	18	72.0	7	28.0	18	72.0	25	100.0
Esauta	0	0.0	32	100.0	0	0.0	32	100.0	32	100.0
Pataidandi	4	14.8	23	85.2	4	14.8	23	85.2	27	100.0
Mai Khurd	7	28.0	18	72.0	7	28.0	18	72.0	25	100.0
Jhariyahi	0	0.0	25	100.0	0	0.0	25	100.0	25	100.0
Salaiya Kala	4	11.1	32	88.9	4	11.1	32	88.9	36	100.0
Salaiya Khurd	16	80.0	4	20.0	16	80.0	4	20.0	20	100.0
Total	38	20.0	152	80.0	38	20.0	152	80.0	190	100.0

Source: Field Survey, GBPSSI.

Table 6.4: Occupations of Households during Pre and Post Acquisition-Acquisition

Occupation	Before		Current	
	Number	Percent	Number	Percent
Wage labour	29	15.3	94	49.5
Stone breaking	62	32.6	1	0.5
Cultivation	76	40.0	82	43.2
Private service	2	1.1	2	1.1
Govt. service	3	1.6	3	1.6
Small business	1	0.5	1	0.5
Cultivation & Stone breaking	2	1.1	6	3.2
Agriculture & Pension	1	0.5	1	0.5
Professional	5	2.6	0	0.0
Cultivation & Wage labour	6	3.2	0	0.0
Others	1	0.5	0	0.0
No response	2	1.1	0	0.0
Total	190	100.0	190	100.0

Source: Field Survey, GBPSSI.

Table 6.5: Distribution of PAP Households by Income

Income Slab	Before			Current		
	Average	No.	%	Average	No.	%
Upto Rs. 2000	1886	74	38.9	1884	70	36.8
Rs. 2001 to Rs. 3000	2687	71	37.4	2946	39	20.5
Rs. 3001 to Rs. 4000	3869	13	6.8	3790	20	10.5
Rs. 4000 to Rs. 5000	4575	20	10.5	4947	19	10.0
Above Rs. 5000	9500	12	6.3	7929	42	22.1
Total	3085	190	100.0	3945	190	100.0

Source: Field Survey, GBPSSI.

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Table 6.6: Average Monthly Expenditure of Households on Different Components: Pre-and Post-Status

(In Rs.)

Types	Kohdar	Esauta	Pataidandi	Mai Khurd	Jhariyahi	Salaiya Kala	Salaiya Khurd	Total
BEFORE								
Food	2180	1722	3163	2370	1680	2117	1840	2154
Education	1170	784	981	820	320	318	100	646
Health	916	791	1402	670	494	533	310	740
Clothing	798	528	1030	668	468	542	325	627
Electricity	90	65	114	131	76	57	45	82
Entertainment	84	30	118	138	54	42	40	70
Addiction	256	241	583	350	440	154	95	300
Animal	202	163	315	244	28	100	0	153
Phone	344	259	457	392	325	275	45	305
Transport	518	377	698	644	588	581	90	512
CURRENT								
Food	2876	2072	3878	2884	2084	2825	2495	2730
Education	2612	1088	1422	1216	155	460	130	1010
Health	1068	988	2122	820	592	689	460	973
Clothing	942	617	1226	940	534	644	485	769
Electricity	129	97	191	231	138	95	69	134
Entertainment	136	59	130	178	98	89	60	106
Addiction	320	283	678	438	480	169	182	358
Animal	262	305	593	492	336	404	0	356
Phone	548	345	737	462	400	336	90	422
Transport	732	463	981	812	728	813	150	686

Source: Field Survey, GBPSSI.

Table 6.7: Variations in Expenditure on Different Components by Types of PAPs

(in Rs.)

Types	Before				Current			
	Land Looser	HSOs	Non-Ag. Labour	Total	Land Looser	HSO	Non-Ag. Labour	Total
Food	2370	1968	1139	2154	2974	2598	1383	2730
Education	863	317	0	646	1409	336	0	1010
Health	867	556	333	740	1169	668	411	973
Cloth	708	560	233	627	887	646	272	769
Electricity	93	68	38	82	151	120	51	134
Entertainment	84	46	39	70	116	90	78	106
Addiction	328	328	36	300	407	344	56	358
Animal	199	91	0	153	377	435	0	356
Phone	334	339	19	305	482	409	39	422
Transport	512	657	133	512	689	868	192	686

Source: Field Survey, GBPSSI.

Table 6.8: Average Land Ownership among Households: Pre-and-Post-Acquisition

Size of Land Holding (in Acre)	Before			Current		
	Average Land	Number	Percent	Average Land	Number	Percent
Landless	-	-	-	0.0	38	22.1
Less than 0.5	0.2	12	7.0	0.1	14	8.1
0.5 to 1.0	0.7	17	9.9	0.8	44	25.6
1.0 to 2.0	1.6	38	22.1	1.6	38	22.1
2.0 to 3.0	2.5	28	16.3	2.6	5	2.9
3.0 to 4.0	3.3	28	16.3	3.7	28	16.3
4.0 to 6.0	5.0	22	12.8	0.0	0	0.0
6.0 to 10.0	6.8	19	11.0	7.5	2	1.2
Above 10.0	15.6	8	4.7	12.4	3	1.7
Total	3.5	172	100.0	1.6	172	100.0

Source: Field Survey, GBPSSI.

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Table 6.9: Indebtedness of Households

Village	Loan taken		Loan not taken		Total HHs
	Number	Percent	Number	Percent	
Kohdar	8	13.3	17	13.1	25
Esauta	16	26.7	16	12.3	32
Patai Dandi	12	20.0	15	11.5	27
Mai Khurd	10	16.7	15	11.5	25
Jhariyahi	6	10.0	19	14.6	25
Salaiya Kala	7	11.7	29	22.3	36
Salaiya Khurd	1	1.7	19	14.6	20
Total	60	100.0	130	100.0	190

Source: Field Survey, GBPSSI.

Table 6.10: Average Outstanding and Monthly Interest Rate of Indebted Households: Pre and Post Acquisition

Village	Before			Current		
	Avg. (In Rs.)	Avg. Monthly Interest Rate	No. of HHds.	Avg. (In Rs.)	Avg. Monthly Interest Rate	No. of HHds.
Kohdar	15,000	1.0	2	1,26,667	5.0	8
Esauta	0.00	0.0	0	1,15,000	6.0	16
Patai Dandi	1,00,000	10.0	1	1,40,417	7.0	12
Mai Khurd	0.00	0.0	0	93,500	5.0	10
Jhariyahi	20,000	5.0	1	43,333	6.0	6
Salaiya Kala	0.00	0.0	0	62,143	7.0	7
Salaiya Khurd	0.00	0.0	0	1,00,000	5.0	1
Total	37,500	4.3	4	1,03,707	6.0	60

Source: Field Survey, GBPSSI.

Table 6.11: Availability of Electricity, Drinking Water Facility and Toilet Inside the House

Village	Availability of Electricity		Availability of Drinking Water		Availability of Toilet		Total HHs.
	Before	Current	Before	Current	Before	Current	
Kohdar	80.0	96.0	20.0	28.0	12.0	20.0	25
Esauta	65.6	87.5	12.5	18.8	6.3	9.4	32
Pataidandi	81.5	88.9	11.1	18.5	7.4	14.8	27
Mai Khurd	88.0	96.0	4.0	8.0	8.0	8.0	25
Jhariyahi	92.0	100.0	0.0	0.0	0.0	0.0	25
Salaiya Kala	36.1	72.2	0.0	0.0	2.8	2.8	36
Salaiya Khurd	55.0	95.0	0.0	5.0	5.0	5.0	20
Total	69.5	89.5	6.8	11.1	5.8	8.4	190

Source: Field Survey, GBPSSI.

Table 6.12: Sources of Drinking Water

Village	Before			Current			Total HHs.
	General Handpump	India Mark-II	Well	General Handpump	India Mark-II	Well	
Kohdar	72.0	28.0	0.0	64.0	36.0	0.0	25
Esauta	59.4	9.4	31.3	62.5	31.3	6.3	32
Pataidandi	44.4	7.4	48.1	40.7	33.3	25.9	27
Mai Khurd	40.0	16.0	44.0	12.0	60.0	28.0	25
Jhariyahi	40.0	12.0	48.0	0.0	100.0	0.0	25
Salaiya Kala	41.7	5.6	52.8	8.3	63.9	27.8	36
Salaiya Khurd	70.0	5.0	25.0	10.0	85.0	5.0	20
Total	51.6	11.6	36.8	28.9	56.8	14.2	190

Source: Field Survey, GBPSSI.

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Table 6.13: Types of House Owned by Households

Village	Before				Current				Total HHs.
	Pucca	Semi-pucca	Kutcha	Hut	Pucca	Semi-pucca	Kutcha	Hut	
Kohdar	44.0	20.0	32.0	4.0	64.0	28.0	8.0	0.0	25
Esauta	28.1	12.5	50.0	9.4	34.4	28.1	31.3	6.3	32
Pataidandi	25.9	18.5	55.6	0.0	37.0	33.3	29.6	0.0	27
Mai Khurd	24.0	16.0	40.0	20.0	32.0	28.0	36.0	4.0	25
Jhariyahi	0.0	12.0	72.0	16.0	80.0	20.0	0.0	0.0	25
Salaiya Kala	22.2	5.6	58.3	13.9	33.3	41.7	22.2	2.8	36
Salaiya Khurd	15.0	10.0	70.0	5.0	30.0	35.0	15.0	20.0	20
Total	23.2	13.2	53.7	10.0	43.7	31.1	21.1	4.2	190

Source: Field Survey, GBPSSI.

Table 6.14: Use of Fuel by Households

Village	Before		Current		Total HHs.
	LPG	Wood/Kanda	LPG	Wood/Kanda	
Kohdar	24.0	76.0	44.0	56.0	25
Esauta	6.3	93.8	25.0	75.0	32
Pataidandi	3.7	96.3	25.9	74.1	27
Mai Khurd	0.0	100.0	12.0	88.0	25
Jhariyahi	0.0	100.0	8.0	92.0	25
Salaiya Kala	8.3	91.7	16.7	83.3	36
Salaiya Khurd	10.0	90.0	25.0	75.0	20
Total	5.8	11.6	36.8	28.9	190

Source: Field Survey, GBPSSI.

Table 6.15: Status of Livestock in Households

Village	Cow	Buffalo	Ox	Goats	Others	Total	Avg. Animal/HH
BEFORE							
Kohdar	49	20	22	46	4	141	6
Esauta	76	35	30	33	23	197	6
Pataidandi	64	52	36	22	20	194	7
Mai Khurd	54	33	26	0	35	148	6
Jhariyahi	52	11	14	111	26	214	9
Salaiya Kala	117	46	40	7	52	262	7
Salaiya Khurd	44	0	12	0	4	60	3
Total	456	197	180	219	164	1216	6
CURRENT							
Kohdar	15	10	3	12	15	55	2
Esauta	18	20	2	3	13	56	2
Pataidandi	25	22	0	15	22	84	3
Mai Khurd	19	20	4	0	14	57	2
Jhariyahi	23	5	0	10	12	50	2
Salaiya Kala	24	28	5	1	33	91	3
Salaiya Khurd	28	0	8	0	0	36	2
Total	152	105	22	41	109	429	2

Source: Field Survey, GBPSSI.

Table 6.16: Number of Persons suffered by different Diseases during Last Two Year

Village	Number of Persons							
	Seasonal		Chronic Ailments					
	Fever/ Malaria	Dehydration	Heart	Blood Pressure	Diabetes	Asthma	TB	Others
Kohdar	78	4	2	3	0	1	0	5
Esauta	104	6	2	2	0	1	0	7
Patai Dandi	86	8	2	4	2	1	1	5
Mai Khurd	80	10	3	3	2	2	0	4
Jhariyahi	55	13	3	2	0	1	0	3
Salaiya Kala	78	7	2	2	1	1	0	7
Salaiya Khurd	48	9	2	1	0	2	0	0
Total	529	57	16	17	5	9	1	31

Source: Field Survey, GBPSSI.

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Table 6.17: Types of Health Services Availed by Households

Types	Before		Current	
	Number	Percent	Number	Percent
First Priority				
Govt. Hospital	27	14.2	9	4.7
Pvt. Hospital	41	21.6	40	21.1
Nursing Home	6	3.2	11	5.8
Quacks/unregistered practioners	86	45.3	112	58.9
Magico-religious practitioners	14	7.4	7	3.7
Domestic remedies	16	8.4	11	5.8
Total	190	100.0	190	100.0
Second Priority				
Govt. Hospital	5	2.6	41	21.6
Pvt. Hospital	42	22.1	39	20.5
Nursing Home	11	5.8	6	3.2
Quacks/unregistered practioners	108	56.8	83	43.7
Magico-religious practitioners	6	3.2	10	5.3
Domestic remedies	18	9.5	11	5.8
Total	190	100.0	190	100.0

Source: Field Survey, GBPSSI.

Table 6.18: Head-wise Expenditure of Compensation Amount

Particulars	Land Looser		HSO		Total	
	Amount (Rs.)	Percent	Amount (Rs.)	Percent	Amount (Rs.)	Percent
Land purchase	1700000	4.5	3705000	27.0	5405000	10.4
Construction of House	10405000	27.3	6607000	48.1	17012000	32.8
Purchase of two wheeler	0	0.0	190000	1.4	190000	0.4
Purchase of four wheeler	0	0.0	0	0.0	0	0.0
Purchase Agricultural Assets	520000	1.4	0	0.0	520000	1.0
Marriage	14865000	39.1	1800000	13.1	16665000	32.2
Other ceremony	980000	2.6	50000	0.4	1030000	2.0
Illness	4149000	10.9	525000	3.8	4674000	9.0
Domestic Exp.	3636000	9.6	870000	6.3	4506000	8.7
Loan repayment	480000	1.3	0	0.0	480000	0.9
Establish Business	70000	0.2	0	0.0	70000	0.1
Saving	240000	0.6	0	0.0	240000	0.5
Purchase Animal	100000	0.3	0	0.0	100000	0.2
Others	915500	2.4	0	0.0	915500	1.8
Total	38060500	100.0	13747000	100.0	51807500	100.0

Source: Field Survey, GBPSSI.

Table 6.19: Purchase of Land by Households after Acquisition

Status	Land Loser		HSO		Non-Ag. Labour		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	5	4.0	7	14.9	0	0.0	12	6.3
No	120	96.0	40	85.1	18	100.0	178	93.7
Total	125	100.0	47	100.0	18	100.0	190	100.0

Source: Field Survey, GBPSSI.

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Table 1: Provision and Entitlement of Benefits as Listed under Rehabilitation Action Plan (RAP) of MUNPL

Provisions	Entitlement of Benefits
A. REHABILITATION OF PAPS	
Rehabilitation grant for land owners	▪ One time rehabilitation grant on acquired land Rs. 33,750.00 per acre as per actual land loss subject to maximum for 5 acres. ▪ One time rehabilitation grant for landless (Category-A) is minimum Rs. 1 lakh. ▪ One time rehabilitation grant for other land losers (Category-B, C, D, E & F) is minimum Rs. 75000/.
Land Development and Registration Fee for Purchase of land	▪ If any PAP purchased the land in nearby area the development charges is per acre Rs. 12500/- for maximum 5 acres (A, B, C & D/ Registration and Stamp Duty charges on actual purchase of minimum 1 & maximum 5 acres land will be reimburse subject to land loss. ▪ The E & F category PAP can purchase maximum 1 acre land and the registration and stamp duty charges will be reimburse.
Lump Sum Grant for all Categories PAP	▪ Rs. 30000/- will be paid to each PAPs (Subsistence Allowance)
Employment Opportunity	▪ The MUNPL will give preference to make efforts to engage PAPs through contracting agencies, but it shall be subject to availability and requirement of eligibility of PAP's and/or their wards as per MUNPL policy.
Skill Development , Self Employment and Reimbursement of Fees	▪ Enhance the skill of PAP or any one of their depended for self employment, facility shall be extended as per suggestions of VDAC. ▪ The two types of skill have been visualized, namely first orientation and development of skills in traditional occupations and second skill development in new types of occupations. ▪ The priority for selection of person by HSO, A, B, C and D. ▪ If PAP or any of their dependants who gets admission in ant govt. recognized institutions, they shall be entitled for reimbursement of admission fee, tuition fee, examination fee and other expenses. ▪ MUNPL will provide 'Short Term Training Programme' for PAP or any one of their dependant with consultation of DGET. ▪ Other vocational training programs shall be organize by MUNPL for PAP or family members for time to time special focus on women and vulnerable groups.
Shop Allotment in MUNPL Township	▪ Up to 40% constructed shops of MUNPL township will be allotted to the PAP as per norms and guideline of MUNPL on priority basis.
Health Services	▪ The MUNPL will organize 'Free Health Check-up Camps' on periodical basis for welfare of the PAP and their family members. ▪ The PAP and their family members would be entitled for 80% subsidized treatment in all facilities like outdoor and indoor treatment in MUNPL hospital including operation, hospitalization, investigation etc. as per NTPC rules.
Welfare and Other Activities	▪ The MUNPL will provide free hearing aids, tricycle, wheel chairs etc. for physical challenged PAPs and their family members. ▪ Sport and cultural activities shall be organized by the MUNPL for the PAPs from time to time. ▪ Hiring the vehicles for the various MUNPL departments would be undertaken from PAPs. For this, the MUNPL encouraged & facilitated to PAP for vehicle financed through bank loans.
B. RESETTLEMENT OF PAPS	
Self Resettlement	▪ An amount of Rs. 1,25,000/ will be payable as financial assistance.
Resettlement Grant	▪ Fixed resettlement grant of Rs. 37500/ (including Rs. 5000/ for cattle shed).
Sifting Assistance	▪ All shifting by MUNPL
Other Facilities	▪ The MUNPL will provide drinking water, approach road, drains etc. in self re-settlement areas, namely Jhariyahi & Salaiyakala

Note: *The one time re-settlement package is Rs. 1,92,500/- per HSO.*

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Table 2: Head-wise Activities Proposed under Rehabilitation Action Plan

Heads	Sub-Heads
R & R Package	One time rehabilitation package
	One time resettlement package
Infrastructure	Construction of boundary wall of school
	Construction of one new Junior High School
	Construction of one Intermediate Girls College
	Construction of one Community Centre Building
	Construction of approach road in affected villages
	Alternate approach roads
	Approach road to locked area
	Construction of rain sheds
	Approach road to self Resettlement Area
	Electrification self Resettlement Area
	Internal PCC roads Resettlement Area
	Drainage in Resettlement Area
	Retaining wall to prevent earth slide
	Construction of water for Resettlement Area
	Infrastructure development work at Govt. ITI
Connectivity	Construction of internal roads
	Construction of culverts
Drinking Water	Installation of Hand-Pumps
Sanitation	Provision for drainage system
Restoration of CPRs	Ponds
	Construction of Ponds
	Construction of Community Wells
	Development of Social Forestry/plantation
	Construction of Temple/Religious place
Capacity Building	Training programme at Govt. ITI
	Long term professional courses
	Short term skill oriented Vocational training
	Women empowerment etc.
	Farmer Mela & Agriculture clinics
	Exposure Tour & Miscellaneous
Welfare Health Facilities	Gen. Health/Eye Camps & Gen. Purpose Medicine
	Children health check-up camp at school
	Organizing Vaccination camps
	Family Planning
	Medical equipments & aid to physically challenged
	Self Employment Assistance to PS & vulnerable
	Distribution of chlorine tablets & bleaching powder
	Mobile clinic & Ambulance etc.
	Veterinary Camps
Heads	**Sub-Heads**
Welfare Activities related to School Children	Distribution of books, Bags, Stationary
	Scholarships
	Furniture
	Other need based welfare activities
	Promotion of cultural activities etc.
	Organization of rural sport events & sport kits
	Distribution of computers & peripherals
Need Based	As emerges or as consented by VDAC
Implementation Measures	PAPs Verification, Issue of ID Card & Agreement
	Supervision of implementation of RAP
	Monitoring & Evaluation of implementation of RAP
	Miscellaneous Expenses

Source: *Rehabilitation Action Plan, MUNPL, May 2010.*

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Table 3: Social Audit of Executed R & R Activities of MUNPL

(Reference Period October 2012 to March 2014)

Sectors/Nature of Activities	Particulars	Location
INFRASTRUCTURE		
New Construction	5 Classrooms completed	ITI, Naini
New Construction	5 Workshops completed	ITI, Naini
Physical Support	Provided various tools	ITI, Naini
New Construction	Boundary wall in primary school	Village Jhariyahi
Physical Support	Provided Office Furnitures + Almeria	In 12 schools
Renovation of Pond	Enhancing water storage capacity	Village Salaiya Kala
New Construction	Constructed Pucca Ghat	Village Salaiya Kala
New Construction	Internal roads hamlet to hamlet	Salaiya Khurd
New Construction	Internal road Nai Basti	Nai Basti, Salaiya Kala
New Construction	Approach road Palpatti to khiri road	Palpatti to khiri road
New Construction	Approach road Jhariyahi	Village Jhariyahi
New Construction	Constructed check-dam for irrigation	Village Patai Dandi
New Construction	Constructed 4 rain sheds	Village Salaiya Khurd
New Construction	Well construction through blasting	Village Salaiya Kala
ECO-FRIENDLY ENVIRONMENT		
Harit Patti (Plantation)	30,000 Plants[1] facilitated by Forest Dept.	Plant area
Plantation	Plantation in schools	All affected villages
Plantation	Continuous in processes	Pahari and other places
SKILL UP-GRADATION AND CAPACITY BUILDING		
Admission for Vocational Training in ITI	48 students from PAP households	All affected villages
Admission for Vocational Training in ITI	48 students from PAP households	All affected villages
Farmer Training Camp	Provided hybrid vegetable seeds to farmers	All villages
HEALTH		
Medical Camp	Health check up & free Medicines	All Schools
Eye Camp	Eye Check-up & given eye Glass	All Schools
Eye Check-up Camps	Cataract operation	All villages
Medical Camp	Health check-up & free Medicines	All villages
Medical and Refreshment Camp	Health check-up & provide snakes & tea to pilgrims	In Kumbh Mela
Veterinary Camps in 2 Times in year	Immunization, free medicine for khur paka, Gala ghotu diseases	All villages
RURAL SPORTS		
Organized Canvas ball cricket tournament	2013 (field preparation (leveling) & distributed track suit , kits, prize, shield etc.	GP Mai Kala
Organized Canvas ball cricket tournament	2014 (distributed Prize & Shield)	Village Jhariyahi
COMMUNITY WELFARE		
Identification Physical Handicapped	Identification through project doctor & distributed Artificial Legs, Tricycle, etc.	All villages
Provided basic Infrastructures to Fire Affected Households	Asbestos Sheet, Bamboo, Balli, Patra Foodgrains etc.	Village Salaiya Kala
ENHANCEMENT OF INCOME OF PAP HOUSEHOLDS		
Vehicle Deployment	Hired Vehicle	From PAP households
Petty Contracts	2 Cooperative Society of PAPs	Road leveling, plantation, etc.
SAFE DRINKING WATER		
Installation	Installed 16 Hand-pumps	All villages
Water Filter	Distributed 21 water filters	Nai Basti, Salaya Kala

Note: *[1]Neem, Chilbil, Kanji, Akeria, Awonla, Chitwan, etc.*

Source: *As reported by MUNPL, Meja.*

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मेजा ऊर्जा निगम प्राइवेट लिमिटेड हेतु भूमि अधिग्रहण से प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण

(अप्रैल 2014 से मार्च 2016 तक)

।। रिपोर्ट ।।

हिन्दी रुपान्तण



।।द्वारा।।

भास्कर मजूमदार

।।प्रस्तुत।।

मेजा ऊर्जा निगम प्राइवेट लिमिटेड

गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान

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अध्ययन दल

परियोजना निदेशक
भाष्कर मजूमदार

शोध अधिकारी
मदन गोपाल गुप्ता
ज्ञान नाथ झा

शोध सहायक
अरविन्द सिंह
दिवा नाथ मिश्रा

कम्प्यूटर प्रोग्रामर
संदीप कुमार जायसवाल

शोध अन्वेषक
हृदय शंकर पाण्डेय
अशोक कुमार द्विवेदी
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प्राक्कथन

''मेजा ऊर्जा निगम प्राइवेट लिमिटेड, इलाहाबाद हेतु भूमि अधिग्रहण द्वारा प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण'' पर यह प्रतिवेदन प्रभावित गांवों, परिवारों तथा व्यक्तियों के पुनर्वास एवं पुनर्स्थापन कार्यक्रम से संबंधित प्रभावों की सम्प्राप्तियों को प्रस्तुत करता है। यह अध्ययन पुनर्वास एवं पुनर्स्थापन गतिविधियों, बुनियादी ढांचे के विकास की गतिविधियों तथा प्रभावित गांवों के व्यक्तियों की तटस्थ गांवों के व्यक्तियों के साथ जीवन गुणवता के तुलनात्मक आकलन को प्रस्तुत करता है।

यह अध्ययन मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा प्रायोजित किया गया था। अध्ययन के लिए हमारे ऊपर विश्वास बनाए रखने के लिए हम मेजा ऊर्जा निगम प्राइवेट लिमिटेड के प्रति आभारी हैं। मेजा ऊर्जा निगम के अधिकारियों एवं कर्मचारियों, विशेष रूप से पुनर्वास एवं पुनर्स्थापन के सहयोग के बिना इस अध्ययन में गहराई नहीं आ पाती। इस अध्ययन को आगे ले जाने के लिए उनके सतत् एवं प्रभावी सहयोग के लिए आभार व्यक्त करते हैं।

हम गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान, इलाहाबाद के निदेशक प्रो0 बद्री नारायण के प्रति आभारी हैं, जिन्होंने परियोजना के सुचारू संचालन के लिए अपना समय एवं आवश्यक सहयोग प्रदान किया।

सबसे बहुमूल्य सहयोग अध्ययन दल ने उन परिवारों एवं समूहों से प्राप्त किया जिन्होंने अपने अथाह अनुभवों एवं भावनाओं को अध्ययन दल के साथ साझा किया। अपने व्यस्ततम दिनचर्या के बावजूद वे पूर्ण सहयोग एवं आतिथ्य के साथ आगे आए। प्रस्तुत रिपोर्ट सफल तब माना जाएगा जब यह चल रहे विकास प्रतिमानों के संदर्भ में अनुकूल सम्भावनाओं को प्रदर्शित करें।

अध्ययन दल के सदस्यों श्री मदन गोपाल गुप्ता, श्री जी0एन0 झा, श्री अरविन्द सिंह, श्री दिवा नाथ मिश्रा, श्री एस0के0 जायसवाल, श्री हृदय शंकर पाण्डेय, श्री अशोक कुमार द्विवेदी, श्री सुनील कुमार त्रिपाठी, श्री देवानुज एवं श्री पद्म कांत मालवीय के निरन्तर प्रयासों, प्रतिबद्धता और समर्पण के बिना अध्ययन पूर्ण नहीं होता। इस अध्ययन का वास्तविक श्रेय अध्ययन दल को जाता है। रिपोर्ट का अंग्रेजी से हिंदी मे अनुवाद करने के लिए अध्ययन दल के सदस्य श्री अरविन्द सिंह धन्यवाद के पात्र हैं।

तथापि रिपोर्ट में यदि कोई त्रुटियाँ होगी तो वह मेरे हिस्से की चूक का कारण है।

सितम्बर, 2017 — भाष्कर मजूमदार

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मेजा ऊर्जा निगम प्राइवेट लिमिटेड हेतु भूमि अधिग्रहण से प्रभावित गांवों में पुनर्वास एवं पुनर्स्थापना के अन्तर्गत निष्पादित गतिविधियों का सामाजिक अंकेक्षण

अध्याय – 1
अध्ययन की पृष्ठभूमि

एक कल्याणकारी राज्य होने के कारण भारत में लोगों के लाभ के लिए अनेक विकास कार्यक्रमों एवं नीतियों को लागू किया जाता है। इस प्रकार की सभी नीतियों के क्रियान्वयन के लिए धन की व्यवस्था राजकीय कोष से की जाती है, जिसमें प्रत्यक्ष या अप्रत्यक्ष रूप से जनता का योगदान रहता है। इस कोष के निकालने एवं उपयोग पर सामाजिक नियंत्रण को सामाजिक अंकेक्षण कहा जाता है। सामाजिक अंकेक्षण एक संगठन के सामाजिक एवं नैतिक कार्यों के मापन, समझ, रिपोर्टिंग और अन्ततोगत्वा सुधार की एक पद्धति है। सामाजिक अंकेक्षण शब्द का प्रयोग 1950 के दशक के पूर्व किया गया। संक्षेप में, यह सरकार या किसी निकाय द्वारा लाभ प्राप्त करने के आशय से वास्तविक लाभान्वित लोगों के लिए किए गए कार्यों को सुनिश्चित करने के कदम को दर्शाता है। यह इस सिद्धांत पर आधारित है कि स्थानीय प्रशासन को जितना सम्भव हो सम्बन्धित लोगों की सहमति एवं जरूरतों को पूर्ण करने की समझ रखनी चाहिए। इस प्रकार सामाजिक अंकेक्षण समझने, मापने, रिपोर्ट करने एवं सबसे महत्वपूर्ण स्थानीय प्रशासन की दक्षता एवं प्रभावशीलता में सुधार करना है। सामाजिक अंकेक्षण के निम्नलिखित लाभ हैं –

(i) इससे संगठन को अपने आप में करीब से देखने और यह समझने में सहायता मिलती है कि संगठन अपने सामाजिक उद्देश्यों से कितना दूर रह गया है।

(ii) यह पूरे संगठन के सामाजिक प्रदर्शन के लिए अत्यधिक अभिरूचि को प्रोत्साहित करता है।

(iii) सामाजिक अंकेक्षण विभिन्न प्रकार के कार्यक्रमों/गतिविधियों के प्रभाव की तुलना करने के लिए आंकड़े प्रदान करता है।

(iv) सामाजिक अंकेक्षण बाहरी दावेदारों के प्रभावी प्रतिक्रिया के लिए संगठन पर मांग करने की जानकारी प्रदान करता है। समाज कल्याण संगठन एवं अन्य लोग यह जानना चाहते हैं कि अपने विशेष हित के क्षेत्रों में क्या व्यवसाय किया जा रहा है तथा एक व्यवसाय को यथासंभव प्रभावी रूप से उत्तर देने की आवश्यकता है। सामाजिक अंकेक्षण एक व्यवसाय को दर्शाता है जहॉ यह सार्वजनिक दबाव के लिए कमजोर एवं प्रबल रूप से असत्य है।

सामाजिक अंकेक्षण की अवधारणा, 'नैगम सामाजिक उत्तरदायित्व' की अवधारणा से भी जुड़ा हुआ है, जिसे विश्व की अधिकांश नैगम संस्थाओं द्वारा अपनाया जा रहा है। यह समुदाय में एक कम्पनी के सामाजिक प्रभाव का निर्धारण करने के लिए एक लोकप्रिय उपकरण बन गया है। यह एक प्रक्रिया है जिसका तात्पर्य है लोगों तक परियोजनाओं/गतिविधियों का लाभ पहुंचाने का प्रयास करना। सामाजिक अंकेक्षण का मूल उद्देश्य है – यह देखना कि सामाजिक और सार्वजनिक क्षेत्र के उद्यम क्या कर रहे हैं,

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यह मूल्यांकन करना कि लक्षित लाभार्थियों को मिलने वाली सार्वजनिक संसाधन के वास्तविक आवश्यकताओं का अच्छी तरह उपयोग कैसे हो रहा है, यह पता लगाना कि आवश्यकताओं में कहां सुधार किया जाय तथा वे सुधार किस प्रकार होने चाहिए और लोक कार्यों में जवाबदेही और पारदर्शिता को मजबूत करना। सामान्यतः सरकार एवं वित्तीय सहायता देने वाले निकाय, निजी उद्यम एवं नागरिक समाज सामाजिक अंकेक्षण प्रतिवेदन के उपयोगकर्ता रहे हैं।

पुनर्वास कार्ययोजना का नियमन

विभिन्न श्रेणियों के अन्तर्गत परियोजना से प्रभावित व्यक्तियों के पुनर्वास एवं पुनर्स्थापना के लिए कई तरह के प्रावधान किये गए। विभिन्न श्रेणियों के अन्तर्गत पुनर्वास एवं पुनर्स्थापन का लाभ प्राप्त करने वाले परियोजना से प्रभावित व्यक्तियों की सूची जिला प्रशासन अथवा उसके प्रतिनिधि द्वारा प्रमाणित कर दी गयी है। मेजा ऊर्जा निगम के पुनर्वास कार्य योजना के अन्तर्गत सूचीबद्ध लाभों के प्रावधान एवं अधिकारों को परिशिष्ट तालिका–1 में प्रस्तुत किया गया है।

पिछली सामाजिक अंकेक्षण की प्रमुख सिफारिशें

पहले एवं दूसरे सामाजिक अंकेक्षण का परीक्षण जी0बी0 पंत सामाजिक विज्ञान संस्थान, इलाहाबाद द्वारा मार्च, 2014 तक क्रियान्वित गतिविधियों की सीमा को मापने के लिए किया गया था, जिसे पुनर्वास कार्य योजना के अन्तर्गत प्रस्तावित किया गया था। पिछले अध्ययन की सिफारिशों को निम्नानुसार प्रस्तुत किया जाता है –

- किसी भी सामुदायिक विकास गतिविधियों के निष्पादन के पूर्व मेजा ऊर्जा निगम को विभिन्न माध्यमों से उचित सूचना प्रसारित करना चाहिए, जैसे प्रिंट मीडिया, ग्राम पंचायत कार्यालय, लाउडस्पीकर के माध्यम से घोषणा, ग्रामीणों को पुस्तिका वितरण और इसे स्थानीय ग्राम पंचायत द्वारा प्रमाणित होना चाहिए।

- अनुमोदित सामुदायिक विकास योजनाओं के साथ–साथ मूलभूत ढाँचें के विकास (पेयजल, सम्पर्क मार्ग, सामुदायिक परिसम्पत्तियाँ इत्यादि) की सीमा का आकलन करना।

- प्रभावित समुदायों को उत्पादन कार्यों, आधुनिक कृषि की तकनीक, पारम्परिक कौशल का उन्नयन, महिलाओं के लिए आय सृजन करने की गतिविधियों के लिए नए अवसर और प्रभावित गांवों में गुणवत्तापरक शिक्षा के माध्यम से नियमित रूप से स्थायी रोजगार के सम्बन्ध में सशक्त होने की आवश्यकता है।

- पुनर्वास कार्य योजना के अनुसार अनुमोदित कल्याणकारी योजनाओं के प्रभाव का आकलन करना।

- मेजा ऊर्जा निगम द्वारा स्थानीय ग्रामीण समुदायों के साथ पुनर्वास एवं पुनर्स्थापना के अन्तर्गत तैयार की गई गतिविधियों की प्राथमिकताओं को साझा करना चाहिए ताकि संवाद के अन्तराल से बचा जा सके।

- मेजा ऊर्जा निगम को यह सुनिश्चित करना चाहिए कि सम्बन्धित ग्राम पंचायत कार्य की प्रगति की निगरानी में स्थानीय लोगों की भागीदारी ले।

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- परियोजना से प्रभावित परिवारों को प्रोत्साहित किया जाना चाहिए तथा अनुदान/मुआवजे से उत्पादक सम्पत्ति खरीदने के लिए मार्गदर्शन देना चाहिए। कौशल प्रशिक्षण प्रदान करने और प्रभावित परिवारों के मौजूदा कौशल का उन्नयन करने पर अधिक जोर देना चाहिए। मेजा ऊर्जा निगम द्वारा ऐसे युवाओं को व्यवसाय की सुविधा प्रदान करनी चाहिए जो कि आय निर्माण की गतिविधियों में कौशल उन्नयन कार्यक्रम से बाहर आते हैं।

- आई0टी0आई0 के अतिरिक्त कुछ गैर–सरकारी संगठनों से भी सम्पर्क किया जा सकता है जो कम शिक्षित युवकों एवं महिलाओं को भी अल्पकालिक व्यावसायिक प्रशिक्षण प्रदान करते हैं।

- मेजा ऊर्जा निगम द्वारा ग्रामीण समुदायों से अन्तराल को कम करने एवं स्थानीय समुदायों तथा प्रशासन की भागीदारी से विवादित मुद्दों का समाधान करने के लिए अधिक ध्यान देना चाहिए। इस उद्देश्य के लिए विशेषज्ञों की सेवाएं ली जा सकती हैं।

- प्रभावित लोगों को प्रारम्भिक चरण की अवधि में कार्यों के तेजी से निपटने की आशा है। इसलिए मेजा ऊर्जा निगम को पुनर्वास कार्य योजना के अन्तर्गत आगामी वित्तीय वर्ष के लिए योजनाबद्ध गतिविधियों के निष्पादन के लिए अधिक से अधिक बजट का उपयोग करना चाहिए।

- यह अध्ययन सामुदायिक विकास योजनाओं के अन्तर्गत प्रदान किए गए विभिन्न पैकेजों की व्यवहारिता तथा प्रभाविता को निर्धारित करेगा एवं प्रभावित व्यक्तियों द्वारा पुनर्वास अनुदान को खर्च करने का आधारभूत आंकड़ा तैयार करना तथा इनकी परिस्थितियों में परिवर्तन का विश्लेषण भी किया जायेगा। आय के स्तर में परिवर्तन, भूमि स्वामित्व के पद्धति में परिवर्तन, व्यय पद्धति, निवेश पद्धति, परिवार में महिला सदस्यों की स्थिति, परिवार की सहायता प्रणाली, आवास की गुणवत्ता में परिवर्तन एवं पड़ोस के वातावरण के विश्लेषण को शामिल किया जायेगा। इस विश्लेषण के साथ उन समुदायों में विद्यमान परिस्थितियों के साथ तुलना की जानी चाहिए जो परियोजना से सीधे प्रभावित नहीं है और राज्य के मानदण्डों के साथ प्रभावित व्यक्तियों की परिस्थितियों की तुलना करना।

- जिला प्रशासन राजस्व विभाग के सम्बन्धित कर्मचारियों को सभी सम्भव सहयोग प्रदान करने के लिए सलाह दे सकता है, जिससे गांव में विकास गतिविधियों के संचालन हेतु भूमि उपलब्ध हो सके।

- सामाजिक–आर्थिक सर्वेक्षण में बताए गए आधारभूत आंकड़ों के साथ उपर्युक्त आंकड़ों को सम्बद्ध करना।

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अध्याय – 2
पुनर्वास कार्य योजना के अन्तर्गत प्रावधान एवं प्रगति

मेजा ऊर्जा निगम द्वारा पुनर्वास कार्य योजना के अनुसरण में तैयार और अन्तिम रूप से कई गतिविधियों का प्रस्ताव रखा गया था। इस भाग में मेजा ऊर्जा निगम द्वारा प्रदान की गयी रिपोर्टों के आधार पर उसके द्वारा प्रस्तावित और क्रियान्वित गतिविधियों की प्रकृति एवं सीमा का संक्षेप में वर्णन किया गया है। पुनर्वास एवं पुनर्स्थापना उपायों तथा सामुदायिक विकास की गतिविधियों सहित पुनर्वास एवं पुनर्स्थापन रणनीतियों को प्रभावित परिवारों तथा ग्रामीण समुदायों के लिए अनुमानित किया गया है। ग्राम पंचायत प्रतिनिधियों, स्कूल के शिक्षकों तथा स्थानीय समुदाय के विभिन्न समूहों के परामर्श के आधार पर सामुदायिक विकास का काम किया गया। इसके अतिरिक्त पुनर्वास कार्य योजना को तैयार करने में जिलाधिकारी, उप–जिलाधिकारी, खण्ड विकास अधिकारी तथा विशेष भूमि अध्याप्ति अधिकारी के भी विचारों को जाना गया। प्रभावित गांवों में मौजूदा सामुदायिक आधारभूत संरचना का समुदाय की वास्तविक आवश्यकताओं का मूल्यांकन करने के लिए हितधारकों के साथ संयुक्त रूप से सर्वेक्षण किया गया तथा ग्राम विकास सलाहकार समिति की बैठकों में चर्चा की गयी। पुनर्वास कार्य योजना के अन्तर्गत ग्राम विकास सलाहकार समिति द्वारा विभिन्न प्रकार की भौतिक एवं वित्तीय सहायता हेतु सुझाव दिया गया जो पूरी तरह से मेजा ऊर्जा निगम द्वारा अनुमोदित था तथा सभी प्रस्तावित गतिविधियों के निष्पादन के लिए कुल 5208 लाख रूपये का प्रस्ताव किया गया। ग्राम विकास सलाहकार समिति ने उम्मीद जताई कि बजट राशि का उपयोग पुनर्वास एवं पुनर्स्थापना के उपाय को पूरा करने में किया जाएगा, गांवों में मूलभूत सुविधाओं में सुधार होगा तथा ग्रामीणों की जीवन गुणवत्ता एवं कल्याण में सुधार होगा। निर्धारित समयावधि के भीतर यह भी तय किया गया कि अनुमोदित पुनर्वास कार्य योजना उसके अनुमोदन से पॉच वर्षों के अन्दर क्रियान्वित की जाएगी। पुनर्वास कार्य योजना के निष्पादन की अवधि 28 मई, 2010 से प्रारम्भ हुई और यह तय किया गया कि यह 27 मई, 2015 को पूरी हो जाएगी। लेकिन लंबित गतिविधियों को पूरा करने के लिए पुनर्वास कार्य योजना के निष्पादन की अवधि को दो वर्षों के लिए बढ़ा दिया गया। इस प्रकार जब गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान ने तीसरे सामाजिक अंकेक्षण का क्षेत्र सर्वेक्षण प्रारम्भ किया, तो इसकी निष्पादन अवधि पूरी हो चुकी थी।

पुनर्वास कार्य योजना के अन्तर्गत प्रस्तावित बजट

कुल बजट को तीन विस्तृत मदों में वितरित किया गया था, 1382 लाख रू0 का पुनर्वास एवं पुनर्स्थापना पैकेज, सामुदायिक विकास कार्य 3253 लाख रू0 एवं कार्यान्वयन लक्ष्य 100 लाख रू0। परियोजना प्रभावित व्यक्तियों की भेद्यता को कम करने के लिए लगभग 1382 लाख रू0 (कुल बजट का 26.5 प्रतिशत) पुनर्वास एवं पुनर्स्थापन के अन्तर्गत आवंटित किया गया। परियोजना से प्रभावित व्यक्तियों की कठिनाइयों को पूरा करने के उद्देश्य से प्रभावित व्यक्तियों को एकल समय के लिए पुनर्वास एवं पुनर्स्थापना अनुदान प्रदान किया गया।

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पुनर्वास कार्य योजना स्पष्ट दर्शाता है कि मूलभूत सुविधाओं के मद में 1466 लाख रू0 (28.1 प्रतिशत) आवंटित किया गया जिसमें सामुदायिक भवन का निर्माण, पहुॅच मार्ग, रेन शेड, जलनिकासी, सुरक्षा दीवार, स्कूल की चहारदीवारी, बालिका इण्टरमीडिएट कालेज, उच्च प्राथमिक विद्यालय इत्यादि शामिल हैं। इसके अतिरिक्त इस मद के अन्तर्गत पुनर्वास क्षेत्र का विद्युतीकरण तथा आई0टी0आई0 नैनी में मूलभूत सुविधाओं के विकास का प्रस्ताव किया गया। गांवों को आपस में जोड़ने वाले मद के अन्तर्गत प्रभावित गांवों के लिए पुनर्वास कार्य योजना में आन्तरिक सड़कों तथा पुलियों के निर्माण का प्रस्ताव किया गया। इस कार्य के लिए 672 लाख रू0 (13.7 प्रतिशत) आवंटित किया गया। ग्रामीणों को शुद्ध पेयजल उपलब्ध कराने के लिए प्रभावित गांवों में हैण्डपम्पों की स्थापना हेतु भी पुनर्वास कार्य योजना के अन्तर्गत 32 लाख रू0 (0.7 प्रतिशत) का प्रावधान किया गया। ग्रामीणों के लिए सामुदायिक परिसम्पत्तियॉ महत्वपूर्ण संसाधन हैं, विशेष रूप से कमजोर वर्गों के लिए तथा ग्रामीणों के जीवन में दिन–प्रतिदिन ये सामुदायिक परिसम्पत्तियॉ जीवन संघर्ष में सहायक हैं। इस उद्देश्य के लिए प्रभावित गांवों में पुनर्वास कार्य योजना के अन्तर्गत सामुदायिक परिसम्पत्तियों के जीर्णोद्धार हेतु 158 लाख रू0 (3.0 प्रतिशत) आवंटित किया गया है। क्षमता संवर्द्धन के विकास के मद में पुनर्वास कार्य योजना के अन्तर्गत 205 लाख रू0 (4.2 प्रतिशत) आवंटित किया गया जिसका उद्देश्य भूमि अधिग्रहण से प्रभावित परिवारों के युवकों को दीर्घकालिक एवं अल्पकालिक पाठ्यक्रम का प्रशिक्षण प्रदान करना था। इस मद के अन्तर्गत किसान मेला, कृषि सम्बन्धी समस्याओं का निराकरण तथा महिला सशक्तीकरण को भी शामिल किया गया। कल्याणकारी स्वास्थ्य सुविधाओं के अन्तर्गत 204 लाख रू0 (4.2 प्रतिशत) जबकि स्कूली छात्रों के कल्याणकारी गतिविधियों सम्बन्धी मद में 125 लाख रू0 (2.6 प्रतिशत) प्रस्तावित किया गया। पुनर्वास कार्य योजना के क्रियान्वयन की अवधि में दृष्टिगत कार्यों हेतु आवश्यकता आधारित कार्य करवाने का प्रावधान किया गया, इसलिए इस उद्देश्य हेतु पुनर्वास कार्य योजना में 100 लाख रू0 (2.0 प्रतिशत) का प्रावधान किया गया। क्रियान्वयन को मापने के उद्देश्य हेतु भी इतनी ही धनराशि आवंटित की गयी। इसके अतिरिक्त कुल मिलाकर पुनर्वास कार्य योजना के अन्तर्गत अतिरिक्त व्यय करने के

तालिका 2.1
पुनर्वास कार्ययोजना के अन्तर्गत मदवार प्रस्तावित बजट
(बजट राशि लाख रू0 में)

विभिन्न मद	प्रस्तावित बजट	
	राशि	प्रतिशत
पुनर्वास एवं पुनर्स्थापना पैकेज	1382	26.5
निर्माण एवं विकास कार्यों सहित मूलभूत सुविधाएं	1466	28.1
आन्तरिक सड़कों एवं पुलिया सहित गांवों को जोड़ना	672	12.9
पेयजल (हैण्डपम्प की स्थापना)	112	2.2
स्वच्छता (जल निकासी का प्रावधान)	210	4.0
सामुदायिक परिसम्पत्तियों की पुनर्बहाली	158	3.0
प्रशिक्षण एवं कौशल विकास सहित क्षमता निर्माण	205	3.9
कल्याणकारी स्वास्थ्य सुविधाएं	330	6.3
ग्राम विकास सलाहकार समिति की सहमति के आधार पर आवश्यकता आधारित अपेक्षित कार्य	100	1.9
कार्यान्वयन उपाय	100	1.9
विभिन्न मदों को 10 प्रतिशत तक जोड़ना	473	9.1
योग	**5208**	**100.0**

स्रोतः पुनर्वास कार्य योजना, मेजा उर्जा निगम, 2010

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लिए 444 लाख रू0 (9.1 प्रतिशत) का अतिरिक्त वित्तीय प्रावधान किया गया (परिशिष्ट तालिका 2)।

अप्रैल, 2014 से मार्च 2016 तक कल्याणकारी गतिविधियों की प्रगति

अप्रैल, 2014 से मार्च, 2016 की अवधि में मेजा ऊर्जा निगम द्वारा पुनर्वास कार्य योजना के अन्तर्गत प्रभावित गांवों में बहुत सी विकास एवं कल्याणकारी गतिविधियों का क्रियान्वयन किया गया। इन गतिविधियों के अन्तर्गत मेजा ऊर्जा निगम द्वारा गांवों में मूलभूत सुविधाओं का विकास किया गया, जैसे, पहुॅच मार्ग, पी0सी0सी0 सड़क, आन्तरिक सड़क, चेक डैम, रेन शेड, सामुदायिक भवन का निर्माण, अध्ययन कक्ष और प्रशिक्षण केन्द्र, कौशल उन्नयन तथा युवकों एवं कृषकों के मध्य क्षमता संवर्द्धन सामुदायिक कल्याण कार्यक्रम के अन्तर्गत आगजनी से प्रभावित परिवारों को मूलभूत सुविधाएं प्रदान करना, विभिन्न शिविरों के माध्यम से स्वास्थ्य सुविधाएं प्रदान करना, युवकों के लिए ग्रामीण खेलकूद प्रतियोगिता का आयोजन करना, प्रभावित परिवारों के आय में वृद्धि हेतु संयन्त्र में किराए पर वाहन लगाना, हैण्डपम्पों की स्थापना तथा कूऍ का निर्माण। इसके साथ ही मेजा उर्जा निगम द्वारा स्वास्थ्य परीक्षण शिविर, स्कूली छात्रों के लिए स्वास्थ्य परीक्षण शिविर, मोतियाबिन्द आपरेशन हेतु शिविर, पशु टीकाकरण शिविर, पौधों का वितरण/सामाजिक वानिकी, स्कूल बैग का वितरण, कम्बलों का वितरण, काले हिरण का संरक्षण तथा टैंकरों के माध्यम से पेयजल की आपूर्ति का आयोजन किया गया (परिशिष्ट तालिका 3)।

गांवों में मूलभूत सुविधाओं का विकास

मेजा ऊर्जा निगम द्वारा प्रभावित गांवों में 5 पी0सी0सी0 सड़क, सिंचाई हेतु 3 चेकडैम, 21 रेन शेड, 1 प्रशिक्षण केन्द्र, 3 सामुदायिक भवन, तीन चहारदीवारी का निर्माण तथा एक तालाब का जीर्णोद्धार करवाया गया। 12 प्राथमिक तथा उच्च प्राथमिक विद्यालयों में फर्नीचर उपलब्ध करवाया गया। इसके अतिरिक्त मेजा ऊर्जा निगम द्वारा राजकीय आई0टी0आई0, नैनी तथा आई0टी0आई0, कटरा, इलाहाबाद में 2 पी0सी0सी0 सड़क, पॉच अध्ययन कक्ष तथा 5 वर्कशाप का निर्माण करवाया गया जहॉ प्रभावित परिवारों के युवकों को आठ ट्रेडों में तकनीकी प्रशिक्षण का लाभ मिलता है।

स्थानीय पर्यावरण का संरक्षण

हरित पट्टी के विकास एवं फल प्रदान करने के उद्देश्य से मेजा ऊर्जा निगम द्वारा प्रभावित गांवों के ग्रामीणों को 5,000 फलदार पौधों का वितरण किया गया। इसके अतिरिक्त मेजा ऊर्जा निगम द्वारा प्रभावित गांवों में स्थित शासकीय स्कूलों में वृक्षारोपण करवाया गया।

कौशल विकास के माध्यम से क्षमता संवर्द्धन

प्रभावित परिवारों एवं इनके आश्रितों की आवश्यकता के अनुसार पुनर्वास योजना के अन्तर्गत बहुत से अल्पकालिक एवं दीर्घकालिक प्रशिक्षण कार्यक्रमों को तैयार किया गया। मेजा ऊर्जा निगम द्वारा राजकीय औद्योगिक प्रशिक्षण संस्थान के माध्यम से विभिन्न ट्रेडों में युवकों का कौशल विकास करवाया गया जहॉ युवकों ने पूर्णकालिक प्रशिक्षण प्राप्त किया। इस उद्देश्य के लिए रोजगार एवं प्रशिक्षण निदेशालय, लखनऊ, उत्तर प्रदेश सरकार तथा मेजा ऊर्जा निगम के मध्य समझौता ज्ञापन पर हस्ताक्षर किया गया। इस सन्दर्भित अवधि के दौरान 2014–15 के शैक्षिक सत्र में आठ विभिन्न ट्रेडों में आई0टी0आई0 प्रशिक्षण के

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लिए कुल 36 युवकों (35 लड़के तथा एक लड़की) द्वारा प्रवेश लिया गया जबकि 2015–16 के सत्र में आठ ट्रेडों में 65 युवाओं (58 लड़के तथा 7 लड़कियॉ) द्वारा प्रवेश लिया गया। समस्त प्रशिक्षण लागत का व्यय मेजा ऊर्जा निगम द्वारा किया गया। जबसे यह योजना प्रारम्भ हुई है तब से सात वर्ष की अवधि में अर्थात वर्ष 2010 से 2016 तक की अवधि में कुल 289 छात्रों ने प्रशिक्षण का लाभ प्राप्त किया।

मेजा ऊर्जा निगम द्वारा आधुनिक कृषि विधियों से सम्बन्धित बेहतर जानकारी देने के लिए कृषक प्रशिक्षण कार्यक्रमों का आयोजन किया गया। इन कार्यक्रमों में एक बैच में 50 कृषकों को शामिल किया गया। प्रशिक्षण उन्नत बीजों एवं इसकी खेती की तकनीकों पर विशेष रूप से केन्द्रित किया गया। इस प्रशिक्षण कार्यक्रम से बहुत अधिक संख्या में कृषक लाभान्वित हुए।

स्वास्थ्य शिविर

मेजा ऊर्जा निगम द्वारा प्रभावित तथा गैर–प्रभावित गांवों सलैया कला, सलैया खुर्द, इसौटा, कोहड़ार, मई खुर्द, झड़ियाही, रैपुरी, पताई डांडी तथा बिजौरा में 45 स्वास्थ्य परीक्षण शिविर का आयोजन किया गया जिसमें 3000 मरीजों का परीक्षण किया गया। इन शिविरों के आयोजन का मूल उद्देश्य स्थानीय लोगों के स्वास्थ्य समस्याओं को चिन्हित करना तथा उन्हें निःशुल्क दवाओं को उपलब्ध करवाना था। मेजा ऊर्जा निगम द्वारा उपलब्ध कराई गई जानकारी के अनुसार इन शिविरों से जरूरतमन्द ग्रामीण लोगों को लाभ प्राप्त हुआ। मेजा ऊर्जा निगम द्वारा स्कूली छात्रों के लिए 24 स्वास्थ्य परीक्षण शिविरों का आयोजन किया गया तथा शिविरों में बड़ी संख्या में स्कूली बच्चों के स्वास्थ्य का परीक्षण किया गया। इन शिविरों की अवधि में मरीजों को सामान्य दवाओं का वितरण किया गया।

पशु स्वास्थ्य परीक्षण शिविर

मेजा ऊर्जा निगम द्वारा उपलब्ध कराए गए अभिलेखों के अनुसार प्रत्येक मौसम में 10 टीकाकरण शिविर का आयोजन किया गया तथा प्रभावित गांवों में सन्दर्भित अवधि में कुल 43 शिविरों का आयोजन किया गया। इन शिविरों का आयोजन कोहड़ार, इसौटा, पताई डांडी, मई कला, मई खुर्द, झड़ियाही, रैपुरी तथा बिजौरा गांवों में किया गया। इन शिविरों में बड़ी संख्या में पशुओं का उपचार किया गया तथा निःशुल्क दवाओं का वितरण किया गया।

संस्कृति एवं खेलकूद को बढ़ावा देना

इलाहाबाद शहर में आयोजित होने वाले इन्दिरा मैराथन तथा त्रिवेणी महोत्सव को मेजा ऊर्जा निगम द्वारा प्रायोजित किया गया तथा दोनों कार्यक्रमों के आयोजन में सभी व्यय मेजा उर्जा निगम द्वारा किया गया।

मोतियाबिन्द आपरेशन शिविर

मेजा ऊर्जा निगम द्वारा प्रभावित गांवों में मोतियाबिन्द आपरेशन शिविरों का आयोजन किया गया जिससे बड़ी संख्या में ग्रांमीण लोग लाभान्वित हुए। वर्ष 2014–15 में कुल 32 लोगों के मोतियाबिन्द का आपरेशन हुआ जबकि वर्ष 2015–16 में 38 लोगों का आपरेशन किया गया। सभी सम्बन्धित गांवों में नेत्र परीक्षण शिविरों का आयोजन करके मोतियाबिन्द का आपरेशन करवाने वालों का भी परीक्षण किया गया। प्रिन्ट मीडिया तथा ग्रामीणों द्वारा मोतियाबिन्द के आपरेशन की काफी सराहना की गयी। इस योजना के अन्तर्गत लाभार्थियों

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का चयन सामुदायिक स्वास्थ्य केन्द्र के चिकित्साधिकारियों तथा उ0प्र0 सरकार के स्वास्थ्य विभाग द्वारा किया गया।

परियोजना से प्रभावित परिवारों के आय स्तर को बढ़ाना

मेजा ऊर्जा निगम द्वारा प्रदान किये गए अभिलेखों के अनुसार मेजा उर्जा निगम द्वारा अपने संयन्त्र में प्रभावित परिवारों से 23 वाहनों को किराए पर लगाया गया है, जिससे सम्बन्धित प्रभावित परिवारों को नियमित मासिक आय प्राप्त होती है। इसके पूर्व की सूचना के अनुसार मेजा ऊर्जा निगम द्वारा प्रभावित परिवारों के प्रतिनिधित्व द्वारा दो सहकारी समितियों का गठन किया गया था तथा उन्हें छोटे–छोटे ठेके प्रदान किये गए। इससे बहुत से प्रभावित परिवारों को लाभकारी रोजगार प्राप्त हुआ। मेजा ऊर्जा निगम के टाउनशिप में स्थित कुछ दुकानों का आवंटन भी सहकारी समितियों को किया गया।

सुरक्षित पेयजल एवं स्वच्छता

प्रभावित गांवों की सबसे महत्वपूर्ण समस्या पेयजल की है क्योंकि पूरा क्षेत्र पहाड़ी क्षेत्र है जहॉ प्रत्येक वर्ष गर्मी के मौसम में जलस्तर नीचे चला जाता है। इस समस्या को ध्यान में रखते हुए मेजा ऊर्जा निगम द्वारा प्रभावित गांवों में 24 हैण्डपम्पों की स्थापना की गयी। सलैया कला नई बस्ती में दो तथा बिजौरा गांव में दो हैण्डपम्पों की स्थापना की गयी जबकि शेष 20 हैण्डपम्पों की स्थापना अन्य प्रभावित गांवों तथा संयन्त्र के आसपास की गयी। इसके अतिरिक्त मेजा ऊर्जा निगम द्वारा सलैया कला नई बस्ती में स्थित कुंऍ का जीर्णोद्धार किया गया है। उपलब्ध कराई गई सूचना के अनुसार मेजा उर्जा निगम द्वारा गर्मी के मौसम में सभी प्रभावित गांवों में टैंकर के माध्यम से निःशुल्क जलापूर्ति की गयी। स्वच्छता के लिए मेजा उर्जा निगम ने पहल करते हुए सलैया कला नई बस्ती तथा झड़ियाही नई बस्ती में 47 शौचालयों का निर्माण करवाया। सामाजिक समूहों से प्राप्त उत्तरों के आधार पर कहा जा सकता है कि इन गतिविधियों से पेयजल एवं अन्य उद्देश्यों की समस्या का सुधार निश्चित रूप से हुआ है।

काले हिरणों का संरक्षण

मेजा ऊर्जा निगम ने पर्यावरण और वन मन्त्रालय के साथ नियमित आधार पर गतिविधियों और प्रगति रिपोर्ट के कार्यान्वयन के लिए अपनी योजना को साझा किया है। यह योजना संरक्षण की गतिविधियों को सुनिश्चित करने की सीमा पर जोर देता है तथा काले हिरणों के संरक्षण के लिए अनुकूल वातावरण का सृजन करती है। मेजा ऊर्जा निगम द्वारा प्रदान की गयी सूचनाओं के अनुसार पॉच वर्षों की अवधि के लिए संरक्षण योजना के अन्तर्गत सचित्र गतिविधियों को करने के लिए 172.3 लाख रू0 स्वीकृत किए गए हैं। इन गतिविधियों में साल्टलिक (जीभ से चाटने वाला नमक) की स्थापना, तालाबों का निर्माण, पम्प हाउस की स्थापना, चारागाह और वृक्षारोपण, वाच टावर का निर्माण, सूचना पट् का प्रदर्शन, सार्वजनिक उपयोगिता का निर्माण इत्यादि शामिल हैं। इस योजना के अन्तर्गत मेजा ऊर्जा निगम ने महुली कला गांव में चांद खमरिया परियोजना में काले हिरणों का संरक्षण किया है। यहॉ मेजा ऊर्जा निगम ने काले हिरणों के चरने के लिए साल्टलिक की स्थापना, पम्प हाउस का निर्माण, तालाबों का निर्माण, वाच टावर, सार्वजनिक उपयोगिता का निर्माण, वृक्षारोपण तथा चारागाह की स्थापना किया है। क्षेत्र में कुछ सूचना पटों का प्रदर्शन भी किया गया है। यह प्रेक्षित किया गया कि इन गतिविधियों के क्रियान्वयन के परिणामस्वरूप सामान्य रूप से काले हिरणों की संख्या में वृद्धि हुई है और उन्हें भोजन एवं

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पानी की तलाश में दूरदराज के क्षेत्रों में जाने की आवश्यकता नहीं थी। इससे सुरक्षा पहलुओं में भी सुधार हुआ है जो कि काले हिरणों की संख्या में वृद्धि के भी अनुकूल है।

आपदा के दौरान राहत प्रदान करना

मेजा ऊर्जा निगम द्वारा उपलब्ध कराए गए सूचना के अनुसार अग्नि आपदा से पीड़ित 97 परिवारों को आश्रय के लिए एसबेस्टस शीट, बॉस, बल्ली, पटरा इत्यादि सामग्री प्रदान किया गया। इसके साथ उसके द्वारा इन प्रभावित परिवारों को भोजन तथा पेयजल भी प्रदान किया गया। मेजा ऊर्जा निगम द्वारा चार बाढ़ पीड़ित गांवों, झड़ियाही, इसौटा, कोहड़ार तथा शाहपुर कला में लगभग 80 परिवारों को नाव, आश्रय, भोजन तथा पेयजल उपलब्ध करवाया गया। स्थानीय समुदायों द्वारा इस प्रकार की प्रदान की गयी सहायता की काफी सराहना की गयी।

बढ़ावा देने का प्रयास तथा सामुदायिक कल्याण

उपलब्ध कराई गई सूचना के अनुसार मेजा ऊर्जा निगम द्वारा बढ़ावा देने एवं सामुदायिक कल्याण की गतिविधियों का प्रारम्भ किया गया जिसके अन्तर्गत स्कूली छात्रों को बैग, नोटबुक तथा लेखन सामग्री तथा प्रभावित परिवारों के मध्य कम्बल का वितरण किया गया। इस गतिविधि के अन्तर्गत उसने प्रभावित क्षेत्रों में 12 राजकीय प्राथमिक तथा उच्च प्राथमिक विद्यालयों में अध्ययन करने वाले 2200 छात्रों को स्कूल बैग, नोटबुक तथा लेखन सामग्री का वितरण किया। इसके अतिरिक्त मेजा ऊर्जा निगम द्वारा प्रभावित गांवों में रहने वाले परिवारों को जाड़े के मौसम में 4000 कम्बलों का वितरण किया गया। सर्वेक्षण के दौरान बहुत से ग्रामीणों द्वारा इन कार्यो की काफी सराहना की गयी।

वित्तीय प्रगति

कुल बजट को तीन मुख्य मदों में विभाजित किया गया था (i) 1382 लाख रुपये का पुनर्वास एवं पुनर्स्थापना पैकेज (ii) 3253 लाख रुपये का सामुदायिक विकास कार्य तथा (iii) 100 लाख रुपये क्रियान्वयन उपाय। परियोजना से प्रभावित व्यक्तियों की भेद्यता को कम करने के लिए कुल 1202 लाख रुपये (अनुमोदित बजट का 86.98 प्रतिशत) पुनर्वास एवं पुनर्स्थापना हेतु निष्पादित किया गया, जबकि अनुमोदित बजट का 31.8 प्रतिशत (1100 लाख रुपये) सामुदायिक विकास कार्यों में व्यय किया गया। इसी प्रकार 37 लाख रुपये (37 प्रतिशत) क्रियान्वयन हेतु व्यय किया गया जबकि क्रियान्वयन के लिए 100 लाख रुपये का अनुमोदन किया गया था। इस प्रकार तीनो श्रेणियों में कुल अनुमोदित बजट 4735 लाख रुपये के सापेक्ष में कुल 2339 लाख रुपये व्यय किया गया (मदवार व्यय को तालिका 2.2 में दर्शाया गया है)।

मेजा ऊर्जा निगम द्वारा दी गयी सूचना के आधार पर पुनर्वास कार्य योजना में अनुमोदित कुछ सामुदायिक विकास के कार्यों को स्थानीय मांग के अनुसार परिकल्पित किया गया था तथापि सभी कार्यों को किन्हीं कारणों से नहीं किया जा सका, जैसे– निर्माण कार्यों के लिए स्पष्ट स्थान की अनुपलब्धता, सम्बन्धित सरकारी विभाग से मंजूरी न मिलना, स्थानीय लोगो की प्राथमिकता में परिवर्तन इत्यादि। फिर भी योजना के माध्यम से स्थानीय क्षेत्र तथा लोगों की बेहतरी के लिए बजट का उपयोग विवेकपूर्ण तरीके से किया जायेगा।

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तालिका 2.2

मार्च 2016 तक पुनर्वास कार्य योजना के क्रियान्वयन पर मदवार किया गया व्यय

(लाख रू0 में)

पुनर्वास कार्य योजना का बजट मद	बजट लाख रुपये में		अनुमोदित बजट का प्रतिशत
	अनुमोदित	निष्पादित	
पुनर्वास एवं पुनर्स्थापना पैकेज*	1382	1202	86.98
सामुदायिक विकास कार्य	3253	1100	31.81
क्रियान्वयन	100	37	37.00
योग	4735	2339	49.40

नोट– पुनर्वास एवं पुनर्स्थापना अनुदान विशेष भूमि अध्याप्ति अधिकारी, कार्यालय के माध्यम से व्यय किया गया।

स्रोत– मेजा ऊर्जा निगम द्वारा प्रदान की गई सूचना।

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अध्याय – 3
अध्ययन के उद्देश्य, विधि एवं कवरेज

वर्तमान सामाजिक अंकेक्षण पुनर्वास कार्य योजना के अन्तर्गत प्रस्तावित गतिविधियों के क्रियान्वयन की सीमा को मापने एवं क्रमशः कोहड़ार, इसौटा, सलैया खुर्द, सलैया कला, मई कला तथा झरियाही ग्राम पंचायत के अन्तर्गत प्रभावित ग्रामों कोहड़ार, इसौटा, पताई डांडी, सलैया खुर्द, सलैया कला, मई खुर्द तथा झरियाही में पुनर्वास एवं पुनर्स्थापना कार्यक्रमों के प्रभावों का मूल्यांकन करने के लिए किया गया। इसके अतिरिक्त जिले के उरूवा विकासखण्ड के अन्तर्गत पाइपलाइन के लिए अधिग्रहण से प्रभावित एक अतिरिक्त गांव बिजौरा को अध्ययन में आच्छादित किया गया। सामाजिक अंकेक्षण का अध्ययन पुनर्वास कार्ययोजना के अन्तर्गत निष्पादित गतिविधियों के प्रभावों का मूल्यांकन करता है और परिवर्तन की सीमा का पता लगाता है। इस अध्ययन में पुनर्वास एवं पुनर्स्थापना गतिविधियों, बुनियादी विकास की गतिविधियों, सामुदायिक विकास गतिविधियों तथा परियोजना से प्रभावित व्यक्तियों के जीवन स्तर का आकलन है। सामाजिक अंकेक्षण में पुनर्वास कार्ययोजना के अन्तर्गत तैयार एवं क्रियान्वित की गयी गतिविधियों के सम्बन्ध में ग्रामीणों के संतुष्टि स्तर का आकलन किया गया है जो प्रभावित गांवों में लागू गतिविधियों के विस्तार के लिए एक व्यापक तस्वीर प्रस्तुत करता है। वर्तमान अध्ययन मुआवजे की धनराशि के उपयोग के उपायों एवं साधनों, प्रभावित व्यक्तियों द्वारा उन उपायों एवं साधनों को अपनाए गए एवं उसकी स्थिरता, इस समझ को उपलब्ध करवाना कि भेद्यता में वृद्धि हुई या स्थिरता में सुधार हुआ, इन सबका आकलन करता है। मोटे तौर पर सामाजिक अंकेक्षण के प्रतिवेदन का उद्देश्य, जिसे मेजा ऊर्जा निगम के सामाजिक एवं नैतिक निष्पादन को पुनर्वास एवं पुनर्स्थापना के अन्तर्गत विशेष समयावधि में निष्पादित किया गया, को मापना, समझना, रिपोर्टिंग और अन्ततः सुधारना है। पुनर्वास एवं पुनर्स्थापना के अन्तर्गत प्रभावित गांवों में लागू की गई सम्बन्धित गतिविधियों को मेजा ऊर्जा निगम प्रा0लि0, ग्राम विकास सलाहकार समिति तथा परियोजना से प्रभावित परिवारों के मध्य संकीर्ण अंतराल को समझने में सहायक होगा एवं दोनों पक्षों की दक्षता तथा प्रभाविता को बढ़ाने के लिए सही मार्ग प्रशस्त करेगा।

अध्ययन के उद्देश्य

सामाजिक अंकेक्षण के मुख्य उद्देश्य निम्न हैं–

- परियोजना स्थापित करने के उपरांत मूलभूत विकास के स्तर का आकलन करना तथा सामुदायिक विकास योजना के अनुसार विभिन्न सामुदायिक गतिविधियां और प्रभावित व्यक्तियों तथा स्थानीय जनसंख्या विशेष रूप से स्वास्थ्य, शिक्षा एवं पेयजल को कैसे लाभान्वित किया गया, का आकलन करना।

- आवास अधिग्रहण से प्रभावित परिवारों द्वारा प्राप्त पुनर्वास लाभ का आकलन करना और आवास का स्तर, मूलभूत सुविधाओं तथा वर्तमान पुनर्वास स्थल का उनके पूर्व स्थापित स्तर से मूल्यांकन करना।

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- मुआवजे की धनराशि की सहायता से प्रभावित व्यक्तियों द्वारा आय एवं आजीविका बहाली का तथा उनके आजीविका के खोए हुए स्तरों से संबंधित सुधारों का पता लगाना।

- अनुमोदित योजना के अनुसार परियोजना से प्रभावित गांवों में सफलतापूर्वक मूलभूत विकास के सृजन में परियोजना की सीमा का आकलन करना तथा प्रभावित व्यक्तियों एवं स्थानीय जनसंख्या को कैसे लाभान्वित किया गया तथा पुनर्वास एवं पुनर्स्थापन सामुदायिक विकास कार्यक्रम की अवधि में हितधारकों के मध्य संचार एवं परामर्श की प्रकृति का आकलन करना।

- प्रभावित व्यक्तियों के सर्वेक्षण के समय प्रभावित और गैर–प्रभावित गांवों के बीच मूलभूत सुविधाओं का तुलनात्मक विश्लेषण प्रस्तुत करना तथा लक्षित समूहों की आवश्यकता के अनुसार पुनर्वास कार्ययोजना के अन्तर्गत पुनर्वास एवं पुनर्स्थापन गतिविधियों की दक्षता एवं प्रभाविता में वृद्धि करना।

- प्रभावित एवं तटस्थ गांवों के लिए सामाजिक संकेतकों पर आधारित जीवन स्तर के प्रभावी मूल्यांकन के लिए स्वास्थ्य सेवाओं, शिक्षा, आर्थिक अवसरों, आय, मृत्यु एवं प्रजनन दर तथा मूलभूत सुविधाओं को दर्शाते हुए जीवन स्तर सूचकांक का मानक विकसित करना।

- गांवों की सामाजिक संरचना तथा गांवों के अन्दर विशेष समूहों की बदलती किस्मत का आकलन करना और सामुदायिक विकास योजना के अन्तर्गत प्रदान किए गए विभिन्न पैकेजों (संकुलों) की व्यवहार्यता एवं प्रभाविता निर्धारित करना, और

- अध्ययन से प्राप्त अनुभवों के आधार पर भावी पुनर्वास एवं पुनर्स्थापन गतिविधियों में निवेश के लिए सिफारिशों एवं सुझावों को प्रदान करना।

अध्ययन की विधि

यह अध्ययन द्वितीयक तथा प्राथमिक दोनों प्रकार के आंकड़ों पर आधारित है। द्वितीयक आंकड़ों को मेजा ऊर्जा निगम प्राइवेट लिमिटेड तथा ग्राम पंचायत कार्यालय से एकत्र किया गया है। अन्य सूचना के अतिरिक्त द्वितीयक आंकड़ों में गांव के अनुसार एवं विशेष समय सीमा में पुनर्वास कार्य योजना, प्रस्तावित एवं कार्यान्वित गतिविधियों की सूची, भौतिक एवं वित्तीय निष्पादन, हितधारकों की सूची इत्यादि शामिल हैं। प्रभावित तथा गैर–प्रभावित गांवों में परिवारों के जीवन स्तर (जीवन गुणवत्ता) की तुलना के लिए हमने दो तटस्थ गांवों सिरहिर और जोरा का चयन किया। तटस्थ गांव मेजा ऊर्जा निगम के भूमि अधिग्रहण से प्रभावित नहीं थे। हमने तटस्थ गांवों में रहने वाले कुछ प्रतिदर्श परिवारों से चयनित विकास मानकों के आधार पर कुछ प्राथमिक आंकड़ों को एकत्र किया है।

अध्ययन हेतु तीन प्रकार के अध्ययन उपकरणों को विकसित किया गया, जिनके नाम क्रमशः– ग्राम अनुसूची, प्रभावित परिवारों की अनुसूची तथा विभिन्न समुदायों के लिए समूह चर्चा अनुसूची है। सभी विकसित अध्ययन उपकरणों को टिप्पणियों एवं सुझावों हेतु मेजा ऊर्जा निगम प्राइवेट लिमिटेड को प्रस्तुत किया गया और इन प्रस्तुत किए गए अध्ययन उपकरणों पर मेजा ऊर्जा निगम प्राइवेट लिमिटेड से टिप्पणियाँ एवं सुझाव प्राप्त

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किया गया। मेजा ऊर्जा निगम प्राइवेट लिमिटेड के सुझावों को शामिल करते हुए अध्ययन उपकरणों को अंतिम रूप दिया गया।

इन गांवों से अपने आप को परिचित कराने के लिए हमने प्रभावित एवं तटस्थ गांवों का कई बार भ्रमण किया। क्षेत्र से प्राथमिक आंकड़ों के एकत्रीकरण के लिए दस प्रशिक्षित व्यक्तियों को लगाया गया। गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान द्वारा सामाजिक अंकेक्षण के सर्वेक्षण हेतु दो दिवसीय प्रशिक्षण का कार्यक्रम आयोजित किया गया, जिसमें आंकड़े एकत्रित करने वाले व्यक्तियों को प्रशिक्षित किया गया। हमने प्राथमिक आंकड़ों को संरचनात्मक अनुसूचियों के माध्यम से एकत्र किया है तथा परियोजना से प्रभावित परिवारों/व्यक्तियों का व्यक्तिगत साक्षात्कार विधि द्वारा सूचना एकत्र की गई है। हमने प्रभावित परिवारों के स्तर पर प्रत्येक प्रभावित गांवों से 25 प्रभावित परिवारों का चयन किया, अपने प्रतिदर्श हानि की भरपाई करने के लिए हमने कुछ प्रभावित व्यक्तियों/परिवारों का अतिरिक्त प्रतिदर्श लिया। गांवों में क्रियान्वित सामुदायिक विकास की गतिविधियों का आकलन करने के लिए हमने समूह चर्चा का आयोजन करके गांवों के विभिन्न वर्गों एवं सजातीय समुदायों से सूचनाओं को एकत्र किया है। पुनर्वास कार्य योजना के अन्तर्गत संबंधित क्रियान्वित गतिविधियों के तथ्यों का पता लगाने के लिए इन लक्षित समूहों, ग्राम पंचायत के प्रतिनिधियों एवं अन्य सम्बंधित व्यक्तियों से लिंग एवं जाति का समुचित प्रतिनिधित्व करने वाले अन्य संबंधित व्यक्तियों को शामिल किया गया। समूह चर्चा आयोजित करने के लिए प्रत्येक लक्षित समूह की बस्तियों का भ्रमण करके समय एवं स्थान का पूर्व निर्धारण समुदाय के सहमति से किया गया। अध्ययन दल के दो सदस्यों द्वारा समूह चर्चा का आयोजन किया गया, जिसमें एक सदस्य ने चर्चा के लेखन का तथा दूसरे ने संचालन का काम किया। लिखने वाले सदस्य ने समस्त सूचनाओं को अनुसूची/फील्ड डायरी में लिपिबद्ध किया। मूलभूत सुविधाओं की उपलब्धता के बारे में जानकारी लेने के लिए हमने प्रत्येक चयनित गांव में ग्राम अनुसूची का उपयोग किया है। हमने फील्ड डायरी के माध्यम से भी कुछ गुणात्मक आंकड़ों को एकत्रित किया है। इस तरह की सूचनओं को प्रेक्षण, साक्षात्कार एवं समूह चर्चा के दौरान एकत्रित किया गया।

उपागम

हमने अपने क्षेत्र सर्वेक्षण को दो चरणों में पूरा किया। औपचारिक रूप से सभी प्रभावित गांवों में समूह चर्चा के आयोजन के लिए सामाजिक अंकेक्षण के सर्वेक्षण के प्रथम चरण को 25 मार्च, 2017 से प्रारम्भ किया गया। इस प्रकार पहले चरण का क्षेत्र सर्वेक्षण 10 अप्रैल, 2017 को पूरा हुआ। प्रभावित परिवारों से प्राथमिक आंकड़ों को एकत्र करने के लिए दूसरे चरण का सर्वेक्षण 25 अप्रैल, 2017 से प्रारम्भ हुआ और 15 मई, 2017 को पूरा हुआ। प्राथमिक आंकड़ों के एकत्रीकरण के तुरन्त बाद आंकड़ों की कोडिंग एवं फीडिंग का कार्य किया गया।

अध्ययन में सम्मलित परिवार

अध्ययन के प्रतिदर्श के लिए आठ गांवों से 856 (762 संयन्त्र से तथा 94 पाइपलाइन से प्रभावित) परिवारों से प्रतिदर्श लिया गया है। अध्ययन के उद्देश्यों के लिए तीन प्रकार के नमूनों का गठन किया गया –

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(i) अध्ययन की संरचना हेतु प्रतिदर्श संरचना के अन्तर्गत प्रत्येक गांवों से 25–25 परियोजना से प्रभावित व्यक्तियों को प्रतिवेदित सात ग्रामों से प्रतिदर्श के रुप में लिया गया है। इस प्रकार हमारे प्रतिदर्श के अन्तर्गत कुल 175 प्रभावित व्यक्ति शामिल किये गए।

(ii) जिन दो गांवों में आवास अधिग्रहण के मामले थे, वहां प्रत्येक गांव से 25 प्रभावित व्यक्तियों को प्रतिदर्श में लिया गया।

(iii) गैर–कृषि श्रमिकों के अन्तर्गत शत–प्रतिशत उन व्यक्तियों/परिवारों को शामिल किया गया, जो भूमि अधिग्रहण से अप्रत्यक्ष रूप से प्रभावित थे।

गांवों के भीतर परियोजना से प्रभावित परिवारों को जाति प्रतिनिधित्व सुनिश्चित करते हुए 'व्यवस्थित यादृच्छिक प्रतिदर्श पद्धति' के आधार पर परिवारों के प्रतिदर्श लिए गये। तटस्थ गांवों के लिए हमने गोविन्द बल्लभ पंत सामाजिक विज्ञान संस्थान के जनसंख्या सर्वेक्षण में दिए गए कुल परिवारों की संख्या को आधार बनाया है। जनसंख्या सर्वेक्षण के अनुसार सिरहिर गांव में 411 तथा जोरा गांव में 75 परिवार थे। जीवन स्तर की तुलना के लिए हमने तटस्थ गांवों से 50 परिवारों का सर्वेक्षण किया, जिसमें 25 परिवार सिरहिर तथा 25 परिवार जोरा गांव से थे। कुल 5 परिवारों (4 गैर कृषि श्रमिक तथा एक आवास अधिग्रहण से प्रभावित) को सर्वेक्षण के अन्तर्गत आच्छादित नहीं किया जा सका क्योंकि वे क्षेत्र सर्वेक्षण की अवधि में अनुपलब्ध थे।

गांवों में क्रियान्वित सामुदायिक विकास गतिविधियों में निष्पादित कार्यो के आकलन के लिए हमने विभिन्न वर्गों तथा सजातीय समुदायों के साथ समूह चर्चाओं का आयोजन करके सूचनाओं को एकत्र किया है। सभी प्रभावित 8 गांवों में 41 समूह चर्चाओं का आयोजन किया गया। हमने अनुसूचित जाति, अन्य पिछड़ी जाति तथा महिला प्रतिनिधियों में प्रत्येक से आठ समूह चर्चाओं का आयोजन किया जबकि अल्पसंख्यक समूहों के मामले में केवल दो समूह चर्चाओं का आयोजन किया गया क्योंकि केवल दो गांवों में ही अल्पसंख्यक समूह पाए गए। हमने ग्राम पंचायतों तथा ग्राम विकास सलाहकार समिति के प्रतिनिधियों के साथ केवल 7 समूह चर्चाओं का आयोजन किया, क्योंकि इसौटा और पताई डांडी गांव एक ही ग्राम पंचायत इसौटा के अन्तर्गत हैं। चर्चा में प्रत्येक सम्बन्धित समुदायों से औसतन 6 से 7 व्यक्तियों को शामिल किया गया। उक्त उद्देश्य के लिए अर्द्धसंरचनात्मक अनुसूची को विशेष रूप से तैयार किया गया था।

उपरोक्त सूचनाओं के अतिरिक्त अध्ययन के अन्तर्गत प्रत्येक चयनित ग्रामों में उपलब्ध आधारभूत सुविधाओं एवं भौतिक संरचना के सम्बन्ध में सूचनाओं को संग्रहीत किया गया। इन सूचनाओं के संग्रहण हेतु अध्ययन दल के सदस्यों द्वारा संरचनात्मक अनुसूची के माध्यम से गांव के प्रबुद्ध नागरिकों, ग्राम पंचायत के प्रतिनिधियों एवं प्रभावित परिवारों के सदस्यों से समूह साक्षात्कार का आयोजन किया गया। इस प्रकार प्रस्तुत अध्ययन के अन्तर्गत संरचित अनुसूची के माध्यम से 240 प्रभावित परिवार/व्यक्ति, 41 समूह चर्चाओं तथा 10 ग्राम अनुसूची हेतु समूह चर्चा का आयोजन किया गया। पुनर्वास कार्य योजना के प्रदर्शनों को समझने के लिए हमने प्रत्येक स्तर पर मेजा ऊर्जा निगम से भी परामर्श किया। इसके अतिरिक्त अध्ययन दल के सदस्यों ने कुछ गुणात्मक सूचनाओं को फील्ड डायरी के आकार में एकत्रित किया है, जो स्थानीय समुदायों तथा ग्रामीणों के दृष्टिकोंण एव अपेक्षाओं को जानने के लिए अत्यन्त महत्वपूर्ण है।

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अध्याय – 4
सामुदायिक विकास कार्यों की आवश्यकता, स्तर एवं प्रभाव

इस अध्याय में समूह चर्चाओं से प्राप्त आंकड़ों एवं सूचनाओं के आधार पर मेजा ऊर्जा निगम द्वारा सामुदायिक विकास कार्यों के क्रियान्वयन के आकलन को प्रस्तुत किया गया है।

खण्ड – I

पृष्ठभूमि

मेजा ऊर्जा निगम के पुनर्वास कार्यक्रम के अन्तर्गत सामुदायिक विकास का कार्य एक अत्यन्त महत्वपूर्ण क्षेत्र है तथा प्रभावित गांवों एवं संयन्त्र के आसपास रहने वाले समुदायों के विकास के लिए मेजा ऊर्जा निगम द्वारा बड़ी संख्या में इन गतिविधियों को क्रियान्वित किया गया। इस उद्देश्य के लिए 3008 लाख रू0 अर्थात पुनर्वास कार्य योजना के कुल बजट का 61 प्रतिशत पॉच वर्षों की अवधि के लिए व्यय प्रस्तावित किया गया। इस अध्याय के अन्तर्गत हमने पुनर्वास कार्य योजना के अन्तर्गत पिछले दो वर्षों की अवधि में बहुत से कार्यों से सम्बन्धित गतिविधियों की आवश्यकता एवं क्रियान्वयन का परीक्षण एवं विश्लेषण किया है। इसके साथ ही इस अध्याय में ग्राम समुदायों में क्रियान्वित कार्यों की गुणवत्ता तथा इसके प्रभाव की मात्रा की भी चर्चा की गयी है। हमने अनुसूचित जाति, अन्य पिछड़ी जाति, अल्पसंख्यक समूहों, सामान्य जाति, ग्राम पंचायतों के प्रतिनिधियों तथा महिला समूहों के साथ गांवों में उनकी उपलब्धता के आधार पर कुल 41 समूह चर्चाओं का आयोजन किया। इस प्रकार आठ गांवों में प्रभावित व्यक्तियों के मध्य छः श्रेणियों के बीच समूह चर्चाओं का आयोजन किया गया।

समुदाय की जागरूकता

अपनी पुनर्वास कार्य योजना के अन्तर्गत मेजा ऊर्जा निगम ने आठ गांवों का चयन किया। हमने पुनर्वास कार्य योजना के सम्बन्ध में समूहों की जागरूकता का पता लगाया और यह पाया गया कि इन गांवों में सभी सामुदायिक समूह जागरूक थे। यह भी देखा गया कि सभी उत्तरदाता समूहों के मध्य मेजा ऊर्जा निगम द्वारा प्रस्तावित सामुदायिक विकास गतिविधियों के सम्बन्ध में जागरूकता थी, उनमें से अधिकांश समूहों को मुख्यतः सड़क निर्माण, पेयजल सुविधा प्रदान करने तथा प्रभावित परिवारों से सम्बन्धित छात्रों को आई0टी0आई0 का प्रशिक्षण जैसी गतिविधियों की जानकारी थी।

क्रियान्वयन पूर्व तैयारी : समुदाय के विचार

हमने उत्तरदाताओं से प्रश्न भी पूछा कि, "मेजा ऊर्जा निगम द्वारा आपके गांव में क्रियान्वित की गयी सामुदायिक विकास गतिविधियों की जानकारी थी। आपने मेजा ऊर्जा निगम द्वारा क्रियान्वयन के पूर्व के स्तर की इन मात्राओं को कैसे तय किया (i) स्थानीय आवश्यकता आकलन (ii) स्थानीय लोगों की सहमति तथा (iii) कार्यों के क्रियान्वयन में लोगों की भागीदारी।"

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इन प्रश्नों के उत्तरों से पता चलता है कि लगभग 39 प्रतिशत उत्तरदाता समूहों ने माना कि कार्यों के क्रियान्वयन के पूर्व आवश्यकता आकलन उच्च या बहुत उच्च था, जबकि 24.4 प्रतिशत उत्तरदाता समूह किये गए स्थानीय आवश्यकता आकलन से अनभिज्ञ थे। इस प्रकार केवल 37 प्रतिशत उत्तरदाताओं ने महसूस किया कि स्थानीय आवश्यकता आकलन का स्तर निम्न था।

इन सम्बन्धित गतिविधियों के क्रियान्वयन के पूर्व स्थानीय लोगों के साथ सहमति अथवा चर्चा के बारे में पाया गया कि लगभग 58 प्रतिशत उत्तरदाता समूहों ने चर्चा अथवा सहमति के स्तर को उच्च अथवा अधिक उच्च माना जबकि केवल 20 प्रतिशत उत्तरदाता समूहों ने इस स्तर को कम अथवा बहुत कम बताया।

जन सहभागिता के प्रश्न के उत्तर में लगभग 39 प्रतिशत उत्तरदाता समूहों ने जन सहभागिता को उच्च अथवा अधिक उच्च बताया जबकि 44 प्रतिशत उत्तरदाता समूहों ने इसे कम अथवा बहुत कम बताया।

खण्ड – II

सामुदायिक विकास कार्य : आवश्यकता, क्रियान्वयन तथा प्रभाव

आकलन सर्वेक्षण के दौरान हमने प्रत्येक प्रभावित गांव में सभी चयनित समुदायों से तीन प्रकार के प्रश्नों को पूछा। पहला प्रश्न कार्य की आवश्यकता तथा इसके क्रियान्वयन के स्तर से संबंधित था। दूसरा, यदि गतिविधि क्रियान्वित की गयी तो कार्यों की गुणवत्ता के सम्बन्ध में समुदाय का संतुष्टि स्तर क्या था? तीसरा प्रश्न गांव में क्रियान्वित गतिविधि के प्रभाव से सम्बन्धित था। इस कार्य संरचना के अन्तर्गत 22 सामुदायिक विकास गतिविधियों को सूचीबद्ध किया गया, जिसे मेजा ऊर्जा निगम प्राइवेट लिमिटेड के पुनर्वास कार्य योजना के अन्तर्गत सम्मिलित किया गया था। मेजा ऊर्जा निगम प्राइवेट लिमिटेड की प्रगति रिपोर्ट के अनुसार सभी गतिविधियों को सन्दर्भ अवधि में क्रियान्वित किया गया। हमने प्रत्येक संचालित गतिविधियों के लिए प्रत्येक सामाजिक समूहों से अलग–अलग प्रश्नों को पूछा, ये प्रश्न कार्य की आवश्यकता, कार्य की गुणवत्ता तथा कार्य के प्रभावों/लाभों से सम्बन्धित थे। सामाजिक समूहों के उत्तरों के विश्लेषण को निम्नलिखित अनुच्छेदों के अन्तर्गत प्रस्तुत किया गया है–

गांवों में सड़कों का निर्माण

आवश्यकता: गांवों में सड़कों/मार्गों के निर्माण सम्बन्धी आंकड़ों के विश्लेषण से पता चलता है कि सभी सामाजिक समूहों (41) ने स्वीकार किया कि उनके अपने गांव के विकास के लिए इन कार्यों की बहुत अधिक आवश्यकता थी तथापि केवल 32 सामुदायिक समूहों ने बताया कि यह कार्य उनके गांवों में किया गया जबकि 9 सामाजिक समूहों ने बताया कि उनके गांवों में यह कार्य नहीं किया गया।

क्रियान्वयन: मेजा ऊर्जा निगम की सूचना के अनुसार उसने सभी गांवों में कल्याणकारी गतिविधियों का क्रियान्वयन चरणबद्ध तरीके से किया है। सभी सामाजिक समूहों द्वारा बताया गया कि इसौटा ओर पताई डांडी में यह कार्य नहीं क्रियान्वित किया गया। मेजा ऊर्जा निगम द्वारा इसका मुख्य कारण सम्बन्धित गांवों में भूमि की अनुपलब्धता को बताया गया। बिजौरा, कोहड़ार, मई खुर्द, झरियाही, सलैया कला तथा सलैया खुर्द के सभी सामाजिक समूहों ने स्वीकार किया कि प्रस्तावित कार्य का क्रियान्वयन गांव में किया गया।

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कार्य की गुणवत्ताः कार्य गुणवत्ता की दृष्टि से देखा जाए तो कुल 26 सामाजिक समूहों ने स्वीकार किया कि गांव में कार्य किया गया था, 16 समूहों ने कार्य की गुणवत्ता को अच्छा अथवा बहुत अच्छा बताया, 10 सामाजिक समूहों ने कार्य की गुणवत्ता को औसत स्तर का बताया जबकि 6 सामाजिक समूहों ने सड़क की गुणवत्ता को खराब बताया।

प्रभावः सार्थक रूप से सभी 17 सामाजिक समूहों ने सड़क/मार्ग निर्माण को गांव के लिए अत्यन्त लाभकारी मानते हुए स्वीकार किया कि इससे ग्रामीणों को बहुत लाभ हो रहा है।

तालाबों का जीर्णोद्धार

सभी 41 सामाजिक समूहों ने स्वीकार किया कि सभी गांवों में इस कार्य की अत्यधिक आवश्यकता थी। तथापि ध्यान देने योग्य यह है कि ग्राम समूहों में केवल एक गांव मई खुर्द में सूचना मिली कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा यह कार्य किया गया जबकि अन्य दूसरे गांवों में सभी सामाजिक समूहों ने बताया कि उनके गांवों में इस प्रकार का कोई कार्य नहीं किया गया, इस संदर्भ में मेजा ऊर्जा निगम ने बताया कि ग्राम सभा की भूमि की अनुपलब्धता के कारण यह कार्य सम्बन्धित ग्रामों में नहीं हो पाया। मई खुर्द के 5 समूहों ने इस कार्य की गुणवत्ता को अच्छा अथवा बहुत अच्छा बताया तथा एक समूह ने कार्य की गुणवत्ता को औसत बताया आधे समूहों ने गांव में इस कार्य का उच्च सकारात्मक प्रभाव माना।

सामुदायिक कुओं का निर्माण

यह माना जाता है कि सिंचाई एवं पेयजल उद्देश्यों के लिए कुएं जल के स्थायी स्रोत हैं। इसी कारण सभी गांवों से शत–प्रतिशत समूहों ने स्वीकार किया कि गांव में इसकी अत्यधिक आवश्यकता थी। किन्तु यह पाया गया कि केवल सलैया कला नई बस्ती में यह कार्य किया गया जहॉ विस्थापित लोगों को पुनर्वासित किया गया था। इस सन्दर्भ में मेजा ऊर्जा निगम द्वारा बताया गया कि इस कार्य के लिए अन्य गांव में गाम सभा की जमीन उपलब्ध नही थी। कुएं का निर्माण पूरा हो गया है और ग्रामीण इसके पानी का उपयोग कर रहे थे। ग्रामीणों ने बताया कि मेजा ऊर्जा निगम द्वारा संदर्भ अवधि में इस कुएं का जीर्णोद्धार किया गया तथा अब यह कुआं पहले से बेहतर हो गया है।

पेयजल हेतु हैण्डपम्पों की स्थापना

यह भी प्रेक्षित किया गया कि सभी चयनित गांवों में हैण्डपम्प पेयजल के प्रमुख स्रोत थे। इस कारण सभी गांवों से शत–प्रतिशत समूहों ने स्वीकार किया कि गांव में इसकी अत्यधिक आवश्यकता है। गौरतलब है कि 23 समूहों ने सूचित किया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा उनके गांवों में यह कार्य किया गया। आंकड़े यह भी बताते हैं कि लगभग 83 प्रतिशत अर्थात् 19 समूह इस कार्य की गुणवत्ता से बहुत अधिक संतुष्ट थे जबकि लगभग 17 प्रतिशत अर्थात 4 समूह मानते है कि इस कार्य की गुणवत्ता औसत स्तर की थी। गौरतलब है कि 65 प्रतिशत (15 समूह) सामुदायिक समूहों ने माना कि हैण्डपम्पों की स्थापना से ग्रामीण अत्यधिक लाभान्वित हुए। झरियाही नई बस्ती तथा सलैया कला नई बस्ती गांव के सामाजिक समूहों ने बताया कि मेजा ऊर्जा निगम ने नल के पानी की सुविधा स्थापित किया है तथा दोनों बस्ती के प्रत्येक परिवारों को जलापूर्ति की जा रही है।

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टैंकरों के माध्यम से पेयजल की आपूर्ति

यह भी प्रेक्षित किया गया कि चयनित गांव सूखे एवं चट्टानी क्षेत्र में स्थित थे जिसके कारण गर्मी के मौसम में ग्रामीणों को पेयजल की समस्या का सामना करना पड़ता है। इस समस्या का समाधान करने के लिए मेजा ऊर्जा निगम द्वारा इन गांवों में टैंकरों के माध्यम से जलापूर्ति की गयी। सामाजिक अंकेक्षण के दौरान इस कार्य की आवश्यकता, क्रियान्वयन एवं प्रभाव का मापन किया गया।

सभी (अर्थात 41) सामुदायिक समूहों ने स्वीकार किया कि इस कार्य की उनके गांवों में अत्यधिक आवश्यकता थी। 23 समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा उनके गांवों में इस कार्य को किया गया। आंकड़े यह भी बताते हैं कि लगभग 83 प्रतिशत अर्थात 19 समूह इस कार्य की गुणवत्ता से अत्यधिक संतुष्ट थे जबकि लगभग 17 प्रतिशत अर्थात 4 समूहों ने इसकी गुणवत्ता को औसत स्तर का माना। ध्यान देने योग्य बात है कि 65 प्रतिशत (15) सामुदायिक समूहों ने माना कि ग्रामीणों को की गई जलापूर्ति अत्यन्त लाभकारी थी।

व्यक्तिगत शौचालयों का निर्माण

स्वच्छ भारत मिशन भारत सरकार का महत्वपूर्ण कदम है, जिसके अन्तर्गत सरकार ने प्रत्येक परिवारों में शौचालय सुविधा उपलब्ध कराने का लक्ष्य रखा है। इस मिशन को बढ़ावा देने के लिए मेजा ऊर्जा निगम ने झरियाही नई बस्ती तथा सलैया कला नई बस्ती में शौचालय निर्माण के लिए कदम उठाया है (ये दोनों पुनर्वासित बस्ती हैं)।

यद्यपि सभी (अर्थात 41) सामुदायिक समूहों ने स्वीकार किया कि उनके गांव में इस कार्य की अत्यधिक आवश्यकता थी किन्तु केवल 7 समूहों (झरियाही नई बस्ती तथा सलैया कला नई बस्ती) ने बताया कि मेजा ऊर्जा निगम द्वारा उनके गांव में इस कार्य को किया गया। आंकड़े यह भी बताते हैं कि लगभग 86 प्रतिशत अर्थात 6 समूह इसकी गुणवत्ता से अत्यधिक संतुष्ट थे जबकि 14 प्रतिशत अर्थात एक समूह ने इसकी गुणवत्ता को औसत स्तर का बताया। शत प्रतिशत (7) सामाजिक समूहों ने बताया कि शौचालय निर्माण ग्रामीणों के लिए अत्यधिक लाभदायक थे।

किसान मेले का आयोजन

पुनर्वास कार्य योजना के अन्तर्गत तैयार किए गए किसान प्रशिक्षण का आयोजन एक महत्वपूर्ण कार्य था। इस कार्य का मूल उद्देश्य आधुनिक कृषि पद्धतियों को विकसित करना था। सभी गांवों के शत प्रतिशत सामाजिक समूहों ने स्वीकार किया कि गांवों में इसकी बहुत अधिक आवश्यकता थी। कुल 41 ग्राम समूहों में से 41 प्रतिशत (17) समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा किसान प्रशिक्षण का आयोजन किया गया जबकि 59 प्रतिशत अर्थात 24 समूहों ने बताया कि यह कार्य नहीं किया गया। यह आश्चर्यजनक है कि इसके आयोजन को लेकर सभी गांवों में सामुदायिक समूहों ने सकारात्मक एवं नकारात्मक दोनों प्रकार की सूचनाएं दी है। यहॉ ध्यान देना उचित है कि कार्यक्रम का आयोजन क्लस्टर स्तर पर किया गया तथा मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सभी गांवों में सूचना प्रचारित की गयी थी। कुल 17 समूहों में से लगभग 65 प्रतिशत (अर्थात 11 समूह) समूहों ने बताया कि प्रशिक्षण की गुणवत्ता अच्छी अथवा बहुत अच्छी थी। सार्थक रूप से 82 प्रतिशत (अर्थात 14) सामाजिक समूहों ने माना कि किसान मेला से गांव के

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किसानों को बहुत लाभ हुआ। जबकि लगभग 18 प्रतिशत (अर्थात 3 समूह) समूहों का मानना था कि इससे किसानों के लाभ का स्तर कम था।

पौधों का वितरण/सामाजिक वानिकी

प्रभावित गांवों में मेजा ऊर्जा निगम ने ग्रामीणों को 5000 पौधों का वितरण किया। हमने पाया कि शत–प्रतिशत (41) सामाजिक समूहों ने माना कि इसकी अधिक आवश्यकता थी। 19 सामुदायिक समूहों ने स्वीकार किया कि इसे उनके गांवों में किया गया जबकि 22 समूहों ने बताया कि इसे उनके गांव में नहीं किया गया। इस कार्य को सभी गांवों में किया गया तथा 8 सामुदायिक समूहों ने बताया कि इस कार्य की गुणवत्ता उच्च स्तर की थी जबकि 11 समूहों ने इसकी गुणवत्ता को औसत स्तर का बताया। इसके प्रभाव के सम्बन्ध में 6 सामुदायिक समूहों ने इसे ग्रामीणों के लिए लाभदायक माना जबकि 13 समूहों ने इसके प्रभाव को कम अथवा बहुत कम माना।

सामान्य स्वास्थ्य परीक्षण शिविर

प्रभावित गांवों के लिए चिकित्सा सेवाएं एक प्रमुख आवश्यकता थी। शत–प्रतिशत अर्थात् 30 सामुदायिक समूहों ने इसकी अत्यधिक आवश्यकता को स्वीकार किया। उल्लेखनीय है कि सभी 27 सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा इस कार्य को किया गया। 59 प्रतिशत समूहों ने विश्वास जताया कि स्वास्थ्य परीक्षण शिविर की गुणवत्ता उच्च स्तर की थी, जबकि शेष 41 प्रतिशत अर्थात 11 समूहों ने इसकी गुणवत्ता को औसत स्तर का माना। यह भी बताया गया कि स्वास्थ्य शिविरों का आयोजन क्लस्टर स्तर पर किया गया जिसकी सूचना मेजा ऊर्जा निगम द्वारा सभी सम्बन्धित गांवों में प्रचारित की गयी। केवल 15 प्रतिशत अर्थात 4 सामुदायिक समूहों ने महसूस किया कि स्वास्थ्य परीक्षण शिविर से ग्रामीणों को अत्यधिक लाभ मिला, जबकि 85 प्रतिशत अर्थात 23 समूह जो सभी समुदाय से सम्बन्धित थे, ने माना कि स्वास्थ्य परीक्षण शिविरों से ग्रामीणों को कम अथवा बहुत कम स्तर का लाभ मिला।

नेत्र परीक्षण/मोतियाबिन्द आपरेशन शिविर

स्वास्थ्य से सम्बन्धित दूसरी महत्वपूर्ण गतिविधि नेत्र परीक्षण शिविर की थी। यह पाया गया कि सभी 41 समूहों ने स्वीकार किया कि नेत्र जॉच शिविर की अत्यधिक आवश्यकता थी तथा 46 प्रतिशत अर्थात 19 सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा इस कार्य को किया गया। सार्थक रूप से 19 सामुदायिक समूहों ने यह विश्वास व्यक्त किया कि आयोजित किए गए नेत्र परीक्षण शिविर की गुणवत्ता अच्छी अथवा बहुत अच्छी थी। 11 सामुदायिक समूहों ने माना कि नेत्र जांच शिविर से ग्रामीणों को अधिक लाभान्वित किया गया। हमारे सर्वेक्षण से पता चलता है कि मेजा ऊर्जा निगम प्राइवेट लिमिटेड की इस गतिविधि की अत्यधिक सराहना तथा स्वीकृति स्थानीय लोगों के द्वारा मिली तथा इसके लाभ एवं गुणवत्ता के संदर्भ में सभी समूहों द्वारा सराहना की गयी।

पशु स्वास्थ्य परीक्षण शिविर

यह प्रेक्षित किया गया कि पशु स्वास्थ्य सेवाओं की आवश्यकता मूलतः सभी गांवों में थी। यह सेवा प्रभावित गांवों से अधिक दूरी पर स्थित होने के कारण भी ज्यादातर लोग अथवा पशुपालक इस सेवा का लाभ उठाने में सक्षम नहीं थे। सभी गांवों से शत प्रतिशत अर्थात् 41 सामुदायिक समूहों ने स्वीकार किया कि इसकी अधिक आवश्यकता गांव में थी। 41

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सामुदायिक समूहों में 34 प्रतिशत अर्थात 14 समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा यह कार्य किया गया। इनमें से 50 प्रतिशत अर्थात् 7 समूहों ने माना कि इस सेवा की गुणवत्ता उच्च स्तर की थी जबकि शेष 50 प्रतिशत अर्थात् 7 समूहों ने इसकी गुणवत्ता को औसत स्तर का माना। यह भी पाया गया कि 79 प्रतिशत (11) सामुदायिक समूहों ने माना कि पशु स्वास्थ्य परीक्षण शिविर ग्रामीणों के लिए अधिक लाभकारी था जबकि अनुसूचित जाति तथा ग्राम पंचायत प्रतिनिधियों से सम्बन्धित केवल 21 प्रतिशत अर्थात् 3 समूहों ने शिविर को ग्रामीणों के लिए निम्न स्तर का माना।

पशु टीकाकरण शिविर

पशु टीकाकरण एक निवारक उपाय है, जिसे पुनर्वास कार्य योजना के माध्यम से मेजा ऊर्जा निगम द्वारा प्रारम्भ किया गया। 88 प्रतिशत अर्थात् 37 सामुदायिक समूहों ने इसे अत्यधिक आवश्यक बताया जबकि केवल 4 समूहों ने इसे कम जरूरत का बताया। 14 सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा उनके गांव में इस कार्य को किया गया। यह भी पाया गया कि 50 प्रतिशत (7) सामुदायिक समूहों ने टीकाकरण शिविर की अच्छी गुणवत्ता में विश्वास व्यक्त किया जबकि शेष 50 प्रतिशत अर्थात् 7 समूहों ने इसकी गुणवत्ता को औसत स्तर का बताया। यहॉ इस बात को स्पष्ट करना आवश्यक है कि शिविरों का आयोजन क्लस्टर स्तर पर किया गया तथा मेजा ऊर्जा निगम द्वारा सभी सम्बन्धित गांवों में इसकी सूचना प्रचारित की गई। 43 प्रतिशत अर्थात् 6 सामुदायिक समूहों ने ग्रामीणों के लिए टीकाकरण शिविर को अत्यधिक लाभकारी माना जबकि 57 प्रतिशत अर्थात् 8 समूहों ने इसे निम्न अथवा बहुत निम्न स्तर का माना।

पशु चिकित्सालय की चहारदीवारी का निर्माण

मेजा ऊर्जा निगम द्वारा कोहड़ार गांव में पशु चिकित्सालय की चहारदीवारी का निर्माण करवाया गया है, अतः इस गांव के सामुदायिक समूहों द्वारा इस गतिविधि को मान्य किया गया। अन्य गांवों के मामले में सामुदायिक समूहों ने बताया कि उनके गांवों में पशु चिकित्सालय नहीं है, इस कारण उनके उत्तरों का उल्लेख नहीं किया गया है। कोहड़ार गांव के सभी सामुदायिक समूहों ने स्वीकार किया कि मेजा ऊर्जा निगम द्वारा यह कार्य किया गया। इन समूहों में 83 प्रतिशत (अर्थात् 5) ने चहारदीवारी की गुणवत्ता को अच्छा अथवा बहुत अच्छा बताया। इस कार्य के प्रभाव के सम्बन्ध में सभी सामुदायिक समूहों ने स्थानीय समुदायों तथा पशु चिकित्सालय के लिए इसके प्रभाव को अत्यन्त लाभकारी बताया।

संस्कृति एवं खेलकूद को बढ़ावा देना

मेजा ऊर्जा निगम द्वारा इलाहाबाद के इन्दिरा मैराथन तथा माघ मेला के त्रिवेणी महोत्सव को प्रायोजित किया गया। 98 प्रतिशत (अर्थात् 40) सामुदायिक समूहों ने इस प्रकार की गतिविधियों की आवश्यकता को स्वीकार किया किन्तु केवल 33 प्रतिशत (13) सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा इस कार्य को किया गया। वास्तव में इन कार्यों का आयोजन इलाहाबाद शहर और माघ मेला में किया गया था, इस कारण इसकी सम्भावना है कि प्रभावित गांवों के ग्रामीणों को इन गतिविधियों की जानकारी न रही हो। कुल 13 समूहों में 46 प्रतिशत (6) सामुदायिक समूहों ने प्रायोजित गतिविधियों को उच्च गुणवत्ता वाला माना जबकि इसी अनुपात में अर्थात 6 समूहों ने इन गतिविधियों को युवाओं एवं तीर्थयात्रियों के लिए अत्यन्त लाभकारी माना।

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रेन शेड का निर्माण

दूसरी महत्वपूर्ण गतिविधि रेन शेड के निर्माण से सम्बन्धित थी। यह पाया गया कि सभी 41 सामुदायिक समूहों द्वारा जगह–जगह निर्मित रेन शेड की आवश्यकता को स्वीकार किया गया तथा शत प्रतिशत सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा यह कार्य किया गया था। सार्थक रूप से 63 प्रतिशत (26) सामुदायिक समूहों ने रेन शेड के निर्माण की गुणवत्ता को उच्च कोटि का बताया जबकि शेष 37 प्रतिशत (15) समूहों ने इसकी गुणवत्ता को औसत स्तर का माना। इसी प्रकार लगभग 54 प्रतिशत अर्थात् 22 सामुदायिक समूहों ने रेन शेड के निर्माण को स्थानीय ग्रामीणों के लिए अत्यधिक लाभकारी माना।

आई0टी0आई0 प्रवेश/कौशल उन्नयन तथा क्षमता निर्माण

यह पाया गया कि 95 प्रतिशत (39) सामुदायिक समूहों ने अपने गांवों में इन गतिविधियों को आवश्यक बताया तथा 82 प्रतिशत (32) सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा उनके गांवों में इस कार्य को किया गया। सार्थक रूप से 31 प्रतिशत (12) सामुदायिक समूहों ने भी विश्वास व्यक्त किया कि कौशल उन्नयन तथा क्षमता संवर्द्धन की गुणवत्ता अच्छी थी तथा 14 समूहों ने इसकी गुणवत्ता को औसत स्तर का बताया जबकि 6 समूहों ने निम्न गुणवत्ता बताया। केवल 28 प्रतिशत अर्थात् 11 सामुदायिक समूहों ने कौशल उन्नयन तथा क्षमता संवर्द्धन को युवाओं तथा ग्रामीणों के लिए अधिक लाभकारी माना। यह स्पष्ट करना महत्वपूर्ण है कि मेजा ऊर्जा निगम ने प्रभावित गांवों के 101 युवाओं को आठ ट्रेड में राजकीय आई0टी0आई0 में प्रशिक्षण प्रदान करने में सहायता किया।

आई0टी0आई0 में अध्ययन कक्ष, वर्कशाप तथा सड़क का निर्माण

मेजा ऊर्जा निगम ने आई0टी0आई0 नैनी तथा आई0टी0आई0 कटरा, इलाहाबाद में प्रत्येक में एक पी0सी0सी0 रोड का निर्माण करवाया है तथा राजकीय आई0टी0आई0 नैनी में 5 अध्ययन कक्ष, 5 वर्कशाप और सड़क के किनारे एक उपतट का निर्माण करवाया है, जहॉ प्रभावित परिवारों के युवा आठ ट्रेड में आई0टी0आई0 प्रशिक्षण का लाभ प्राप्त करते हैं। इसके अतिरिक्त मई खुर्द गांव में भी एक प्रशिक्षण केन्द्र का निर्माण करवाया गया। 78 प्रतिशत (32) सामुदायिक समूहों ने स्वीकार किया कि सम्बन्धित स्थानों में इसकी अधिक जरूरत थी तथा सभी (14) समूहों ने स्वीकार किया कि उन स्थानों पर इस कार्य को किया गया। प्रभाव के सम्बन्ध में केवल 36 प्रतिशत (5) समूहों ने प्रशिक्षुओं के लिए इसे अत्यधिक लाभकारी माना जबकि 64 प्रतिशत (9) समूहों ने इसे कम अथवा बहुत कम लाभकारी माना।

सामुदायिक केन्द्र का निर्माण

मेजा ऊर्जा निगम ने सलैया कला, सलैया खुर्द तथा झड़ियाही गांवों में सामुदायिक केन्द्र का निर्माण करवाया है। सलैया खुर्द तथा सलैया कला गांवों में इसका निर्माण कार्य पूरा हो गया है जबकि झड़ियाही गांव में निर्माण कार्य प्रगति पर था। सभी (41) सामुदायिक समूहों ने माना कि उनके गांवों में इस कार्य की अत्यधिक जरूरत थी। कुल 41 में से मुख्यतः तीन गांवों (झड़ियाही, सलैया कला तथा सलैया खुर्द) के 15 समूहों ने स्वीकार किया कि उनके गांवों में इस कार्य को किया गया। कुल 15 समूहों में से 73 प्रतिशत (11) समूहों ने इसकी गुणवत्ता को अच्छा अथवा बहुत अच्छा बताया जबकि 27 प्रतिशत (4)

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समूहों ने इसकी गुणवत्ता को निम्न अथवा बहुत निम्न स्तर का माना। प्रभाव के सम्बन्ध में केवल 73 प्रतिशत (11) समूहों ने ग्रामीणों के लिए इसे अधिक लाभकारी माना जबकि 27 प्रतिशत (4) समूहों ने इसे कम अथवा बहुत कम लाभकारी माना।

चेकडैम का निर्माण

सभी (41) समूहों ने स्वीकार किया कि उनके गांवों में इस गतिविधि की आवश्यकता थी तथा मुख्यतः तीन गांवों (कोहड़ार, इसौटा और पताई डांडी) से 27 प्रतिशत (11) सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा इस कार्य को किया गया। कुल 41 समूहों में से 27 प्रतिशत (11) सामुदायिक समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा इस कार्य को किया गया। कुल 11 में से 45 प्रतिशत (5) सामुदायिक समूहों ने चेकडैम के निर्माण की गुणवत्ता को उच्च बताया जबकि 55 प्रतिशत (6) समूहों ने इसकी गुणवत्ता को औसत स्तर का माना। आंकड़े बताते हैं कि सभी सामुदायिक समूहों ने माना कि चेकडैम का निर्माण ग्रामीणों के लिए कम अथवा बहुत कम लाभकारी था।

आपदा की अवधि में सहायता प्रदान करना

मेजा ऊर्जा निगम द्वारा उपलब्ध करवाई गई सूचना के अनुसार अग्नि आपदा से प्रभावित 97 परिवारों को आश्रय सामग्री जैसे एस्बेस्टस शीट, बॉस, बल्ली, पटरा इत्यादि प्रदान किया गया। इसके साथ ही इन प्रभावित परिवारों को मेजा ऊर्जा निगम ने भोजन एवं पेयजल भी प्रदान किया। उपलब्ध सूचना के अनुसार मेजा ऊर्जा निगम ने बाढ़ से पीड़ित चार गांवों झड़ियाही, इसौटा, कोहड़ार तथा शाहपुर कला में लगभग 80 परिवारों को बाढ़ के दौरान नाव, आश्रय, भोजन तथा पेयजल प्रदान किया। सामाजिक अंकेक्षण के दौरान इस कार्य का मापन किया गया।

यह पाया गया कि केवल 34 प्रतिशत (14) सामुदायिक समूहों ने बताया कि इस कार्य की उच्च स्तर पर जरूरत थी तथा शेष 66 प्रतिशत (27) समूहों ने माना कि इसकी जरूरत कम अथवा बहुत कम थी। 41 में से 34 प्रतिशत (14) सामुदायिक समूहों ने माना कि मेजा ऊर्जा निगम द्वारा इस कार्य को किया गया था। गौरतलब है कि 64 प्रतिशत (9) सामुदायिक समूहों ने प्रभावित परिवारों के लिए वितरित की गयी राहत सामग्री को उच्च गुणवत्ता का माना। केवल 21 प्रतिशत अर्थात् 3 सामुदायिक समूहों ने माना कि प्रभावित परिवारों को वितरित की गयी राहत सामग्री अत्यधिक लाभकारी थी जबकि 79 प्रतिशत (11) सामुदायिक समूहों ने इस कार्य को अपने गांवों के लिए कम अथवा बहुत कम लाभकारी माना।

स्कूल बैग एवं लेखन सामग्री का वितरण

मेजा ऊर्जा निगम की सूचना के अनुसार स्कूली बच्चों को स्कूल बैग, नोट बुक तथा लेखन सामग्री प्रदान करके बढ़ावा देने की गतिविधियों को प्रारम्भ किया गया। इस गतिविधि के अन्तर्गत मेजा ऊर्जा निगम ने प्रभावित क्षेत्रों में 12 राजकीय प्राथमिक तथा उच्च प्राथमिक विद्यालयों के 2200 स्कूली बच्चों को स्कूल बैग, नोट बुक तथा लेखन सामग्री वितरित किया। इस गतिविधि का स्थानीय समुदायों के साथ अंकेक्षण किया गया। 98 प्रतिशत (40) सामुदायिक समूहों ने बताया कि इस कार्य की अत्यधिक आवश्यकता थी तथा 88 प्रतिशत (36) समूहों ने स्वीकार किया कि मेजा ऊर्जा निगम द्वारा इस कार्य को किया गया। कुल 36 में से 44 प्रतिशत (16) सामुदायिक समूहों ने इस कार्य की गुणवत्ता को बहुत अच्छा बताया जबकि शेष 56 प्रतिशत (20) समूहों ने इसकी गुणवत्ता को औसत स्तर का बताया।

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केवल 31 प्रतिशत अर्थात् 11 सामुदायिक समूहों ने बच्चों के मध्य इन सामग्रियों के वितरण को अत्यधिक लाभदायक माना जबकि 69 प्रतिशत (25) समूहों ने इसे कम अथवा बहुत कम लाभदायक माना।

कम्बल का वितरण

मेजा ऊर्जा निगम ने निर्धन परिवारों को कम्बलों का वितरण करके कल्याणकारी गतिविधियों को प्रारम्भ किया। इस गतिविधि के अन्तर्गत मेजा ऊर्जा निगम ने प्रभावित गांवों में रहने वाले परिवारों को जाड़े के मौसम में 4000 कम्बलों का वितरण किया। सामाजिक अंकेक्षण की अवधि में बहुत से ग्रामीणों द्वारा इस कार्य की सराहना की गयी।

शत–प्रतिशत (41) सामुदायिक समूहों ने बताया कि इस कार्य की अत्यधिक आवश्यकता थी तथा 46 प्रतिशत (19) समूहों ने स्वीकार किया कि मेजा ऊर्जा निगम द्वारा उनके गांवों में इस कार्य को किया गया। कुल 19 समूहों में से 63 प्रतिशत (12) ने इसकी गुणवत्ता को अच्छा बताया जबकि शेष 37 प्रतिशत (7) समूहों ने इसकी गुणवत्ता को औसत स्तर का माना। केवल 37 प्रतिशत (7) सामुदायिक समूहों ने ग्रामीणों के मध्य कम्बलों के वितरण को अत्यन्त लाभकारी माना जबकि 63 प्रतिशत (12) समूहों ने इसे ग्रामीणों के लिए कम अथवा बहुत कम लाभदायक माना।

प्रभावित परिवारों के स्वामित्व वाले वाहनों का विस्तारीकरण

मेजा ऊर्जा निगम ने अपने संयन्त्र में 23 प्रभावित परिवारों से 23 वाहन किराए पर ले रखा है। इससे संयन्त्र से प्रभावित परिवारों को नियमित आय प्राप्त होती है। इसके पूर्व की सूचना के अनुसार मेजा ऊर्जा निगम द्वारा प्रभावित परिवारों के प्रतिनिधित्व द्वारा दो सहकारी समितियों का गठन किया गया था तथा उन्हें छोटे–छोटे ठेके प्रदान किए गए। इससे बहुत से परिवारों को लाभकारी रोजगार प्राप्त हुआ। मेजा ऊर्जा निगम के टाउनशिप में स्थित कुछ दुकानों का आवंटन भी सहकारी समितियों को किया गया।

काले हिरणों का संरक्षण

मेजा ऊर्जा निगम ने पर्यावरण और वन मन्त्रालय के साथ नियमित आधार पर गतिविधियों और प्रगति रिपोर्ट के कार्यान्वयन के लिए अपनी योजना को साझा किया है। यह योजना संरक्षण की गतिविधियों को सुनिश्चित करने की सीमा पर जोर देता है तथा काले हिरणों के संरक्षण के लिए अनुकूल वातावरण का सृजन करती है। मेजा ऊर्जा निगम द्वारा प्रदान की गयी सूचनाओं के अनुसार पॉच वर्षों की अवधि के लिए संरक्षण योजना के अन्तर्गत सचित्र गतिविधियों को करने के लिए 172.3 लाख रू0 स्वीकृत किए गए हैं। इन गतिविधियों में साल्टलिक (जीभ से चाटने वाला नमक) की स्थापना, तालाबों का निर्माण, पम्प हाउस की स्थापना, चारागाह और वृक्षारोपण, वाच टावर का निर्माण, सूचना पट् का प्रदर्शन, सार्वजनिक उपयोगिता का निर्माण इत्यादि शामिल हैं। इस योजना के अन्तर्गत मेजा ऊर्जा निगम ने महुली कला गांव में चांद खमरिया परियोजना में काले हिरणों का संरक्षण किया है। यहॉ मेजा ऊर्जा निगम ने काले हिरणों के चरने के लिए साल्टलिक की स्थापना, पम्प हाउस का निर्माण, तालाबों का निर्माण, वाच टावर, सार्वजनिक उपयोगिता का निर्माण, वृक्षारोपण तथा चारागाह की स्थापना किया है। क्षेत्र में कुछ सूचना पटों का प्रदर्शन भी किया गया है। यह प्रेक्षित किया गया कि इन गतिविधियों के क्रियान्वयन के परिणामस्वरूप सामान्य रूप से काले हिरणों की संख्या में वृद्धि हुई है और उन्हें भोजन एवं

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पानी की तलाश में दूरदराज के क्षेत्रों में जाने की आवश्यकता नहीं थी। इससे सुरक्षा पहलुओं में भी सुधार हुआ है जो कि काले हिरणों की संख्या में वृद्धि के भी अनुकूल है।

समुदायों द्वारा पसंदीदा सामुदायिक विकास गतिविधियों का निष्पादन एवं प्रभाव

हमने मेजा ऊर्जा निगम द्वारा क्रियान्वित लगभग 25 गतिविधियों की आवश्यकता, क्रियान्वयन स्तर तथा प्रभाव से सम्बन्धित सूचनाएँ एकत्रित किया। अब हम यह जानना चाहते थे कि इनमें से कौन–कौन सी गतिविधियॉ गांव के लिए महत्वपूर्ण एवं लाभकारी थीं। अतः हमने समुदाय समूहों से पूछा कि कौन सी गतिविधि गांव के लिए सबसे अधिक लाभकारी थी। इस प्रश्न के उत्तर में समुदाय समूहों ने अनेक गतिविधियों का उल्लेख किया, जिसे बाक्स 4.1 में दर्शाया गया है:

बाक्स 4.1: ग्राम समुदाय द्वारा अनुभव किए गए विभिन्न प्रकार के लाभकारी परिवर्तन

- पेयजल की सुविधा में वृद्धि (हैण्डपम्प/वाटर टैंक/नल के माध्यम से जलापूर्ति)
- निजी शौचालयों की सुविधा मिली
- पी0सी0सी0 सड़कों का निर्माण हुआ
- युवाओं को आई0टी0आई0 का प्रशिक्षण दिया गया
- नेत्र परीक्षण शिविर का आयोजन किया गया
- मोतियाबिन्द का आपरेशन
- रेन शेड का निर्माण
- राहत सामग्री का वितरण
- कम्बल का वितरण
- स्कूल बैग का वितरण
- पशु टीकाकरण शिविर

स्रोतः क्षेत्र सर्वेक्षण, गो0ब0पंत सा0वि0 संस्थान।

ग्रामीणों ने जिन गतिविधियों को अपने लिए ज्यादा लाभकारी माना उनका प्रभाव

सामुदायिक विकास गतिविधियों का मुख्य उद्देश्य ग्रामीण समुदाय के दैनिक समस्याओं को न्यूनतम स्तर पर लाना है। अध्ययन के दौरान हमने समुदाय समूहों से पूछा कि "यदि आप मानते हैं कि कुछ गतिविधियों के क्रियान्वयन से ग्रामीणों को लाभ हुआ है तो गांव में इससे किस प्रकार का परिवर्तन आया?" इस प्रश्न के जवाब में समुदाय समूहों ने अनेक प्रकार के परिवर्तनों को बताया। समुदाय समूहों के उत्तरों से स्पष्ट होता है कि सामुदायिक विकास गतिविधियों के क्रियान्वयन से पेयजल, जीविकोपार्जन सहायता, वृद्ध लोगों, परिवहन तथा सड़क के क्षेत्र में ग्रामीण लोगों की जीवन शैली में सार्थक परिवर्तन हुआ है।

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निष्पादित सामुदायिक विकास गतिविधियों से लाभ न मिलने के कारण

कुछ मामले में समुदाय समूहों ने बताया कि सामुदायिक विकास गतिविधि से अपेक्षित लाभ नहीं मिला। अध्ययन के दौरान हमने समुदाय समूहों से पूछा कि "यदि गांव के लोगों को निष्पादित सामुदायिक विकास गतिविधियों से अपेक्षित लाभ नहीं मिला तो उसका मुख्य कारण क्या था?" इस प्रश्न के उत्तर में समुदाय समूहों ने अनेक कारणों का उल्लेख किया। उनके द्वारा बताए गये अधिकांश कारण मेजा ऊर्जा निगम के लिए किए गये भूमि अधिग्रहण के परिणाम थे जिसके कारण ग्रामीणों ने अपनी भूमि एवं रोजगार के अवसरों को खो दिया। वास्तव में उनकी अपेक्षा थी कि मेजा ऊर्जा निगम प्रभावित परिवारों को पर्याप्त आधारभूत सुविधाएं एवं रोजगार के अवसर प्रदान करेगा। इस सन्दर्भ में उनके उत्तरों से स्पष्ट होता है कि ज्यादातर कारण पानी की समस्या, पशुओं से सम्बन्धित समस्याएं, आई0टी0आई0 के प्रशिक्षण के उपरान्त रोजगार के अवसरों की अनुपलब्धता, स्वास्थ्य शिविर के द्वारा लाभ न मिलना तथा स्वास्थ्य शिविर की सेवा सम्बन्धी गुणवत्ता से जुड़ी हुई थी। सामुदायिक समूहों द्वारा बताए गए इन कारणों का उल्लेख बाक्स 4.2 में किया गया है।

बाक्स 4.2: निष्पादित सामुदायिक विकास गतिविधियों से ग्रामीणों को अपेक्षित लाभ न मिलने के कारण

- ग्रामीणों को वितरित औषधियों का लाभ नहीं प्राप्त हो सका
- ग्रामीणों को अधिकांश शिविरों की जानकारी नहीं थी
- स्वास्थ्य परीक्षण शिविरों में उचित ढंग से परीक्षण नहीं हुआ
- सभी जरूरतमंद बस्तियों में हैण्डपम्पों की स्थापना नहीं की गयी।
- गर्मी के महीनों में टैंकर द्वारा अपर्याप्त जलापूर्ति
- गर्मी के महीने में जलस्तर सूख जाता है
- पेड़–पौधे सूख गए
- आई0टी0आई0 प्रशिक्षुओं को रोजगार नहीं मिला

स्रोतः क्षेत्र सर्वेक्षण, गो0ब0पंत सा0वि0 संस्थान।

ग्रामीण लोगों की अपेक्षाएँ

हमने ग्रामीण समुदाय समूहों से आगे पूछा कि "क्या वे महसूस करते हैं कि मेजा ऊर्जा निगम के क्रियान्वित सामुदायिक विकास गतिविधियों की कार्ययोजना में कुछ महत्वपूर्ण गतिविधियों को नहीं शामिल किया गया? यदि हां, तो वे कौन सी गतिविधियॉ हैं?" इस प्रश्न के उत्तर में समुदाय समूहों ने अनेक गतिविधियों को जोड़ने का सुझाव दिया जो उनके गांव के लिए बहुत महत्वपूर्ण थीं किन्तु सामुदायिक विकास की कार्ययोजना में सम्मिलित नही थे। लगभग 89 प्रतिशत समुदाय समूहों ने सुझाव दिया कि मेजा ऊर्जा निगम को गांवों में सिंचाई के साधनों का सुधार करना चाहिए, 68 प्रतिशत समूहों ने मेजा

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ऊर्जा निगम द्वारा उनके गांवों में पी0सी0सी0 सड़क निर्माण करवाने का सुझाव दिया। 61 प्रतिशत समुदाय समूहों ने सुझाव दिया कि मेजा ऊर्जा निगम द्वारा प्रभावित गांवों में पेयजल की सुविधा दी जानी चाहिए। अन्य महत्वपूर्ण कार्यों जिसके लिए समुदाय समूहों ने सुझाव दिए, वे थे जल निकासी, अस्पताल की स्थापना, सौर ऊर्जा, महिलाओं के लिए रोजगार इत्यादि।

हमने समुदाय समूहों से आगे यह भी पूछा कि "यदि आपके द्वारा सुझायी गई गतिविधियों को गांवों में कार्यान्वित किया जाएगा तो इसके अपेक्षित परिणाम क्या होंगे?" इस प्रश्न के उत्तर में ग्राम समुदाय समूहों द्वारा विभिन्न प्रकार के सकारात्मक अपेक्षित प्रभावों को बताया गया, जिसे बाक्स 4.3 में दर्शाया गया है।

बाक्स 4.3: ग्रामीणों को क्रियान्वित सामुदायिक विकास गतिविधियों के अपेक्षित लाभ न मिलने के कारण

- सिंचाई सुविधा के साधनों में वृद्धि न होना
- सब्जियों एवं फसलों के उत्पादन में वृद्धि न होना
- पेयजल सुविधा की वृद्धि न होना
- जल निकासी की वृद्धि न होना
- परिवहन सुविधा में सुधार न होना
- समस्त ग्रामीणों को स्वास्थ्य सुविधा नहीं प्रदान करना
- विद्युत सुविधा में वृद्धि न होना
- जीविकोपार्जन सहायता में वृद्धि न होना
- रोजगार अवसरों में वृद्धि न होना
- गांवों का विकास बेहतर ढंग से न होना

स्रोतः क्षेत्र सर्वेक्षण, गो0ब0पंत सा0वि0 संस्थान।

स्कूली बच्चों हेतु स्वास्थ्य परीक्षण शिविरों के सम्बन्ध में समुदायों के विचार

प्रभावित गांवों में रहने वाले स्कूली बच्चों हेतु मेजा ऊर्जा निगम ने कुछ विशेष सामुदायिक गतिविधियों का आयोजन किया। मेजा ऊर्जा निगम के पुनर्वास कार्य योजना के अन्तर्गत चार प्रकार की गतिविधियों को तैयार किया गया था। सन्दर्भ अवधि के दौरान मेजा ऊर्जा निगम द्वारा स्कूली बच्चों के लिए एक गतिविधि अर्थात् स्वास्थ्य परीक्षण शिविर का आयोजन किया गया था। क्षेत्र सर्वेक्षण के दौरान इन गतिविधियों के सम्बन्ध में एकत्रित ग्राम समुदाय समूहों का विचार जाना गया। आंकड़े बताते हैं कि 30 समुदाय समूहों ने स्वीकार किया कि मेजा ऊर्जा निगम द्वारा स्वास्थ्य परीक्षण शिविरों का आयोजन किया गया। 30 में से 6 समूह इस गतिविधि के साथ उच्च स्तर पर संतुष्ट थे, 12 समूह मध्यम स्तर तथा शेष 12 समूह कम स्तर पर संतुष्ट थे। इसके प्रभाव के सम्बन्ध में इसे केवल 2 समूहों ने बच्चों के लिए लाभदायक माना जबकि 15 समूहों ने इस कार्य के प्रभाव को औसत स्तर का माना।

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स्कूलों एवं बच्चों हेतु सामुदायिक विकास गतिविधियों की महत्वपूर्ण सूची

हमने समुदाय समूहों से पूछा कि, "स्कूलों तथा बच्चों के लिए कुछ ऐसी गतिविधियॉ जो अधिक महत्वपूर्ण थीं, जिसे कार्यान्वित गतिविधियों की सूची में शामिल नहीं किया गया था? यदि हॉ, तो ये कौन सी गतिविधियॉ थी?" इस प्रश्न के उत्तर में समुदाय समूहों ने विभिन्न प्रकार की गतिविधियों को शामिल करने का सुझाव दिया, जैसे, खेलकूद प्रतियोगिता तथा सांस्कृतिक कार्यक्रमों का आयोजन, कम्प्यूटर शिक्षा प्रदान करना, खेलकूद सामग्री प्रदान करना, स्कूलों में शिक्षा की गुणवत्ता में सुधार करना, स्कूली बच्चों को ट्यूशन/कोचिंग की सुविधा प्रदान करना इत्यादि, जो स्कूलों एवं बच्चों के लिए महत्वपूर्ण गतिविधियॉ थीं। इसे बाक्स 4.4 में दर्शाया गया है।

बाक्स 4.4: महत्वपूर्ण गतिविधियों के सम्बन्ध में समुदाय के सदस्यों के सुझाव

- खेलकूद प्रतियोगिता का आयोजन करना
- सांस्कृतिक कार्यक्रमों का आयोजन करना
- नाटकों इत्यादि के माध्यम से बच्चों में देशभक्ति की भावना का विकास करना
- कम्प्यूटर शिक्षा
- खेलकूद सामग्री प्रदान करना चाहिए
- क्षेत्र में बालिका विद्यालय की आवश्यकता
- नए कान्वेंट स्कूल खोलना
- शिक्षा की गुणवत्ता में सुधार करना
- प्रभावित परिवारों के बच्चों हेतु कान्वेंट स्कूल में शुल्क प्रतिपूर्ति
- स्कूली बच्चों हेतु ट्यूशन/कोचिंग

स्रोतः क्षेत्र सर्वेक्षण, गो0ब0पंत सा0वि0 संस्थान।

खण्ड – III

बेहतर कार्यान्वयन के लिए सामुदायिक विकास गतिविधियों की निगरानी एवं सुझाव

समुदायों के विचार

किसी भी कार्यक्रम की सफलता के लिए उसकी निगरानी एवं मूल्यांकन करना एक महत्वपूर्ण घटक होता है। इस सम्बन्ध में हमने सर्वप्रथम समुदाय समूहों से पूछा कि, "गांवों में सामुदायिक विकास गतिविधियों के कार्यान्वयन की अवधि में इसकी निगरानी किसके द्वारा की गयी?" गौरतलब है कि 58.05 प्रतिशत (24) समुदाय समूहों ने बताया कि क्रियान्वयन की अवधि में सभी कार्यों की निगरानी ग्राम पंचायत तथा ग्रामीणों द्वारा की गयी थी। लगभग 34 प्रतिशत समूहों ने बताया कि मेजा ऊर्जा निगम द्वारा इसकी स्वयं निगरानी

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की गयी जबकि लगभग 22 प्रतिशत (9) समुदाय समूहों ने स्वीकार किया कि कार्यों की निगरानी ग्राम विकास सलाहकार समिति के प्रतिनिधियों द्वारा की गयी थी।

सामुदायिक विकास कार्यों के बेहतर कार्यान्वयन हेतु सुझाव

समुदाय समूहों से हमने भी एक प्रश्न किया कि, "गांवों में सामुदायिक विकास कार्यों का बेहतर कार्यान्वयन कैसे किया जा सकता है तथा कार्य की गुणवत्ता को कैसे बनाए रखा जा सकता था?" इस प्रश्न के उत्तर में समुदाय समूहों के बहुमत ने सुझाव दिया कि गांवों में सामुदायिक विकास गतिविधियों के कार्यान्वयन के लिए मेजा ऊर्जा निगम, ठेकेदार के बजाय ग्राम पंचायत तथा ग्रामीणों की भागीदारी सुनिश्चित की जानी चाहिए। इसे निम्न बाक्स 4.5 में दर्शाया गया है:

बाक्स 4.5: सामुदायिक विकास कार्यों के बेहतर कार्यान्वयन हेतु सुझाव

- कार्यान्वयन की अवधि में मेजा ऊर्जा निगम को गतिविधियों की निगरानी करनी चाहिए।
- ठेकेदार के बजाय ग्राम पंचायत द्वारा कार्यान्वयन करवाना चाहिए।
- ग्राम पंचायत के साथ–साथ ग्रामीणों से भी सहमति ली जानी चाहिए।
- मेजा ऊर्जा निगम को अपने मानदंडों के साथ समझौता नहीं करना चाहिए।
- जहॉ अनुसूचित जाति/अल्पसंख्यक बस्ती हो अथवा अपर्याप्त पानी हो, वहॉ हैण्डपम्प लगवाए जाऍं।
- बस्ती की आवश्यकता के आधार पर हैण्डपम्प लगवाए जाऍं।
- कार्य की निगरानी के लिए ग्रामीणों की भागीदारी सुनिश्चित की जाए।
- गांव की आवश्यकता के अनुसार गतिविधियों के कार्यान्वयन को महत्व दिया जाना चाहिए।

स्रोतः क्षेत्र सर्वेक्षण, गो0ब0पंत सा0वि0 संस्थान।

गतिविधियों के सम्बन्ध में विचार जो ग्रामीणों की समृद्धि तथा अपेक्षित योगदान को जन्म देगी

हमने समुदाय समूहों से यह भी प्रश्न पूछा कि, "आपके गांव की प्रगति एवं समृद्धि कैसे हो सकती है?" इस प्रश्न के उत्तर में ग्राम समुदाय समूहों ने कई गतिविधियों को क्रियान्वित करने का सुझाव दिया। उनके उत्तरों से पता चलता है कि अधिकतर गतिविधियॉ समुदायों की मूलभूत आवश्यकताओं से सम्बन्धित थीं। सुझाई गई इन गतिविधियों में नलकूपों एवं हैण्डपम्पों की स्थापना, विद्युत आपूर्ति, रोजगार के अवसरों में वृद्धि, स्कूलों की आवश्यकता इत्यादि शामिल थीं। प्रत्येक गांव के लिए सुझाई गई अन्य गतिविधियों को बाक्स 4.6 में दर्शाया गया है।

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बाक्स 4.6: गांवों की समृद्धि हेतु समुदाय समूहों द्वारा सुझाई गई गतिविधियॉ	
बिजौरा	**कोहड़ार**
चेक डैम का निर्माण	नहर का निर्माण/जीर्णोद्धार
नलकूपों की स्थापना	नलकूपों का निर्माण
अधिक हैण्डपम्पों की स्थापना	अधिक से अधिक हैण्डपम्पों की स्थापना
अधूरी पी0सी0सी0 सड़क निर्माण को पूर्ण करना	अधूरी पी0सी0सी0 सड़क निर्माण को पूर्ण करना
सामुदायिक भवन का निर्माण	इण्टरमीडिएट कालेज खोलना
सामुदायिक शौचालयों का निर्माण	सामुदायिक भवन का निर्माण
तालाबों का जीर्णोद्धार	रोजगार सुविधाओं में वृद्धि
कृषि सुविधाओं में वृद्धि करना	चेक डैम का निर्माण
इसौटा	**पताई डांडी**
लिफ्ट नहर का निर्माण	नलकूपों की स्थापना
नलकूपों की स्थापना	इण्टरमीडिएट कालेज खोलना
अधिक हैण्डपम्पों की स्थापना	अधिक हैण्डपम्पों की स्थापना
नाली निर्माण	नहर का निर्माण/जीर्णोद्धार
सौर ऊर्जा प्रदान करना	सामुदायिक स्वास्थ्य केन्द्र खोलना
सामुदायिक भवन का निर्माण	कृषि सुविधाओं में वृद्धि करना
मार्गों/सड़कों का निर्माण	रोजगार सुविधाओं में वृद्धि
मई खुर्द	**झड़ियाही**
चेक डैम का निर्माण	चेक डैम का निर्माण
नलकूपों की स्थापना	नलकूपों की स्थापना
अधिक हैण्डपम्पों की स्थापना	इण्टरमीडिएट कालेज खोलना
इण्टरमीडिएट कालेज खोलना	अच्छे अस्पताल खोलना
नाली निर्माण	मार्गों/सड़कों का निर्माण
सौर ऊर्जा प्रदान करना	सौर ऊर्जा प्रदान करना
मार्गों/सड़कों का निर्माण	रोजगार सुविधाओं में वृद्धि
विद्युत आपूर्ति में वृद्धि करना	स्वरोजगार में वृद्धि
नहर का निर्माण/जीर्णोद्धार	महिलाओं को सुविधाऍ देना
रोजगार सुविधाओं में वृद्धि	अधिक हैण्डपम्पों की स्थापना
	विद्युत आपूर्ति में वृद्धि
सलैया कला	**सलैया खुर्द**
नहर का निर्माण/जीर्णोद्धार	नहर का निर्माण/जीर्णोद्धार
नलकूपों की स्थापना	इण्टरमीडिएट कालेज खोलना
अधिक हैण्डपम्पों की स्थापना	अधिक हैण्डपम्पों की स्थापना
मार्गों/सड़कों का निर्माण	मार्गों/सड़कों का निर्माण
इण्टरमीडिएट कालेज खोलना	कान्वेन्ट स्कूल खोलना
कान्वेन्ट स्कूल खोलना	अच्छे अस्पताल खोलना
विद्युत आपूर्ति में वृद्धि	विद्युत आपूर्ति में वृद्धि
रोजगार सुविधाओं में वृद्धि	रोजगार सुविधाओं में वृद्धि

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परिवारों के पुनर्स्थापना की स्थिति, रहने की अवधि तथा पुराने निवास स्थल से औसत दूरी

मेजा ऊर्जा निगम हेतु किए गए भूमि अधिग्रहण के परिणामस्वरूप दो विस्थापित गांवों सलैया कला तथा मई खुर्द के परिवारों को मेजा ऊर्जा निगम द्वारा भूमि का आवंटन किया गया। हमने पाया कि इन दो गांवों में कुल प्रतिदर्श 69 परिवारों को जो भूमि आवंटित की गयी थी, उनमें शत–प्रतिशत अर्थात् 69 परिवार इस आवंटित भूमि पर रह रहे हैं। तथापि मेजा ऊर्जा निगम ने बताया कि पुनर्वास उद्देश्यों के लिए सभी विस्थापित परिवारों को भूमि आवंटित की गयी थी। यह भी पाया गया कि नया स्थल जहॉ वे बसाए गए थे, सामान्यतः उनके पुराने निवास स्थान से औसतन 3 किमी0 की दूरी पर स्थित था।

परिवारों द्वारा प्राप्त अनुदान धनराशि का विभिन्न प्रयोजनों में व्यय

हमने प्रभावित परिवारों से पूछा कि उन्होंने प्राप्त सहायता धनराशि का व्यय किन उद्देश्यों के लिए किया था? कुल परिवारों में से 36.2 प्रतिशत परिवारों ने प्राप्त धनराशि को आवासों के निर्माण एवं मरम्मत में खर्च किया, 23.1 प्रतिशत ने विवाह, 7.5 प्रतिशत ने भूमि के क्रय, 7.1 प्रतिशत ने प्राप्त धनराशि को इलाज के उपर व्यय किया तथा 6.8 प्रतिशत ने प्राप्त धनराशि को घरेलू जरूरतों को पूर्ण करने में व्यय किया। इस प्रकार समग्र तस्वीर से पता चलता है कि लगभग आधे परिवारों ने अपनी धनराशि को मूल घरेलू आवश्यकताओं या विलासिता के मदों में कुछ व्यय किया।

प्राप्त रोजगार के अवसर तथा उसकी सन्तुष्टि से लाभान्वित परिवार

प्रभावित परिवारों की एक महत्वपूर्ण आवश्यकता रोजगार के अवसरों को प्रदान करने की थी क्योंकि भूमि अधिग्रहण के कारण काफी परिवार बेरोजगार हो गए थे तथा बड़ी संख्या में परिवारों के समक्ष जीविकोपार्जन की समस्या उत्पन्न हो गयी थी। यद्यपि मेजा ऊर्जा निगम ने पुनर्वास कार्य योजना के माध्यम से अनेक कदम उठाए थे। प्रभावित परिवारों में जागरूकता के स्तर का आकलन करने के लिए उनसे पूछा गया कि, "क्या आपको मालूम है कि प्राथमिकता के आधार पर प्रभावित परिवारों को रोजगार के अवसर उपलब्ध कराने के लिए मेजा ऊर्जा निगम ने प्रयास किया है? यदि हॉ, तो मेजा ऊर्जा निगम के इस प्रयास से प्रभावित परिवारों को क्या लाभ मिला है?" इस प्रश्न के उत्तर में लगभग 20.4 प्रतिशत अर्थात् 49 परिवारों ने बताया कि मेजा ऊर्जा निगम द्वारा किए गए इस प्रकार के प्रयासों के प्रति वे सजग थे जबकि 79.6 प्रतिशत परिवार इसके प्रति सजग नहीं थे।

प्रभावित परिवारों हेतु चयनित गतिविधियों के निष्पादन की स्थिति

मेजा ऊर्जा निगम के पुनर्वास कार्य योजना के अन्तर्गत तैयार की गयी छः निष्पादित गतिविधियों का हमने परीक्षण किया। ये गतिविधियॉ थीं – (i) किसान प्रशिक्षण (ii) आठ ट्रेडों में आई0टी0आई0 का प्रशिक्षण (iii) पुनर्वासित परिवारों के लिए शौचालयों का निर्माण (iv) पौधों का वितरण (v) कम्बलों का वितरण तथा (vi) स्कूली बच्चों को स्कूल बैग तथा लेखन सामग्री का वितरण। लगभग 45.4 प्रतिशत परिवारों ने बताया कि गांवों में किसान प्रशिक्षण का निष्पादन किया गया जबकि 81.3 प्रतिशत ने बताया कि युवकों को आई0टी0आई0 का प्रशिक्षण प्रदान किया गया था। 31.7 प्रतिशत परिवारों ने बताया कि मेजा ऊर्जा निगम द्वारा परिवारों के लिए शौचालयों के निर्माण का निष्पादन किया गया। आंकड़े बताते हैं कि मुख्यतः सलैया कला तथा झड़ियाही गांवों के लिए शौचालयों का

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निर्माण किया गया। पौधों के वितरण, कम्बलों का वितरण तथा स्कूली बच्चों में स्कूल बैग एवं लेखन सामग्री के वितरण के मामले में क्रमशः 57.1 प्रतिशत, 41.3 प्रतिशत तथा 69.2 प्रतिशत परिवारों ने स्वीकार किया कि मेजा ऊर्जा निगम द्वारा इनका वितरण किया गया।

सामाजिक, आर्थिक एवं शैक्षिक क्षेत्रों में परिवर्तन

हमने प्रभावित परिवारों से पूछा कि, "मेजा ऊर्जा निगम द्वारा पुनर्वास एवं पुनर्स्थापना की अनेक गतिविधियों के निष्पादन के बाद आप सामाजिक, आर्थिक तथा शैक्षिक क्षेत्रों में कितना परिवर्तन महसूस करते हैं?" इस प्रश्न के उत्तर में लगभग 48 प्रतिशत परिवारों ने बताया कि उन्हें सामाजिक क्षेत्र में कोई परिवर्तन नहीं महसूस हुआ तथा 47.5 प्रतिशत ने शैक्षिक क्षेत्र तथा लगभग 48.3 प्रतिशत परिवारों ने आर्थिक क्षेत्र में कोई परिवर्तन महसूस नहीं किया। समग्र विश्लेषण से पता चलता है कि लगभग 52 प्रतिशत परिवार विभिन्न परिमापों पर सामाजिक क्षेत्र में परिवर्तन महसूस करते थे, 52.5 प्रतिशत शैक्षिक क्षेत्र में तथा 51.7 प्रतिशत विभिन्न परिमाणों पर आर्थिक क्षेत्र में परिवर्तन महसूस करते थे। समग्र विश्लेषण से पता चलता है कि प्रभावित परिवारों के सामाजिक–आर्थिक उन्नयन के लिए मेजा ऊर्जा निगम ने सजीव भूमिका का निर्वाह किया है।

सामुदायिक विकास कार्यक्रम के अन्तर्गत चयनित गांवों के सम्बन्ध में प्रभावित परिवारों का जागरूकता स्तर

58.8 प्रतिशत अर्थात् 141 प्रभावित परिवार मेजा ऊर्जा निगम द्वारा सामुदायिक विकास कार्यक्रम के अन्तर्गत उनके गांवों के चयन की जानकारी रखते थे तथा 41.3 प्रतिशत अर्थात् 99 परिवारों ने बताया कि उन्हें इस प्रकार की कोई जानकारी नहीं थी। ग्रामवार विवरण से पता चलता है कि सलैया खुर्द तथा बिजौरा गांवों में जागरूकता का स्तर क्रमशः 76 प्रतिशत तथा 65.4 प्रतिशत थी जबकि सबसे कम जागरूकता का स्तर इसौटा गांव में था।

परिवारों का जीवन स्तरः अधिग्रहण पूर्व एवं पश्चात की स्थिति

परिवार की कोटि एवं श्रेणी

परिवार बनावट की कोटि के अनुसार 240 प्रभावित परिवारों का विवरण दर्शाता है कि भूमि अधिग्रहण के पूर्व प्रभावित परिवारों में रहने वाले एकल परिवारों का प्रतिशत 47.5 से बढ़कर अधिग्रहण के बाद 57.9 प्रतिशत हो गया। यह परिवर्तन मई खुर्द गांव में विशेष रूप से रेखांकित की गयी जहॉ एकल परिवारों की संख्या 18 प्रतिशत बढ़ गयी, उसके बाद इसौटा गांव दूसरे स्थान (11.1 प्रतिशत) पर है।

व्यावसायिक परिवर्तन

भूमि अधिग्रहण से बहुत से परिवारों में व्यावसायिक परिवर्तन भी हुआ। आंकड़े बताते हैं कि ऐसे परिवार जिनका मुख्य व्यवसाय मजदूरी था, उनका अधिग्रहण के पूर्व अनुपात 6.3 प्रतिशत था जबकि अधिग्रहण के पश्चात ऐसे परिवारों का प्रतिशत बढ़कर 33.3 हो गया। दूसरी तरफ मुख्य व्यवसाय के रूप में नौकरी करने वाले परिवारों की संख्या 6.7 प्रतिशत से बढ़कर 11.7 प्रतिशत हो गयी तथा मुख्य व्यवसाय के रूप में कृषि क्षेत्र के मामले में 50 प्रतिशत से 37.9 प्रतिशत हो गयी। इस प्रकार भूमि अधिग्रहण के बाद की व्यावसायिक परिवर्तन संरचना से पता चलता है कि अधिग्रहण के पूर्व मुख्य रूप से कृषि व्यवसाय की

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निर्भरता वाले परिवारों का अधिग्रहण के बाद गैर–कृषि व्यवसाय पर निर्भरता बढ़ी है। दूसरी तरफ भूमि अधिग्रहण के पूर्व 22.9 प्रतिशत प्रभावित परिवारों के जीविकोपार्जन का मुख्य स्रोत पत्थर तोड़ाई का काम था, जो अधिग्रहण के बाद समाप्त हो गया।

प्रभावित परिवारों की आय एवं व्यय

भूमि अधिग्रहण के पश्चात 12,000 रू0 से उपर वाले प्रभावित परिवारों की आय में वृद्धि (23.8 प्रतिशत से 34.2 प्रतिशत) हुई है परन्तु इस श्रेणी की औसत आय 24,307 रू0 से बढ़कर 26,963 रू0 हो गयी। भूमि अधिग्रहण के बाद निम्नतम आय अर्थात 3,000 रू0 से कम आय समूहों की आय 7.9 प्रतिशत से घटकर 2.9 प्रतिशत हो गयी।

आधारभूत सुविधाओं की उपलब्धता

यद्यपि मेजा ऊर्जा निगम द्वारा पिछले पॉच वर्षों से सामुदायिक विकास की गतिविधियों का क्रियान्वयन किया जा रहा है, किन्तु कुछ मूलभूत सुविधाओं जैसे बिजली की उपलब्धता, पेयजल की सुविधा तथा आवासों में शौचालयों की उपलब्धता में कोई सार्थक परिवर्तन नहीं दिखायी दिया। अधिग्रहण के पश्चात मूलभूत सुविधाओं के उपयोग में सुधार का दृश्य दर्शाता है। झड़ियाही गांव में प्रभावित परिवारों के बिजली एवं पेयजल सुविधा में शत प्रतिशत सुधार हुआ। मुख्य परिवर्तन सलैया कला तथा झड़ियाही गांवों में पाया गया।

पेयजल के स्रोत

अधिग्रहण के पूर्व एवं पश्चात पेयजल के विभिन्न स्रोतों से पता चलता है कि कुंऍ के पानी का उपयोग दूसरे स्रोत में परिवर्तित हो गया (22.1 प्रतिशत से घटकर 7.5 प्रतिशत), सामान्य हैण्डपम्प का उपयोग 16.7 प्रतिशत से घटकर 10.8 प्रतिशत हो गया। अन्य स्रोतों में सुधार के कारण इण्डिया मार्क II हैण्डपम्प तथा नलों के उपयोग में 61.3 प्रतिशत से 81.7 प्रतिशत तक सार्थक रूप में वृद्धि हुई। यह प्रेक्षित किया गया कि सलैया कला नई बस्ती तथा झड़ियाही नई बस्ती जहॉ विस्थापित लोग रहते हैं, मेजा ऊर्जा निगम ने इन दो गांवों में निःशुल्क नल के पानी की सुविधा प्रदान किया है तथा नल के पानी के लिए विकसित किए गए अन्तर्संरचना को स्थानीय ग्राम पंचायत को स्थानान्तरित कर दिया था।

आवासों का प्रकार

प्रभावित परिवारों के आवासों के प्रकार के अनुसार विश्लेषण से पता चलता है कि भूमि अधिग्रहण के पूर्व 60.8 प्रतिशत परिवार कच्चे मकानों में रहते थे, लेकिन भूमि अधिग्रहण के पश्चात यह घटकर 29.2 प्रतिशत हो गया। दूसरी तरफ अधिग्रहण के पूर्व पक्के आवासों में रहने वाले परिवारों की संख्या 30.4 प्रतिशत से बढ़कर अधिग्रहण के बाद 55.8 प्रतिशत हो गयी। यह दर्शाता है कि कच्चे आवासों में रहने वाले परिवारों की संख्या में कमी आई है जबकि पक्के आवासों में रहने वाले परिवारों में वृद्धि हुई है। आवासीय मकानों के अधिक ठोस निर्माण के लिए दिखने वाला परिवर्तन हुआ है।

ईंधन का उपयोग

खाना बनाने के साधनों में परिवर्तन हुआ है, जहॉ पहले लोग धूआं देने वाले स्थानीय साधनों कण्डा तथा लकड़ी का उपयोग करते थे, वहीं अब रसोई गैस (एल0पी0जी0) का भी उपयोग करने लगे। मई खुर्द गांव में रसोई गैस का बिलकुल उपयोग नहीं होता था, जबकि समग्र रूप से 9.2 प्रतिशत परिवारों ने रसोई गैस का उपयोग करना प्रारम्भ कर दिया था।

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पशुधन

सभी गांवों में प्रभावित परिवारों के मध्य पशुधनों में परिवर्तन प्रत्यक्ष दिखाई देता है। आंकड़े बताते हैं कि भूमि अधिग्रहण के पश्चात गायों की संख्या 631 से घटकर 241 हो गयी, भैंसों की संख्या 352 से घटकर 178 हो गयी, बकरियों की संख्या 302 से घटकर 191 तथा बैलों की संख्या 201 से घटकर 83 हो गयी। इस तथ्य का सहज ही अनुमान लगाया जा सकता है कि भूमि अधिग्रहण के पश्चात पशुधन से होने वाली प्रभावित परिवारों की सहायक आय में कमी हो गयी।

प्रभावित तथा तटस्थ गांवों में लोगों की जीवन गुणवत्ता

प्रभावित गांवों के लोगों की जीवन गुणवत्ता का कुछ विकास सूचकों पर तटस्थ गांवों सिरहिर एवं जोरा से तुलना एवं विश्लेषण किया गया है। आंकड़ों से पता चलता है कि प्रभावित गांवों का औसत लिंगानुपात तटस्थ गांवों से अधिक था जबकि साक्षरता दर के मामले में प्रभावित गांवों का औसत तटस्थ गांवों से कम था। प्रभावित गांवों की औसत प्रति व्यक्ति आय 1977 रू0 थी जो तटस्थ गांवों की अपेक्षा अधिक थी। आंकड़े उद्घाटित करते हैं कि तटस्थ गांवों की अपेक्षा प्रभावित गांवों में औसत संयुक्त परिवारों की संख्या अधिक थी जबकि प्रभावित गांवों में गरीबी रेखा से नीचे रहने वाले परिवारों की संख्या अधिक थी। आंकड़े दर्शाते हैं कि प्रभावित गांवों में 37.9 प्रतिशत परिवारों का मुख्य व्यवसाय कृषि तथा 35.8 प्रतिशत परिवारों का मुख्य व्यवसाय दैनिक श्रम था जबकि तटस्थ गांवों में इसका प्रतिशत क्रमशः 38 एवं 50 था। आंकड़े दर्शाते हैं कि प्रभावित गांवों में परिवारों की औसत मासिक आय तटस्थ गांवों की तुलना में काफी अधिक थी। प्रभावित गांवों में औसतन 65 प्रतिशत परिवारों के पास बिजली की सुविधा, 70 प्रतिशत के पास पेयजल की सुविधा तथा 33.3 प्रतिशत परिवारों के आवासों में शौचालय की सुविधा थी, जबकि तटस्थ गांवों के मामले में केवल 42 प्रतिशत परिवारों के पास बिजली की सुविधा, 2 प्रतिशत परिवारों के पास पेयजल सुविधा तथा उनके आवासों में शौचालयों की कोई सुविधा नहीं थी। झड़ियाही एवं सलैया कला गांवों को छोड़कर दोनों प्रकार के गांवों में पेयजल के समान स्रोत थे। आंकड़े बताते हैं कि प्रभावित गांवों में औसतन 55.8 प्रतिशत परिवारों के पास पक्के आवास थे जबकि तटस्थ गांवों के सम्बन्ध में यह केवल 18 प्रतिशत था। इस प्रकार उपर्युक्त विश्लेषण से पता चलता है कि प्रभावित गांवों में साक्षरता दर, पारिवारिक संरचना (संयुक्त परिवार), मूलभूत सुविधाओं (पेयजल, बिजली तथा शौचालय) की उपलब्धता तथा आवासों की गुणवत्ता बेहतर है। तथापि यह संतोष की बात है कि मेजा ऊर्जा निगम द्वारा की गयी गतिविधियों के कारण प्रभावित गांवों में मूलभूत सुविधाएँ बेहतर स्थिति में थीं। यदि हम चाहते हैं कि भूमि अधिग्रहण कम पीड़ादायक हो तो रोजगार सृजन गतिविधियों तथा महिला उत्थान गतिविधियों पर अधिक से अधिक ध्यान देने की आवश्यकता होगी।

खण्ड – IV

अनुशंसाएँ/संस्तुतियॉ

पुनर्वास कार्य योजना के कार्यान्वयन की अवधि सभी अधिकार एवं सभी इकाईयों के वाणिज्यीकरण और घोषणा होने के बाद मेजा ऊर्जा निगम द्वारा नैगम सामाजिक उत्तरदायित्व–सामुदायिक विकास (CSR-CD) की गतिविधियों को प्रारम्भ किया जा सकता

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है। पुनर्वास कार्य योजना के अनुभवों को ध्यान में रखते हुए मेजा ऊर्जा निगम को नीचे दिए गए सुझावों का पालन करना चाहिए –

- किसी भी सामुदायिक विकास गतिविधियों के निष्पादन के पूर्व मेजा ऊर्जा निगम द्वारा कार्यक्रम के सफल कार्यान्वयन तथा प्रतिक्रिया के लिए लक्षित समूहों को उचित सूचना प्रसारित करनी चाहिए।

- प्रभावित समुदायों को उत्पादक कार्यों के माध्यम से नियमित स्थायी रोजगार, आधुनिक खेती की तकनीकों, परम्परागत कौशल में कौशल उन्नयन, महिलाओं के लिए आय सृजन गतिविधियों हेतु नए अवसर खोलना तथा प्रभावित परिवारों में शिक्षा की गुणवत्ता में सशक्त करने की आवश्यकता है।

- अध्ययन से पता चलता है कि प्रभावित क्षेत्रों में चेक डैम, लिफ्ट नहर तथा मौजूदा नहर के जीर्णोद्धार के माध्यम से स्थानीय समुदायों द्वारा सिंचाई सुविधाओं की अधिक मॉग की गयी। यह सुझाव दिया जाता है कि मेजा ऊर्जा निगम को मुख्यतः प्रभावित गांवों में सिंचाई सुविधाओं पर विशेष ध्यान देना चाहिए। इन कार्यों से प्रभावित परिवारों के कृषि उत्पादन को बढ़ाया जा सकता है तथा आर्थिक स्थिति में परिवर्तन किया जा सकता है।

- जैसा कि देखा गया कि स्थानीय विवाद तथा उपयुक्त स्थल के चयन के बहुत से सुझावों के कारण कुछ मूलभूत कार्यों का निष्पादन नहीं किया गया। यह सुझाव दिया जाता है कि मेजा ऊर्जा निगम को सम्पत्ति की अधिकतम उपयोगिता के लिए ढांचागत कार्यों के उचित और उपयुक्त स्थल को सुनिश्चत करना चाहिए। इस सम्बन्ध में मेजा ऊर्जा निगम ग्राम प्रधान, समुदाय प्रमुख तथा स्थानीय प्रशासन का समर्थन ले सकता है ताकि अधिकतम स्थानीय समुदायों के पक्ष में नैतिक निर्णय लिया जा सके।

- सामुदायिक विकास गतिविधियों तथा नैगम सामाजिक उत्तरदायित्व गतिविधियों के निर्माण में प्रभावित समुदायों की प्राथमिकताओं का पता लगाने की आवश्यकता है तथा मेजा ऊर्जा निगम को स्थानीय समुदायों की प्राथमिकताओं तथा आवश्यकताओं का सम्मान करना चाहिए।

- मेजा ऊर्जा निगम को कार्यों की प्रगति की निगरानी में स्थानीय लोगों की सहभागिता भी सुनिश्चित करनी चाहिए।

- प्रभावित परिवारों को अपने संसाधनों से उत्पादक सम्पत्ति खरीदने के लिए प्रोत्साहित तथा निर्देशित किया जाना चाहिए। इसके अतिरिक्त प्रभावित परिवारों के कौशल प्रशिक्षण तथा मौजूदा कौशल का उन्नयन करने पर अधिक जोर दिया जाना चाहिए। मेजा ऊर्जा निगम को एक इकाई का भी सृजन करना चाहिए, जिससे प्रभावित परिवारों को रोजगार पाने में सहायता की जा सके।

- आई0टी0आई0 के अलावा कुछ गैर–सरकारी संगठनों से भी सम्पर्क किया जा सकता है, जो कम शिक्षित युवाओं और महिलाओं को भी अल्पकालिक व्यावसायिक प्रशिक्षण प्रदान कर सके। मेजा ऊर्जा निगम दीनदयाल उपाध्याय ग्रामीण कौशल योजना के लिए शिक्षित युवकों को सुविधा प्रदान कर सकता है।

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ANNEXURE-12: EC dt 10.01.2011 and EC Amendments

BY SPEED POST

J-13012/03/2008-IA.II (T)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan
CGO Complex, Lodi Road
New Delhi-110 003
E-mail: plahujarai@yahoo.com
Tele/fax: 011-2436 3973
Dated: January 10th, 2011

To

M/s Meja Urja Nigam (P) Ltd.
5th Floor, Sangam Place, Civil Lines
Allahabad – 211 001

Sub: 2x660 MW Super-critical Technology Coal Based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam Villages, in Meja Taluk, in Allahbad Distt., in Uttar Pradesh – reg. Environmental Clearance.

Sir,

The undersigned is directed to refer to your letter no. 298/MUNPL/2010, and MUNPL/ENV/10-11/499 dated 30.03.2010 and 18.11.2010 respectively on the subject mentioned above.

2. The Ministry of Environment & Forests has examined the application. It has been noted that the proposal is for setting up of 2x660 MW Super-critical Technology Coal Based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam villages, in Meja Taluk, in Allahbad Distt., in Uttar Pradesh. The co-ordinates of the plant site are at Latitude 25°07' N to 25°10' N and Longitude 81°54' E to 81°58' E. It is noted that the above project is under the bulk tendering programme to augment the power equipment manufacturing capacity in the country through energy efficient super critical technology with the purpose to have built-in phased manufacturing programme. Coal required will be 7.34 MTPA, which will be obtained from South Eastern coal fields. Letter of assurance for supply of required coal from M/s South Eastern Coalfields Limited has been obtained vide their letter dated 13.12.2010. It is also noted that M/s SECL vide letter no. SECL/BSP/S&M/COMM/402/MEJA/2115 dated 30.12.2010 have informed that the coal will be supplied from the operating mines of South Eastern Coalfields Limited. Ash content in coal will be maximum 34% and Sulphur content 0.5 % (maximum). High Concentration Slurry Disposal system will be adopted for fly ash and wet slurry disposal system will be adopted for bottom ash. Quantity of Fly ash and bottom ash to be generated will be 6400 TPD and 1600 TPD respectively. Water requirement shall be restricted to 4000 cum/hr, and will be obtained from Ganga River through pipeline over a distance of 22 km. Water allocation has been obtained from the state govt. There are no national parks, wildlife sanctuaries, biosphere / tiger

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reserves, heritage sites etc. within 10 km of the plant boundary. R&R will be involved. Public hearing was conducted on 04.02.2009. Cost of the project will be Rs. 9276.90 Crores.

3. The project has been considered in accordance with the provisions of the EIA notification issued by the Ministry of Environment & Forests vide S.O. 1533 (E), dated September 14, 2006.

4. Based on the information submitted by you, as at Para 2 above and others, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA notification dated September 14, 2006, subject to the compliance of the following Specific and General conditions:

A. Specific Conditions:

(i) Primary survey of flora and fauna in the study area shall be carried out and report submitted to the Ministry within six months.

(ii) A wildlife conservation plan (especially with regard to Black Buck) shall be prepared in consultation with the Office of the Chief Wildlife concerned and reputed wildlife expert / institute and submitted to the ministry within six months along with a road map for implementation. The plan shall specify budget earmarked for activities to be undertaken. The conservation plan shall be implemented prior to the commissioning of the power plant and the status of implementation shall be submitted to the Regional Office of the Ministry from time to time.

(iii) Land requirement shall be restricted to 1100 acres (including ash pond).

(iv) Provision for installation of FGD shall be provided for future use.

(v) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.

(vi) Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5 % and 34 % respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to MOEF for suitable amendments to environmental clearance condition wherever necessary.

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(vii) Stack height of 275 m height shall be installed and provided with continuous online monitoring equipments for SO_x, NO_x and $PM_{2.5}$ & PM_{10}. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack may also monitored on periodic basis.

(viii) Existing de-generated water bodies (if any) in the study area shall be regenerated at the project proponent's expenses in consultation with the state govt.

(ix) Detailed hydro-geological study shall be conducted (including sustainability of water source study) by an institute of repute and report submitted to the Regional Office of the ministry. Further hydro-geological study shall be reviewed annually from an institute/ organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case and deterioration is observed specific mitigation measures shall be undertaken and reports/ data of water quality monitored regularly and maintained shall be submitted to the RO of the Ministry.

(x) Source of water for meeting the requirement during lean season shall be specified and submitted to the Regional Office of the Ministry within three months.

(xi) No ground water shall be extracted for use in operation of the power plant even in lean season.

(xii) No water bodies (including natural drainage system) in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.

(xiii) Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.

(xiv) COC of 5.0 shall be adopted. The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not do not get mixed. A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.

(xv) Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.

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(xvi) Utilisation of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.

(xvii) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As,Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.

(xviii) Ash pond shall be lined with HDP/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.

(xix) Disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.

(xx) Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 75 %.

(xxi) The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for potable drinking water supply in the near by villages and schools shall be undertaken in a time bound manner.

(xxii) Further an amount of Rs 37.10 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs 7.40 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six month along with road map for implementation.

(xxiii) While identifying CSR activities it shall be ensured that need based assessment for the nearby villages within study area shall be conducted to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people shall be undertaken. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company

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shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self employment and jobs shall be imparted to identified villagers free of cost.

(xxiv) It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time

B. General Conditions:

(i) A well designed rainwater harvesting shall be put in place before commissioning of the plant. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology/design within **a period of three months** from the date of this clearance and details shall be furnished.

(ii) Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.

(iii) Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.

(iv) Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg,Cr,As,Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.

(v) Monitoring surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.

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(vi) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.

(vii) Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.

(viii) Regular monitoring of ambient air ground level concentration of SO_2, NOx, $PM_{2.5}$ & PM_{10} and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.

(ix) Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

(x) The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in.

(xi) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

(xii) An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate seniority and qualification.

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It shall be ensured that the head of the Cell shall directly report to the head of the organization.

(xiii) The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM ($PM_{2.5}$ & PM_{10}), SO_2, NO_x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.

(xiv) The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.

(xv) The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.

(xvi) Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. Criteria pollutants levels including NO_x (from stack & ambient air) shall be displayed at the main gate of the power plant.

(xvii) Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.

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(xviii) The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.

(xix) Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.

5. The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.

6. The environmental clearance accorded shall be valid for a period of 5 years to start operations by the power plant.

7. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

8. In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.

9. The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.

Yours faithfully,

P. Ahujarai

(Dr. P.L. Ahujarai)
Director

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Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Secretary (Environment), Forests and Environment Department Government of Maharashtra.
3. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
4. The Chairman, Uttar Pradesh State Pollution Control Board, IIIrd Floor, PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow – 226 010.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 110032.
6. The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector-H, Aliganj, Lucknow – 226020.
7. The District Collector, Allahbad District, Govt. of Uttar Pradesh.
8. The Director (EI), MOEF.
9. Guard file / Monitoring file.

(Dr. P.L. Ahujarai)
Director

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J-13012/03/2008 -IA.II (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 21.07.2017.

To

The General Manager
M/s Meja Urja Nigam Pvt. Ltd.
P.O. Kohdar, Tehsil- Meja
Dist. Allahabad, Uttar Pradesh- 212301.

Sub: 2x660 MW Super Critical Technology Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mal Kalam Villages, Taluk Meja, Distt. Allahabad, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.- reg.- reg. amendment in Environmental Clearance.

Sir,

The undersigned is directed to refer to your online application dated 12.5.2017 and documents submitted online vide dated 3.6.2017 on the above mentioned subject.

2. It has been noted that Environmental Clearance for the above mentioned project has been issued vide Ministry's letter dated 10.1.2011. Coal requirement for the proposed project is 7.34 MTPA which will be transported through rail from SECL. It has been noted that you have requested an amendment in the Environmental Clearance w.r.t temporary permission for road transportation of 2 Lakhs MT of coal for a period of one year. It has been submitted that Unit-1 (1x660 MW) is in advance stage of completion. Trial run and commissioning activities are scheduled from July, 2017. To start the trial operations, synchronization and commissioning of the unit, it is proposed to bring 2 Lakh tonnes of coal from SECL to Naini Railway Yard on Allahabad-Mughalsarai section through Railways and from Naini railway yard to the project by road through trucks/dumpers/tippers.

3. Although, the project is in advanced stage of construction, commissioning of the railway siding of 26 km which is 26 km long track taking off from Meja road and Unchdih railway stations of North Central Railways upto plant premises has been delayed due to land acquisition. The work of railway siding is in full swing and is expected to be commissioned by March, 2018.

4. Two rakes per week will be required to be evacuated on an average through road transportation. A rake capacity is approximately 3480 Tonnes which will be transported through road in a single day. This will require total of 348 trucks per day (to and fro, with capacity of 20 Ton truck). However, transportation of coal through road will take place only for two days in a week.

5. Three routes have been proposed i.e. Route-1:52 km, Route-2: 50km and Route-3: 60 km. It was stated that the roads are black topped and mostly in good condition. The road width at Ghurpur is undergoing widening upto 19 m, after which the road will have sufficient capacity. Plantation along the road side consists of closely planted mature trees.

6. All the three routes are feasible for coal transportation, but with varying degree of Design Service Volume (DSV) and Maximum Capacity. As the routes are to be used for a period of 1 year till the railway siding is completed, there will be additional traffic due to coal transportation as well as natural growth of the existing traffic.

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7. The matter has been placed before the Re-constituted Expert Appraisal Committee (Thermal Power) in its 7th Meeting held on 28.6.2017. In acceptance of the recommendations of the re-constituted Expert Appraisal Committee (Thermal Power) held on 28.6.2017 and in view of the information/clarification furnished by you, with respect to the above mentioned power project, **the Ministry hereby grants permission for transportation of 2 Lakh Tons of coal by road for temporary period of one year or till the commissioning of railway siding whichever is earlier.**

8. Further, under Para no.4 of this Ministry's letters of even no. dated 10.1.2011, after condition no. (xxiv), the following conditions shall be added:

xxv. Air and water quality equipment shall be set up for periodic environment monitoring.

xxvi. Global Positioning System (GPS) to be installed on all the trucks carrying coal.

xxvii. MoEF&CC Notification S.O. 3305(E) dated 7.12.2015 and subsequent notifications issued time to time shall be implemented with respect to specific water consumption, zero liquid discharge and emission standards.

xxviii. Trucks shall be covered with tarpaulin and properly stamped to ensure that tarpaulin is properly tied with the help of rope and truck is fully covered so that there is no spillage of coal and/or emission of dust during transportation.

xxix. Water sprinkling to be carried through out the road for control of fugitive dust emissions.

xxx. Railway siding shall be constructed before the expiry of validity of EC i.e. before 9.1.2018.

xxxi. Treated sewage water shall be used if there are any Sewage Treatment Plants (STPs) located within 50 km distance from this project.

9. All other conditions mentoned in this Ministry's letters of even no. dated 10.1.2011 shall remain the same, as applicable.

This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerkatta)
Director

Copy to:-

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 110032.
4. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment Forests and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector 'H', Aliganj, Lucknow-226020.
5. The Chairman, Uttar Pradesh Pollution Control Board, IIIrd Floor, PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow- 226 010.
6. The Principal Secretary, Department of Environment, U.P., Room No. 601, Bapu Bhawan Secretariat, Vidhan Sabha Marg, Lucknow - 226001.
7. The District Collector, Allahabad District, Govt. of Uttar Pradesh, Uttar Pradesh.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.

(Dr. S. Kerkatta)
Director

//True Copy//

J-13012/03/2008 -IA.II (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 8.1.2018.

To

The General Manager
M/s Meja Urja Nigam Pvt. Ltd
P.O. Kohdar, Tehsil- Meja
Dist. Allahabad, Uttar Pradesh- 212301.

Sub: *2x660 MW Super Critical Technology Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mal Kalam Villages, Taluk Meja, Distt. Allahabad, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.- reg. extension of validity of Environmental Clearance.*

Sir,

The undersigned is directed to refer to your online application no ***IA/UP/THE/52631/2011*** dated 13.11.2017 on the above mentioned subject.

2 It has been noted that Environmental Clearance for the above mentioned project has been issued vide Ministry's letter dated 10.1.2011. It has also been noted that for a temporary permission for a period of one year for transportation of 2 Lakh Tons of coal by road or till the commissioning of railway siding whichever is earlier has been issued vide Ministry's letter dated 21.7.2017. It has been noted that the validity of EC was five years, i.e. till 9.1.2016. However, as per new EIA amendment notification dated 14.9.2016, the EC is valid for seven years. Accordingly, the validity of the said EC is assumed as seven years, i.e till 09.01.2018.

3. It has been noted you have requested for extension of validity of EC for further period of two years, i.e. till 9.1.2020. It has been informed by you that the project was scheduled to commission in August, 2016. However, the project could not be commissioned due to various reasons including that mainly related to acquisition of land and issues thereof etc. The project is in advance stage of completion and commissioning and Unit-I is expected in the first quarter of year 2018 and that for Unit-II in December, 2018. It has also been informed that the tenders for installation of FGD will be opened soon with regard to compliance of the revised emission norms dated 07.12.2015 and installation of FGD will atleast take three years

4. The proposal has been considered by the EAC (Thermal Power) in its 13th meeting held on 28.11.2017. In acceptance of the recommendations of the re constituted Expert Appraisal Committee (Thermal Power) held on 28.11.2017 and in view of the information/clarification furnished by you, with respect to the above mentioned power project, **the Ministry hereby extends the validity of EC dated 10.1.2011 for further period of one year, i.e. till 9.1.2019** subject to the following additional conditions.

i. Once the units will achieve COD, the revised emission standards as per the Ministry's Notification dated 7.12.2015 and subsequent amendments notified from time to time shall be complied. In case, plant is ready for commissioning and not meeting revised emission norms, operations shall be stopped.

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5. All other conditions mentioned in this Ministry's letters of even no. dated 10.1.2011 and 21.7.2017 shall remain the same, as applicable.

This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerketta)
Director

Copy to:-

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 110032.
4. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment Forests and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector 'H', Aliganj, Lucknow-226020.
5. The Chairman, Uttar Pradesh Pollution Control Board, IIIrd Floor, PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow- 226 010.
6. The Principal Secretary, Department of Environment, U.P., Room No. 601, Bapu Bhawan Secretariat, Vidhan Sabha Marg, Lucknow - 226001.
7. The District Collector, Allahabad District, Govt. of Uttar Pradesh, Uttar Pradesh.
8. Guard file/Monitoring file
9. Website of MoEF&CC.

(Dr. S. Kerketta)
Director

//True Copy//

J-13012/03/2008 -IA.II (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 28.03.2019.

To

The General Manager
M/s Meja Urja Nigam Pvt. Ltd.
P.O. Kohdar, Tehsil- Meja
Dist. Allahabad, Uttar Pradesh- 212301.

Sub: 2x660 MW Super Critical Technology Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam Villages, Taluk Meja, Distt. Allahabad, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.- reg. temporary permission for transportation of coal by road and extension of validity of Environmental Clearance.

Sir,

The undersigned is directed to refer to your online application No. **IA/UP/THE/52631/2011** dated 23.07.2018 & 06.11.2018, Ministry's vide letters 28.6.2018 & 24.9.2018 and documents submitted vide your letters dated 3.7.2018 and 5.12.2018 on the above mentioned subject.

2. It has been noted that the Environmental Clearance for 2x660 MW Super Critical Power Project has been issued vide Ministry's letter dated 10.01.2011 which was valid for five years, i.e. till 09.01.2016. Coal requirement for the proposed project is 7.34 MTPA. The Ministry's vide Notifications dated 25.4.2015 and 14.9.2016 changed the validity of EC to seven years instead of five years. Further, the Ministry's Circular dated 25.4.2016 clarified that those ECs which were valid on the date of publication of the notification (dated 25.4.2015), the validity automatically gets extended to seven years. In the present case, the said EC was valid on the date of publication of the Notification dated 25.4.2015. Accordingly, the above mentioned EC is also valid for seven years, i.e. till 9.1.2018. This Ministry has further extended the EC dated 10.1.2011 for further period of 1 year, i.e. till 9.1.2019 vide letter dated 8.1.2018.

3. It has also been noted that the temporary permission for a period of one year for transportation of 2 Lakh Tons per Annum of coal by road or till the commissioning of railway siding whichever is earlier has been issued vide Ministry's letter dated 21.07.2017 which was valid till 20.7.2018.

4. It has been noted that you have requested for extending the validity of EC for one more year and also for extending temporary permission for transportation of coal with quantity of 10 Lakh Metric Tons (3,000 TPD considering 330 days) by road for one year up to 20.07.2019.

5. It has been informed by you that Unit-1 (1x660 MW) was commissioned on 31.3.2018. Full load trial operations of Unit-1 was successfully completed on 16.10.2018. For Unit-2 (1x660 MW), the project is in advanced stage of completion and will be commissioned in August, 2019.

6. It has been noted that the coal requirement is to be met from South Eastern Coalfields Ltd. (SECL). Although the project is in advanced stage of construction, commissioning of Railway siding of the project has been delayed due to land acquisition. The railway siding of 26 km long track from Meja & Unchdih Railway stations of North Central Railways up to plant premises which is under

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construction. Construction work of Railway siding is in full swing and the same is expected to be commissioned by March, 2019.

7. To operate the Unit-1 (1x660 MW), it is proposed to bring coal from SECL to Naini Railway yard and Iradatganj Railway station Allahabad- Mughal Sarai section through railways and from Naini yard and Iradatganj Railway station to Meja Power Project by road through trucks/tippers/dumpers to augment the supplies.

8. It has been noted that you have proposed the following routes for transporting coal of 5,220 MT/Day by road to the plant site:

Route No.	Via	Length	Width of the road	Type of road	No. of Trucks
From Naini Railway Yard to Meja TPP (3480 MT/day)					
Route-1	Naini-Ghurpur-Karchana-Kohdar	52.1 km	5.5-9 m	25 km: NH30 & 27.1 km: PWD road	348 trips
Route-2	Naini-Rampur-Karchana-Kohdar	50.4 km	5.5-24.33 m	19km: NH30 & 31.4 km: PWD Road	
Route-3	Naini-Rampur-Meja Road-Kohdar Road	59.7 km	5.0-24.3 m	34 km: NH35 & 25.7 km: PWD Road	
From Iradatganj Railway siding to Meja TPP (1740 MT/day)					
Route-4	Ghurpur-Karchana-Kohdar	41.1 km	5.5-20.3 m	4 km: NH30 & 37.1 km: PWD road	174 trips
Total trips and quantity of coal				5,220 MT/Day	522 Trips (To and Fro)

9. The traffic impact assessment report has been submitted. The details percentage of widths of the road network are provided as below:

Route No.	Length	Percentage of the stretch in the proposed route			
		Single Lane (<5.5 m)	Intermediate Lane (≥5.5 m)	Two lane (> 7 m)	Multi-lane (≥10 m)
Route-1 (Naini-Ghurpur-Karchana-Kohdar)	52.1 km	-	63.5%	16%	20.5%
Route-2 (Naini-Rampur-Karchana-Kohdar)	50.4 km	-	47%	24.9%	28.2%
Route-3 (Naini-Rampur-Meja Road-Kohdar Road)	59.7 km	0.8%	7.5%	54.8%	36.8%
Route-4 (Ghurpur-Karchana-Kohdar)	41.1 km	-	80.7%	9.8%	9.5%

10. The concentrations of SO_2 and NO_2 are low as compared to the NAAQS permissible limit for residential, rural and other areas. The concentrations of PM_{10}

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and $PM_{2.5}$ (98 percentile) are within the National Ambient Air Quality Standards except at Project site, Rampur and Naini areas.

11. The ambient noise levels monitored at Project site and Ghurpur which are within the prescribed standards for industrial and residential category. While at four other locations i.e. near India Hotel in Naini, Kohdar, Rampur and Badhava village, the noise level was found beyond the limits. The existing noise levels in Naini and Badhava village is already exceeding the prescribed limits. The contribution to the existing noise level in the area due to proposed movement of additional trucks will be of very small value. There are about 48 villages lying within 100 m on both sides of the road, along its entire length (Route Nos. 1, 2 and 3).

12. Based on the site visit report of the sub-committee dated 20.5.2018, Ministry has sought the action plan for observations made during the site visit. The action plan has been submitted vide your letters dated 3.7.2018 and 5.12.2018.

13. The matter has been placed before the Re-constituted Expert Appraisal Committee (Thermal Power) in its 20th and 23rd meetings held on 30.8.2017 and 30.11.2018. In acceptance of the recommendations of the re-constituted Expert Appraisal Committee (Thermal Power) held on 30.8.2017 and 30.11.2018 and in view of the information/clarification furnished by you, with respect to the above mentioned power project, **the Ministry hereby extends the temporary permission for transportation of 5,220 MT/Day coal by road for temporary period of** till 31.03.2019 w.e.f. 21.07.2018 and extends the validity of EC dated 10.01.2011 for further period of six months, i.e. till 09.07.2019 w.e.f. 10.1.2019 subject to following additional conditions:

i. Regular sweeping and water sprinkling is to be carried out by the Project Proponent. The cost of these activities shall be borne by the Project Proponent.
ii. Ambient Air Quality and Noise monitoring at Project Site, Rampur and Naini Villages is to be carried out once in a month to assess the incremental impacts due to transportation, if any.
iii. The trucks used for transportation of coal shall be in compliance with the latest vehicular emission norms.

14. All other conditions mentioned in this Ministry's letters of even nos. dated 10.1.2011, 21.7.2017 and 8.1.2018 shall remain the same, as applicable.

This issues with the approval of the Competent Authority.

Yours faithfully,

S Kerketta

(Dr. S. Kerketta)
Director, IA.I

Copy to:-

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 110032.
4. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment Forests and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector 'H', Aliganj, Lucknow-226020.

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5. The Chairman, Uttar Pradesh Pollution Control Board, IIIrd Floor, PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow- 226 010.
6. The Principal Secretary, Department of Environment, U.P., Room No. 601, Bapu Bhawan Secretariat, Vidhan Sabha Marg, Lucknow - 226001.
7. The District Collector, Allahabad District, Govt. of Uttar Pradesh, Uttar Pradesh.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.

(Dr. S. Kerketta)
Director, IA.I

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J-13012/03/2008 -IA.II (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 08.08.2019.

To

The General Manager
M/s Meja Urja Nigam Pvt. Ltd.
P.O. Kohdar, Tehsil- Meja
Dist. Allahabad, Uttar Pradesh- 212301.

Sub: 2x660 MW Super Critical Technology Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam Villages, Taluk Meja, Distt. Allahabad, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.- reg. extension of validity and amendment of Environmental Clearance

Sir,

The undersigned is directed to refer to your online application No. **IA/UP/THE/104912/2019** dated 9.5.2019 & **IA/UP/THE/107454/2019 dated 7.6.2019** on the above mentioned subject.

2. It has been noted that the Environmental Clearance for 2x660 MW Super Critical Power Project has been issued vide Ministry's letter dated 10.1.2011 which was valid for five years, i.e. till 09.01.2016. Coal requirement for the proposed project is 7.34 MTPA. The Ministry's vide Notifications dated 25.4.2015 and 14.9.2016 changed the validity of EC to seven years instead of five years. Further, the Ministry's Circular dated 25.4.2016 clarified that those ECs which were valid on the date of publication of the notification (dated 25.4.2015), the validity automatically gets extended to seven years. In the present case, the said EC was valid on the date of publication of the Notification dated 25.4.2015. Accordingly, the above mentioned EC is also valid for seven years, i.e. till 9.1.2018. This Ministry has further extended the EC dated 10.1.2011 for further period of 1 year, i.e. till 9.1.2019 vide letter dated 8.1.2018.

3. It has also been noted that the temporary permission for a period of one year for transportation of 2 Lakh Tons per Annum of coal by road or till the commissioning of railway siding whichever is earlier has been issued vide Ministry's letter dated 21.7.2017 which was valid till 20.7.2018.

4. It has been noted that temporary permission for transportation of coal (5,220 MT/Day) by road w.e.f. 21.7.2018 till 31.3.2019 and the extension of validity of EC for further six months, w.e.f. 10.1.2019 till 9.7.2019 has been accorded vide Ministry's letter dated 28.3.2019.

5. It has been noted that you now requested for extension of validity of EC for further period of one year and amendments in the EC conditions w.r.t. online monitoring of flue gas parameters and CSR conditions.

6. It has been noted that the unit-1 (660 MW) has been commissioned on 31.3.2018 and full load operations were successfully completed on 16.10.2018. The COD of Unit-1 has been declared on 30.4.2019. The Unit-2 (660 MW) is expected to be commissioned by March, 2020. The delay in implementation is due to delay in land acquisition for railway siding work, delay in supplies of Engineering equipment and materials due to merger of M/s Hitachi and M/s Mitsubishi Heavy Industries, termination of contracts with three agencies due to poor performance, financial crisis, insolvency and bankruptcy, etc.

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7. It has been noted that w.r.t Status of Unit-2 (660 MW), Boiler Hydro Test was completed in October, 2018, TG Box up has been don, TG oil flushing is in progress and boiler light up is expected in October, 2019. Total expenditure of the project incurred till dated is Rs.9,533 Crores out of total revised project cost of Rs.12,176 Crores.

8. Further, the specific conditions w.r.t online flue gas monitoring and CSR activities in the Environmental Clearance have been stipulated as below:

a. *"Condition No.vii.: Bi-flue stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with continuous online monitoring equipment for SOX, NOX and PM2.5 and PM10".*

b. *"Condition No.xxii:* An amount of Rs. 37.10 Crores shall be earmarked as one time capital cost of CSR programme as committed by the project proponent. Subsequently, a recurring expenditure of rs.7.40 Crores per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities".

9. It has been informed that online monitoring instruments are not available for monitoring stack emissions for PM2.5 and PM10 separately. There are instruments available only for measuring Particulate Matter as a whole. The same has also been confirmed by the CPCB vide their letter dated 14.06.2019. It has been informed that the provision of one time expenditure on CSR activities may be re-aligned with the provisions under OM dated 1.5.2018 regarding Corporate Environment Responsibility. It has been requested that the provision for recurring expenditure of Rs.7.40 Crores per annum till the life of the plant may be waived off, as the Companies Act already takes care of CSR activities during operation phase.

10. The proposal for extension of validity of EC and the proposal for amendment in EC conditions have placed before the Re-constituted Expert Appraisal Committee (Thermal Power) in its 29th and 30th meetings held on 28.5.2019 and 26.6.2019. In acceptance of the recommendations of the re-constituted Expert Appraisal Committee (Thermal Power) held on 28.5.2019 and 26.6.2019 and in view of the information/clarification furnished by you, with respect to the above mentioned power project, **the Ministry hereby extends the validity of EC dated 10.1.2011 for further period of one year, w.e.f. 10.7.2019 till 9.7.2020 (total 9 and ½ years) and grants the following amendments in the Environmental Clearance along with the additional conditions**:

i. The extension of Environmental Clearance is only for continuing the construction activities of the Unit-2. However, the operations of both untis shall be started only when new pollution control equipment is installed and made ready to meet the revised emission norms issued vide dated 7.12.2015. Otherwise, an extension from the CPCB shall be obtained and submitted to the Ministry.

ii. The average weekly emissions of flue gas for PM, SO2 and NOX shall be submitted as a part of the compliance report. Further, the Mercury emission data shall also be submitted.

iii. The progress of the installation of FGD, De-NOx systems along with the financial expenditure shall be submitted along with six monthly compliance report.

iv. Specific Condition No. (xii): Bi-flue stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with continuous online monitoring equipment for SO_x, NO_x and PM.

v. While commissioning the proposed unit, the compliance of revised emission norms issued vide Notification dated 07.12.205 shall be achieved along with specific water consumption as per the notification dated 28.06.2018. The FGD System and NO_x control measures such as SCR/SCNR/De-NO_x burners shall be installed to achieve the revised emission norms.

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vi. As per the Revised Tariff Policy notified by Ministry of Power vide dated 28.01.2016, project proponent shall explore the use of treated sewage water from the Sewage Treatment Plant of Municipality/ local bodies/ similar organization located within 50 km radius of the proposed power project to minimize the water drawl from surface water bodies. The details of Sewage Treatment Plants located within 50 km radius along with the capacities shall be submitted.

vii. With respect to the Capital Expenditure on CER/CSR activities as one time amount should be in-line with the Ministry's Circular dated 1.5.2018 or the amount stipulated in the EC, whichever is higher. Project Proponent has to submit the revised/latest project cost, calculate the one time CER expenditure based on revised project cost, compare with the amount stipulated in the EC and adopt the highest amount. The details in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.

viii. With respect to the recurring CSR expenditure, any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring amount shall be in-line with Section 135 of Companies Act, 2013 which states that company shall spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.

ix. The details of average net profit made during the last three years to be submitted including the amount earmarked for CSR activities (at least 2%) from this project and the details of various activities undertaken along with expenditure, extent of villages covered, benefited population, the proximity to the project area, etc. as a part of EC compliance report (October-March on 1st June and April-September on 1st December) to the Ministry and its Regional Office.

11. All other conditions mentioned in this Ministry's letters of even nos. dated 10.1.2011, 21.7.2017, 8.1.2018 and 28.3.2019 shall remain the same, as applicable.

This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerketta)
Director, IA.I

Copy to:-

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 110032.
4. The Deputy Director General of Forests (C), Ministry of Environment Forests and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector 'H', Aliganj, Lucknow-226020.
5. The Chairman, Uttar Pradesh Pollution Control Board, IIIrd Floor, PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow- 226 010.

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6. The Principal Secretary, Department of Environment, U.P., Room No. 601, 3rd Floor, Bhawan Secretariat, Vidhan Sabha Marg, Lucknow - 226001.
7. The District Collector, Allahabad District, Govt. of Uttar Pradesh, Dwarika Puri, Old Katra, Prayagraj, Uttar Pradesh 211002.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.

Director, IA.I

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F.No. J-13012/03/2008-IA II (T)
Government of India
Ministry of Environment, Forest and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 25.09.2020

To

The General Manager
M/s Meja Urja Nigam Pvt. Ltd.
P.O. Kohdar, Tehsil-Meja
Dist. Allahabad, Uttar Pradesh-212301.

Sub: 2x660 MW Super Critical Technology Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam Villages, Taluk Meja, Distt. Allahabad, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.- reg. extension of validity EC.

Sir,

The undersigned is directed to refer to your online application no. **IA/UP/THE/156096/2020** dated 5.6.2020 to extend the validity of EC dated 10.1.2011 for a period of six months (till 9.1.2021).

2. It has been noted that the Environmental Clearance for 2x660 MW Meja Thermal Power Project was issued on 10.1.2011 which was valid for a period of 7 years (9.1.2018). The Ministry vide letter dated 8.1.2018 extended the EC validity for one year (w.e.f. 10.1.2018 till 9.1.2019). Further, Ministry vide letter dated 28.3.2019 extended the EC validity for six months (w.e.f. 10.1.2019 till 9.7.2019). Further, Ministry vide letter dated 8.8.2019 extended the EC validity for a period of one year (w.e.f. 10.7.2019 till 9.7.2020). Thus, the Environmental Clearance has completed the validity of nine and half years.

3. As per the Ministry's EIA Amendment Notification dated 14.9.2016, the EC for Thermal Power Projects is valid for a period 7 years and is extendable to maximum period of 3 years based on the EAC recommendations. Thus the outerlimit of the EC validity is 10 years in case of Thermal Power Plants.

4. It has been informed that Unit-1 (1x660 MW) was declared for commercial operation on 30th April, 2019. Further, synchronization of Unit-2 (1x660 MW) was done on 18.03.2020. However, erection and commissioning activities have been stopped due to COVID-19 lockdown. It has been informed that work has recently been resumed with limited manpower & Unit#2 is expected to be commissioned by October, 2020.

5. The proposal was appraised by Re-constituted EAC (Thermal) in its meeting held on 23.6.2020. In acceptance of the recommendations of the Re-constituted EAC (Thermal Power) in its meeting held on 23.6.2020 and in view of the information, clarifications, documents submitted by you, **the Ministry hereby extends the**

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validity of the Environmental Clearance dated 11.1.2011 for further period of six months, i.e. w.e.f. 10.7.2020 till 9.1.2021.

6. All other conditions mentioned in this Ministry's letter of even no. dated 10.1.2011, 21.7.2017, 8.1.2018, 28.3.2019 and 8.8.2019 shall remain the same, as applicable.

This issues with the approval of the Competent Authority.

Yours faithfully

(Dr. S. Kerketta)
Director, IA.I

Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. The Deputy Director General of Forests (C), Ministry of Environment, Forests and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector "H", Aliganj, Lucknow – 226020.
5. The Principal Secretary, Department of Environment, Principal Secretary, Forest Department, Government of Uttar Pradesh, Bapu Bhawan, Sachivalaya, Lucknow-226001.
6. The Chairman, Uttar Pradesh State Pollution Control Board, Building.No. TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226 010.
7. The District Magistrate, Government of Uttar Pradesh, District Allahabad, Dwarika Puri, Old Katra, Prayagraj, Uttar Pradesh 211002.
8. Guard file/ Monitoring File.
9. Website of MoEF&CC

Director, IA.I

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ANNEXURE-13 Consent to Establishment (CTE-NOC) for Stage-I

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To M.C. Srivastava (I.P.)

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड

'पिकप भवन' तृतीय तल, बी–ब्लाक, विभूति खण्ड,
गोमती नगर, लखनऊ

संदर्भ संख्या F92464 /सी-1/ एच ओ/सी0- 15/ 11 दिनांक 19-9-11

सेवा में,

मै0 मेजा उर्जा उत्पादन निगम प्रा0लि0,
कोहार, मेजा,
इलाहाबाद।

विषय : पर्यावरणीय प्रदूषण की दृष्टि से /नई इकाई की स्थापना हेतु/~~कार्यरत इकाई की स्थापना/आदि में~~
विस्तार /संयंत्र के नवीनीकरण हेतु अनापत्ति प्रमाण पत्र निर्गमन का [प्रदूषण निवारण तथा नियंत्रण] अधिनियम- 1974 की धारा 25 व वायु [प्रदूषण निवारण तथा नियंत्रण] अधिनियम- 1981 की धारा- 21 के अन्तर्गत स्थापनार्थ सहमति।

महोदय,

कृपया उपरोक्त विषयक अपने आवेदन पत्र दिनांक 24.11.2008 का संदर्भ लें। आपके आवेदन पर विचार किया गया है तथा कृपया अवगत हो कि उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तों एवं सामान्य शर्तों (संलग्नक) के समुचित अनुपालन के साथ सशर्त अनापत्ति स्वीकृत की जाती है।

1. अनापत्ति प्रमाण–पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है :–

(क) स्थल ग्राम कोहार, मई खुर्द, पटाई डीह, तहसील मेजा जनपद- इलाहाबाद प्रस्तावित स्थल 25° 09 10" उत्तर अक्षांश तथा 81° 56 50" पूर्व देशांतर पर इलाहाबाद- मिर्जापुर राजकीय से बीरा को सम्पर्क करने वाले सड़क पर गोलारा स्थान से लगभग 2 किमी पर [पूर्व दिशा में लगभग 2500 मीटर]

(ख) उत्पादन 2 × 660 मेगावाट ताप विद्युत उत्पादन

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(ग) मुख्य कच्चे माल : 5340 किलो/ दिन
22020 का प्रतिशत कोयला

(घ) औद्योगिक उत्प्रवाह की मात्रा : 5040 किलो/ दिन

(ङ) प्रयुक्त ईंधन : कोयला 7.34 मिलियन टन प्रतिवर्ष [90 प्रतिशत पी०एफ०सी० एवं शेष
कैलोफिक वेल्यू 3400 किलो कैलोरी]

उपर्युक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः अनापत्ति प्रमाण–पत्र प्राप्त करना आवश्यक होगा।

2. उद्योग में सभी आवश्यक यंत्र, संयंत्र, हरित पट्टिका, उत्प्रवाह शुद्धिकरण संयंत्र तथा वायु प्रदूषण नियंत्रण व्यवस्था की स्थापना में की गयी प्रगति रिपोर्ट इस कार्यालय में प्रत्येक माह की दसवीं तारीख तक निरंतर प्रेषित करें।

3. उद्योग इकाई में परीक्षण उत्पादन तब तक प्रारम्भ नहीं करें जब तक कि वह बोर्ड से जल एवं वायु अधिनियमों के अन्तर्गत सहमति प्राप्त न कर लें। जल एवं वायु सहमति प्राप्त करने हेतु इकाई ने उत्पादन प्रारम्भ करने की तिथि से कम से कम 2 माह पहले निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्य ही जमा कर दिया जाए। यदि उद्योग उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्रावधानों के अन्तर्गत उद्योग के विरूद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।

4. उद्योग में परीक्षण उत्पादन के पूर्व हमारे क्षेत्रीय कार्यालय द्वारा इकाई का निरीक्षण सुनियोजित किया जाए।

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To M/s. Shivashakti (F.S.)

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प्रस्तुत उत्प्रवाह, जिसकी मात्रा .....3600 किलोलीटर/दिन ..... से अधिक नहीं होगी। सेप्टिक टैंक एवं सोक पिट से माध्यम से बोर्ड द्वारा निर्धारित मानकों के अनुरूप शुद्धिकृत कर निस्तारित किया जाए।

6 प्रदूषण नियन्त्रण हेतु प्रस्तावित शुद्धिकरण संयंत्र तथा निर्माण कार्य आपूर्ति के लिये दिये गए आदेश की प्रति इस कार्यालय में दिनांक ...10.10.2011..... तक अवश्य प्रस्तुत की जाए।

7. उद्योग का निर्माण जो प्रकार से किया जाये जिसे उत्पादित गैस/ पार्टिकुलेट/ उत्प्रवाह का निस्तारण बोर्ड मानकों के अनुरूप होगा।

8. उद्योग अनापत्ति प्रमाण पत्र दें भारत सरकार से प्राप्त पर्यावरणीय स्वीकृति की शर्तों का अनुपालन करेगा तथा अनुपालन आख्या बोर्ड में प्रेषित की जायेगी।

9. उद्योग में फ्लारे रेत का प्रबन्ध जो प्रकार से किया जायेगा जिससे कि आस-पास के पर्यावरण पर कोई प्रतिकूल प्रभाव न पड़े।

10. उद्योग द्वारा पर्याप्त अग्नि सावधानि निरन्तरमोनिटरिंग तथा अग्निशमन प्रोटेक्शन (अग्निशमन उपकरणों) का पूर्ण प्रबन्ध सुनिश्चित किया जाये।

11. उत्प्रवाह मुहिकरण केन्द्र पर फ्लो से मिक्सिंग मीटर व ऑनलाइन मेजरमेन्ट की स्थापना की जाये।

उपरोक्त शर्तों/निर्देशों में क्र0 सं0 7 से 11 का समय अनुपालन न करने की दशा में आप द्वारा बोर्ड में जमा धरोहर राशि रु0 10,00000/-(रु0 दस लाख मात्र) को जब्त कर ली जायेगी, जिसका उत्तरदायित्व आपका स्वयं का होगा।

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कृपया ध्यान दें कि उपर्युक्त लिखित विशिष्ट शर्तों एवं सामान्य शर्तों का प्रभावी एवं संतोषजनक अनुपालन न करने पर बोर्ड द्वारा निर्गत अनापत्ति प्रमाण–पत्र निरस्त कर दिया जाएगा। बोर्ड का अधिकार सुरक्षित है कि अनापत्ति की शर्तों में संशोधन किया जाय अथवा निरस्त कर दिया जाय। उपर्युक्त विशिष्ट एवं सामान्य शर्तों के सम्बन्ध में उद्योग द्वारा इस कार्यालय में दिनांक 10.10.2011 तक प्रथम अनुपालन आख्या अवश्य प्रेषित की जाए। अनुपालन आख्या नियमित प्रेषित की जाए अन्यथा अनापत्ति निरस्त कर दी जाएगी।

भवदीय

सदस्य सचिव

पृष्ठांकन सं. /एन. ओ. सी. तद दिनांक

प्रतिलिपि :

1. महाप्रबन्धक, जिला उद्योग केन्द्र : [illegible]

2. उपकर अधिकारी, उ. प्र. प्रदूषण नियंत्रण बोर्ड, लखनऊ।

3. क्षेत्रीय अधिकारी, उ. प्र. प्रदूषण नियंत्रण बोर्ड : [illegible]

4.

मुख्य पर्यावरण अधिकारी

(सर्किल- 9)

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ANNEXURE-14 Consent to Operate (CTO) STG-I

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Uttar Pradesh Pollution Control Board

Building. No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010

Phone:0522-2720828,2720831, Fax:0522-2720764, Email: info@uppcb.in, Website: www.uppcb.com

Category : RED **Application Id : 28760846**

224743/UPPCB/Allahabad(UPPCBRO)/CTO/both/PRAYAGRAJ/2024 **Date: 31/12/2024**

To,

M/s

MEJA URJA NIGAM PRIVATE LIMITED

MUNPL, KOHDAR, MEJA, PRAYAGRAJ

Consolidated Consent to Operate and Authorisation hereinafter referred to as the CCA (Consolidated Consent & authorization) (Fresh) under Section-25 of the Water (Prevention & Control of Pollution) Act, 1974 and under Section-21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule-6(2) of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 notified under Environment (Protection) Act, 1986 as applicable (to be referred hereinafter as Water Act, Air Act and HW Rules respectively).

CCA is hereby granted to **MEJA URJA NIGAM PRIVATE LIMITED** located at **MUNPL, KOHDAR, MEJA, PRAYAGRAJ**. subject to the provisions of **the Water Act, Air Act and Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** and the orders that may be made further and subject to following terms and conditions :-

1. This CCA MEJA URJA NIGAM PRIVATE LIMITED **granted for the period from 01/01/2025 to 31/12/2026** and valid for manufacturing of following products.

S No	Product	Quantity	Unit
1	Electricity (2x660 MW)	1320	Megawatt

2. Conditions under Water(Prevention and Control of Pollution) Act -1974 as amended :-

(i) The daily quantity of effluent discharge (KLD) :-

Kind of Effluent	Quantity(KLD)	Treatment facility	Discharge point
Domestic	**2200 KLD treated effluent shall be used for irrigation, water sprinkling for dust suppression.**	**STP**	**Irrigation and water sprinkling**
Industrial	**5040 Cubic meter/day treated effluent shall be reused in the process, sprinkling in coal handling plant for dust suppression and irrigation within teh plant premises**	**ETP**	**ZLD**

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(ii) Trade Effluent Treatment and Disposal :-The applicant shall operate Effluent Treatment Plant consisting of primary/secondary and tertiary treatment as is required with reference to influent quantity and quality.

In case of stoppage of functioning of ETP, production has to be stopped immediately and this Board has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately.

(iii) The treated effluent shall be recycled to the maximum extent and should be reused within the premises for gardening etc. Quality of the treated effluent shall meet to the following general and specific standards as prescribed under Environment (Protection) Rules, 1986 and applicable to the unit from time-to-time :-

Industrial Effluent Quality Standard

S.No.	Parameter	Standard
1	BOD	As per E(P) Act 1986.
2	COD	As per E(P) Act 1986.
3	TSS	As per E(P) Act 1986.
4	Oil and Grease	As per E(P) Act 1986.

(iv) Sewage Treatment and Disposal :- The applicant shall provide comprehensive STP as is required with reference to influent quantity and quality.In case of stoppage of functioning of STP, production has to be stopped immediately and this Board has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately.

(v) The treated sewage shall be reused in gardening as far as possible. The STP shall be maintained continuously so as to achieve the quality of the treated sewage to the following standards.

S No.	Parameters	Standards
1	pH	As per E(P) Act 1986
2	BOD (mg/L)	As per E(P) Act 1986
3	TSS (mg/L)	As per E(P) Act 1986
4	Fecal Coliform (MPN/100ml)	As per E(P) Act 1986

3. Conditions under Air (Prevention and Control of Pollution) Act -1981 as amended :-

i) The applicant shall use following fuel and install a comprehensive control system consisting of control equipment as required with reference to generation of emissions and operate and maintain the same continuously so as to achieve the level of pollutants to the following standards.

Air Pollution Source Details

S No.	Air Pollution Source	Type of fuel	Stack no	Control Device	Height of Stack
1	2 Nos. 1870 TPH Boilers attached to 2x660 MW units.	Coal	01	Particulate Matter	275 meter high stack from ground level with ESPs

Emmission Quality Standards

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S No.	Stack no	Parameters	Standards
1	01	Oxides of Nitrogen	100 mg/Nm3
2	01	Particulate Matter	30 mg/Nm3
3	01	Sulphur Dioxide	100 mg/Nm3
4	01	Particulate Matter	Mercury (Hg)- 0.03 mg/Nm3

In case of stoppage of functioning of air pollution control equipment, production has to be stopped immediately and this Board has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately

(ii) The unit will not use any type of restricted fuel.

iii) Noise from the D.G. Set and other source(s) should be controlled by providing an acoustic enclosure as is required for meeting the ambient noise standards for night and day time as prescribed for respective areas/zones (Industrial, Commercial, Residential, Silence) which are as follows :-

Day time : from 6.00 a.m. to 10.00 p.m., Night time: from 10.00 p.m. to 6.00 a.m.

Standards for Noise level in db(A) Leq	Industrial Area		Commercial Area		Residential Area		Silence Zone	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
	75	70	65	55	55	45	50	40

4. Conditions under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 :-

The Factory Manager of M/s MEJA URJA NIGAM PRIVATE LIMITED. is hereby granted an authorization to operate a facility for collection and storage of Hazardous wastes. The authorization is granted to operate a facility for generation, collection and storage of hazardous wastes within factory premises for following category of wastes:-

S.No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorised mode of disposal or recycling or utilisation or co-processing, etc.	Quantity(ton/annum)
1	Sludge from treatment of Waste Water (Sch-1, Cat 34.2)	Through TSDF	3.0 MT/Annum
2	Spent Ion exchange resin containing toxic metals (Sch-1, Cat-35.2)	Through TSDF	2.5 KL/Annum
3	Petroleum Oil storage tanks sludge	through TSDF/Authorized Recyclers	2.0 MT/Annum
4	Petroleum Oil Storage Tanks filters contaminated with Oil (Sch-1, Cat-3.3)	Through TSDF	0.5 MT/Annum
5	Spent clay containing Oil (Fullers Earth) (Sch-1, Cat-4.5)	Through TSDF	2.0 MT/Annum
6	Contaminated cotton rags or other cleaning materials (Used Silo Filter Bags)(Sch-1, Cat-33.2)	Through TSDF	2.0 MT/Annum

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7	**Contaminated cotton rags or other cleaning materials (Filter Bags contaminated with FRF or mixed with water etc)(Sch-1, Cat-33.2)**	**Through TSDF**	**1.0 MT/Annum**
8	**Spent Activated Carbon (Sch-1, Cat-36.2)**	**Through TSDF**	**3.0 MT/Annum**
9	**Used or Spent Oil (Sch-1, Cat-5.1)**	**through TSDF/Authorized Recyclers**	**150 KL/Annum**
10	**Empty barrels/containers/ liners contaminated with hazardous chemicals /wastes (Sch-1, Cat-33.1)**	**through TSDF/Authorized Recyclers**	**12 MT/Annum**
11	**Chemicals arising from Decontamination of barrels/containers used for handling of hazardous wastes/chemicals (Sch-1, Cat-34.1)**	**Through TSDF**	**1.0 MT/Annum**
12	**Empty Oil Drums (Sch-1, Cat-33.1)**	**through TSDF/Authorized Recyclers**	**100 KL/Annum**
13	**Insulated Copper Wire Scrap/Cable (Sch-IV, S.No.-7)**	**Authorized recyclers**	**800 MT/Annum**
14	**Used Insulation Material (Glass wool/Mineral Wool) (Sch-II, Class-C4)**	**Through TSDF**	**200 MT/Annum**
15	**Silica Gel (Sch-II, Class B)**	**Through TSDF**	**1.0 MT/Annum**

The authorization shall be in force and shall be valid upto 31/12/2026. The authorization is subject to the conditions stated below and such conditions as may be specified in the rules for the time being in force under Environment (Protection) Act, 1986.

Terms and conditions of Hazardous Waste authorization :-

(i) The authorization shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.

(ii) The authorization and its renewal shall be produced for inspection at the request of an officer authorized by the SPCB.

(iii) The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the SPCB.

(iv) Any unauthorized changes in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.

(v) It is the duty of the authorized person to take prior permission of the SPCB to close down the facility.

(vi) An application for the renewal of an authorization shall be made as laid down under these rules.

(vii) The unit shall comply with any other conditions specified in the guidelines issued by the MoEF or CPCB/SPCB from time to time.

(viii) The authorization is valid for temporary storage of Hazardous Waste within premises only.

(ix) The authorized agency shall ensure that on-line data with regard to quantity and nature of hazardous chemicals being used in the plant as well as air emission and waste generated within premises is displayed on Display Board of size 6x4 feet outside the main factory gate within premises

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(x) It is duty of the authorized person to take prior permission of this Board to close and cleanup the facility for treatment, storage and disposal of hazardous waste.
(xi) The applicant shall maintain record of hazardous waste in Form-3 and shall submit annual return in Form-4 on or before the 30th day of June following to the financial year to which that return relates.
(xii) In no case any hazardous waste shall be disposed off on land, in any drain, or into any water stream. All spillage must also be safely collected and stored.
(xiii) Before the hazardous waste is stored or dumped in the facility, applicant must conduct a detailed physical and chemical analysis of hazardous waste sample and report to the Board.
(xiv) Dried hazardous sludge from the process in the plant shall be stored in double lined HDPE pit constructed with R.C.C. or such material which does not react with the waste contained in it.
(xv) The storage area should be fenced properly and Sign/Notice Board indicating 'Danger' and 'Hazardous' shall be displayed at appropriate position both in Hindi and English.
(xvi) The industry shall store non-ferrous metal waste, used oil/spent oil waste in sealed drums placed on impervious floor under covered shed. Hazardous waste if required shall be sold only to Registered Recyclers/Re-processors.
(xvii) In case of any transportation of hazardous waste, the details in Form-10 of the Hazardous and Other Wastes Rules, 2016 shall be submitted to the Board.

5. Essential documents to be submitted by the Industry/Unit as Applicable:-

(i) Annual return in Form-4 and Waste Disposal Manifest in Form-10 under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and Third Party Audit Report.
(ii) Environment Statement in Form-V of Environment (Protection) Rules, 1986.
(iii) Quarterly compliance report of the CCA, photograph of ETP/APCs/Waste Storage Area.

6. Competent Authority reserves the right to change/modify/add any time any condition of this CCA.
7. Unit has to comply with the following specific & general conditions. Non compliance of any provision of this CCA and provisions of the Water Act, Air Act and Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 will results in legal action under the aforesaid Acts and Rules.
8. In compliance to the G.O 1011/81-7-2021-09 (Writ)/2016 dated.13.10.2021 issued by Department of Environment, Forest and Climate Change, Uttar Pradesh. You are directed to develop Miyawaki Forest as per the SOP available at URL:-http://www.upecp.in/TrainingSession.aspx for ensuring timely compliance of this direction, you are hereby directed to submit a bank guarantee with minimum validity of one year of the amount equivalent to the sum of initial consent fees (Air and Water) or Rs. 50,000/- (Rs. Fifty Thousand Only) whichever is more, within 30 days from the date of issuance of this certificate. In case of non-compliance of this direction, your consent will be revoked by the Board.
9. If the unit uses the ground water and requires the permission from SGWA/CGWA for water abstraction then the industry will have to obtain No objection certificate for abstraction of ground water. It will be the responsibility of the industry to comply with the various conditions of the NOC obtained from the competent authority and submit to the Board, within 3 months time failing which CTO will be revoked.

General Conditions:-

1. The applicant shall get analysed the samples of effluent/emission/hazardous wastes at least once in a three month from the laboratory recognized by the MoEF and shall report to the UPPCB.
2. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gases emission or sewage waste from the unit.
3. Treated Industial waste water and domestic waste water shall be disposed jointly at one disposal point. The applicant shall provide discharge measurement equipment at final disposal point.
4. The applicant shall strictly comply with conditions of this CCA and submit compliance report of stipulated conditions within 30 days of receipt of this CCA. If at any point of time, it is found that the industry is not complying with stipulated conditions or any further direction/instruction issued by the Board, legal action

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shall be initiated against the applicant.

5. The applicant shall maintain good house keeping. All valves/pipes/sewer/drains etc. must be leak-proof
6. The industry shall provide uninterrupted entry to the STP/ETP inlet and outlet points, Air Pollution Control equipment and stack for smooth sampling/monitoring of efficiency of pollution control systems.
7. The industry shall provide Inspection Book at the time of inspection to the Board's officials.
8. Whenever due to any accident or other unforeseen act or event, such emission occurs or is apprehended to occur in excess of standards laid down, such information shall be reported to the Board's offices and all other concerned offices. In case of failure of pollution control equipment, the production process connected to it shall be stopped with immediate effect.
9. The industry shall operate in a manner so that all emissions be emitted through designated chimney/stack only.
10. In case of any damage to the agriculture productivity, human habitation etc. by the operation of industry, it shall be imperative to stop production in the industry with immediate effect and such information shall be reported to Board's offices. The industry shall be liable to pay compensation also in such cases as decided by the Competent Authority.
11. The applicant shall apply before the 60 days of expiry of CCA or any change in production types/ production capacity/manufacturing process/capacity enhancement etc. or any change in effluent discharge point or emission point
12. The Board reserves the right to revoke/add/modify any stipulated condition issued along with CCA, as may be necessary.

Specific Conditions:-

1. This CCA is valid for electricity generation -1320 MW (2x660 MW).
2. Industry shall ensure the compliance of orders passed by Hon'ble NGT in O.A. No. 203/2022 and 227/2024 Kamlesh Singh Vs State of UP and Ors. from time to time.
3. Industry shall ensure that water consumption does not exceed 3.0 cubic meter/MWh and shall achieve zero waste water discharge as per standards laid down for Thermal Power Plant commissioned after 01.01.2017.
4. The industry shall install Electro Magnetic Flow meter at water withdrawal source, inlet & outlet of ETP and STP. The logbook of flow meter reading shall be maintained.
5. The industry shall install and operate Online Continuous Effluent Quality Monitoring System and Online Continuous Emission Monitoring System effectively and data shall be transmitted to CPCB and UPPCB server. OCEQMS system shall be calibrated on six monthly basis through recognized agency and calibration certificate should be submitted to UPPCB.
6. The industry shall comply with the conditions of Environmental Clearance issued by MoEF&CC Govt of India and its compliance report should be submitted to UPPCB regularly.
7. Industry shall comply with the conditions of CTE issued by the Board vide letter dated 19-09-2011.
8. Industry shall ensure the compliance of direction regarding installation of FGD as per Notification issued by MoEF&CC vide notification no. G.S.R. 682(E) dated 5th September, 2022. Industry shall install Flu Gas Desulphurization system (FGD) within the prescribed timeline.
9. Industry shall treat DM plant, Back Wash, Cooling Tower Blow down effluent through ETP to recycle and reuse treated effluent in the process, sprinkling in coal handling plant for dust suppression & greenery etc. Decanted effluent of ash dyke after settling through settling pond shall be reused to make ash slurry. Ash pond water shall be 100% recycled and shall maintain zero effluent discharge.
10. Hydrological studies shall be carried out annually to assess the impact on ground water especially around the ash dykes. Specific mitigation shall be undertaken.
11. Domestic effluent shall be treated though STP and treated water shall be used for irrigation and water sprinkling within the premises.
12. Industry shall install PTZ camera at AWRS and re-circulation points for surveillance of effective

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operation within 01 month and shall provide the URL and password to the Board. 977
13. Ground water shall be monitored on quarterly basis nearby ash dikes and analysis report with respect to heavy metals shall be sent to UPPCB.
14. Industry shall comply with the emission standards for Thermal Power Plants as per MoEF&CC Notification S.O. 3305(E) dated 07.12.2015, G.S.R. 593(E) dated 28.06.2018 and as amended from time to time
15. Fly Ash shall be disposed in such manner, so that no water, air and soil pollution takes place. Industry shall comply with provisions of Fly Ash notification S.O. 5481(E) dated 31.12.2021 and its amendment issued on 01.01.2024 and detail of Fly ash disposal shall be submitted on quarterly basis to UPPCB.
16. Thermal power plant shall send the analysis report of water reservoir, natural drain near the ash dykes and at the downstream of Tons river on monthly basis from NABL accredited laboratory.
17. Treated effluent/sewage shall not be discharged in any drain and Tons river and shall be 100% utilized within the premises. Storm Water drain shall be kept separate in such manner that, industrial effluent does not get mixed with storm water.
18. Industry shall develop and maintain green belt as per the guidelines issued by the Board vide office order dated 16/02/2018, which is available on Board's Website- www.uppcb.com. The proposal for plantation in the coming monsson shall be submitted within 01 month.
19. Proponent shall establish Miyawaki forest as per the GO no. 1011/81-7-2021-09(rit)/2016 dated 13.10.2021 of Deptt. of Environment, forest and climate change.
20. Industry shall comply with various provisions of Hazardous and Other waste (Management & Trans-boundary Movement) Rule 2016.
21. Industry shall submit environmental statement in prescribed format as per rule 14 of Environment (Protection) Act, 1986.
22. Industry shall abide by directions given by Hon'ble Courts, MoEF&CC, Central Pollution Control Board and UPPCB for protection and safe guard of environment from time to time.
23. Industry shall comply with the relevant provisions of Environmental Laws.
24. Industry shall maintain effective dust separation /collection system at Coal Handling and Transportation point in such manner so that Ambient Air Quality is not affected at nearby places and Ambient air quality shall be monitored on regular basis and its report shall be submitted on quarterly basis to the UPPCB.
25. Noise level emanating from turbines shall not exceed the prescribed limit of 75 dBA for work zone in the premises.
26. Industry shall provide mechanical sweeping machine and water smog gun for dust suppression to implement the action plan for non attainment cities.
27. Industry shall comply with the Office memorandum no. H 48273/C-1/NGT-83/2020 dated 27.02.2020 issued by UPPCB.
28. If closure order is issued by CPCB or UPPCB against the unit, then CTO issued earlier will remain suspended during the closure period and after ensuring the compliance and after revocation of closure order, the CTO will automatically be effective with additional conditions mentioned in the closure revocation order.
29. The hazardous wastes must be safely collected in leak proof containers and shall be duly marked in a manner suitable for handling, storage and transport and the packaging shall be easily visible and be able to withstand physical conditions and climatic factors. All hazardous waste containers / bags shall be provided with a general label. The storage area should be at an isolated spot in the premises and must be fenced, covered and duly marked.
30. The authorized person/agency shall ensure that no adverse impact on the air, soil and water including groundwater takes place due to activities for which authorization has been requested. Comprehensive safety measures must be followed in handling of wastes and the staff must be properly trained.
31. An application for the renewal of an authorization shall be made in form 1, before its expiry as laid down

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in rule. It is further brought to your notice that as per the order dated 14-11-2003 passed by the Hon'ble Supreme Court in W.P. (c) No. 657 of 1995, no industry covered under Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 shall be allowed to operate without valid authorization. It is also provided in the same orders that industries which are not complying with the conditions of authorization shall not be allowed to operate. Hence in case you fail to apply for authorization, before its expiry or fail to comply with conditions of the earlier authorization issued to you, closure order shall be issued against your industry without any further notice.

32. The applicant must file returns on prescribed Form 4 along with a compliance report of this letter and should also maintain records on Form 3 and present it to Board's inspecting officials.

33. In case of occurrence of an accident, complete details on form must be sent to U.P. Pollution Control Board at the earliest along with details of mitigative and remedial measures taken.

34. The authorized person shall not receive, collect, or store any hazardous waste from any unauthorized occupier or generator of hazardous wastes. In case any hazardous wastes is sold to any other reprocessing unit it must be ensured that such unit is fully complying with environmental requirements and has a valid authorization of the Board.

35. It is within the powers and functions of the U.P. Pollution Control Board to modify / revoke the terms and conditions of the authorization issued under the Rule - 7 of Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

36. You are directed to display board outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant,

37. The occupier, transporter and operator of a facility shall be liable for damages caused to the environment resulting due to improper handling and disposal of hazardous waste listed in schedule 1,2, and 3 and shall be liable to pay a fine as levied by the State Pollution Control Board under the rules.

38. You shall have the valid membership of any common TSDF for S.L.F. (M/S U.P. Waste Management Project Kumbhi Kanpur Dehat or M/s Bharat Oil and Waste Management Ltd., Kumbhi, Akbarpur, Kanpur Dehat. permitted by U.P.P.C.B)., and start sending the stored hazardous wastes for final disposal to the TSDF and report back to U.P.P.C.B. with the required manifesto (document of proof) within three month of this letter. The authorized incinerator is with M/s Bharat Oil Company, Sahibabad, Ghaziabad and M/s Sheetla Waste Management, Sikandrabad for oily waste and paint sludge only.

39. Unit shall store the hazardous waste safely and send it to TSDF/incinerator within Ninety days.

Chief Environmental Officer Circle-2

Copy to:

Regional Officer, UPPCB, Prayagraj with direction to send the compliance report of CCA conditions on quarterly basis to Head Office.

Chief Environmental Officer Circle-2

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मिशन LiFE - पर्यावरण के लिए जीवन शैली

(Lifestyle For Environment)

जनसहभागिता का सन्देश



- स्वच्छता – देशसेवा में अपने परिवेश की स्वच्छता हेतु अपना सक्रिय योगदान सुनिश्चित करें
- संकल्प लें -एकल उपयोग प्लास्टिक उत्पाद जैसे कप, तश्तरी, चम्मच, स्ट्रॉ, ईयरबड्स आदि का उपयोग न हो एवं पर्यावरण अनुकूल विकल्पों जैसे कागज/पत्तों से बने दोने या कटलरी को प्राथमिकता दी जाय |
- एकल उपयोग प्लास्टिक उत्पाद के प्रयोग को रोकने एवं प्लास्टिक बैग के बजाय कपड़े के थैले का उपयोग करने मात्र से 375 मिलियन टन ठोस (प्लास्टिक) कचरे का उत्सर्जन बचाया जा सकता है
- चक्रीय अर्थव्यवस्था (सर्कुलर इकोनॉमी) का समुचित कार्यान्वयन वर्ष 2030 तक लगभग 14 लाख करोड़ रुपये की अतिरिक्त बचत उत्पन्न कर सकता है | वेस्ट /अपशिष्ट फेकने के पूर्व सोचें, ये किसी का संसाधन तो नहीं ...?
- अनुपयोगी इलेक्ट्रिक / इलेक्ट्रॉनिक उत्पाद को कचरे में फेकने से रुकें | इसके उपयुक्त निस्तारण हेतु इसे प्राधिकृत ई – वेस्ट रीसाइकलर को दें | प्राधिकृत ई-रीसाइक्लिंग इकाई में अनुपयोगी इलेक्ट्रिक / इलेक्ट्रॉनिक उत्पाद को देने मात्र से 0.75 मिलियन टन तक ई-कचरे का पुनर्चक्रण किया जा सकता है एवं ई-कचरे के विषम पर्यावरणीय दुष्प्रभाव से बचा जा सकता है
- बाहर जाते समय - सोचें कि क्या आपको वास्तव में परिवहन की आवश्यकता है - वह भी क्या व्यक्तिगत रूप से ? छोटी दूरी के लिए पैदल चलना पसंद करें, अथवा सम्भव हो तो कार पूल के रूप में संसाधन को साझा करें अथवा सार्वजनिक परिवहन पर विचार करें
- घरेलू स्तर पर कम से कम ठोस अपशिष्ट का उत्सर्जन करें और इनका प्थाक्कीकरण करें
- उपयोगी शेष खाद्य सामग्री आपके स्वयं प्रयास अथवा निकटस्थ सक्रिय स्वयं सेवी संस्थाओं की सहायता से समाज के वंचित वर्ग तक पहुंचाई जा सकती है | वहीं अनुपयोगी भोजन /खाद्य सामग्री को कंपोस्ट (वर्मी कम्पोस्ट) करने से 15 अरब टन भोजन को नष्ट होने से बचाया जा सकता है
- ध्यान रखें - उपयुक्त नल और शावर के उपयोग से पानी की खपत को 30 - 40% तक कम किया जा सकता है। एवं उपयोग में न होने पर नलों को बंद रखने मात्र से 9 ट्रिलियन लीटर पानी बचाया जा सकता है
- ट्रैफिक लाइट/रेलवे क्रॉसिंग पर कार/स्कूटर के इंजन बंद करने मात्र से 22.5 बिलियन kWh तक ऊर्जा की बचत हो सकती है
- परम्परागत बल्ब के स्थान पर CFL का उपयोग बिजली की खपत में प्रभावी कमी लाते हैं | उपयोग में न होने पर बिजली उपकरणों को बंद करें | स्टार रेटेड विद्युत उपकरणों के उपयोग को प्राथमिकता दें

हमारे द्वारा अपनी जीवन शैली की प्राथमिकताओं का उचित और पर्यावरण अनुकूल पुनर्निर्धारण समाज और पर्यावरण के प्रति हमारा दायित्व है |

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ANNEXURE-15 HW authorisation Valid OM.MH.202C

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Uttar Pradesh Pollution Control Board

Building. No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010

Phone:0522-2720828,2720831, Fax:0522-2720764, Email: info@uppcb.in, Website: www.uppcb.com

Category : RED **Application Id : 28760846**

224743/UPPCB/Allahabad(UPPCBRO)/CTO/both/PRAYAGRAJ/2024 **Date: 31/12/2024**

To,

M/s

MEJA URJA NIGAM PRIVATE LIMITED

MUNPL, KOHDAR, MEJA, PRAYAGRAJ

Consolidated Consent to Operate and Authorisation hereinafter referred to as the CCA (Consolidated Consent & authorization) (Fresh) under Section-25 of the Water (Prevention & Control of Pollution) Act, 1974 and under Section-21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule-6(2) of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 notified under Environment (Protection) Act, 1986 as applicable (to be referred hereinafter as Water Act, Air Act and HW Rules respectively).

CCA is hereby granted to **MEJA URJA NIGAM PRIVATE LIMITED** located at **MUNPL, KOHDAR, MEJA, PRAYAGRAJ**. subject to the provisions of **the Water Act, Air Act and Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** and the orders that may be made further and subject to following terms and conditions :-

1. This CCA MEJA URJA NIGAM PRIVATE LIMITED **granted for the period from 01/01/2025 to 31/12/2026** and valid for manufacturing of following products.

S No	Product	Quantity	Unit
1	Electricity (2x660 MW)	1320	Megawatt

2. Conditions under Water(Prevention and Control of Pollution) Act -1974 as amended :-

(i) The daily quantity of effluent discharge (KLD) :-

Kind of Effluent	Quantity(KLD)	Treatment facility	Discharge point
Domestic	**2200 KLD treated effluent shall be used for irrigation, water sprinkling for dust suppression.**	**STP**	**Irrigation and water sprinkling**
Industrial	**5040 Cubic meter/day treated effluent shall be reused in the process, sprinkling in coal handling plant for dust suppression and irrigation within teh plant premises**	**ETP**	**ZLD**

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(ii) Trade Effluent Treatment and Disposal :-The applicant shall operate Effluent Treatment Plant consisting of primary/secondary and tertiary treatment as is required with reference to influent quantity and quality.

In case of stoppage of functioning of ETP, production has to be stopped immediately and this Board has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately.

(iii) The treated effluent shall be recycled to the maximum extent and should be reused within the premises for gardening etc. Quality of the treated effluent shall meet to the following general and specific standards as prescribed under Environment (Protection) Rules, 1986 and applicable to the unit from time-to-time :-

Industrial Effluent Quality Standard

S.No.	Parameter	Standard
1	BOD	As per E(P) Act 1986.
2	COD	As per E(P) Act 1986.
3	TSS	As per E(P) Act 1986.
4	Oil and Grease	As per E(P) Act 1986.

(iv) Sewage Treatment and Disposal :- The applicant shall provide comprehensive STP as is required with reference to influent quantity and quality.In case of stoppage of functioning of STP, production has to be stopped immediately and this Board has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately.

(v) The treated sewage shall be reused in gardening as far as possible. The STP shall be maintained continuously so as to achieve the quality of the treated sewage to the following standards.

S No.	Parameters	Standards
1	pH	As per E(P) Act 1986
2	BOD (mg/L)	As per E(P) Act 1986
3	TSS (mg/L)	As per E(P) Act 1986
4	Fecal Coliform (MPN/100ml)	As per E(P) Act 1986

3. Conditions under Air (Prevention and Control of Pollution) Act -1981 as amended :-

i) The applicant shall use following fuel and install a comprehensive control system consisting of control equipment as required with reference to generation of emissions and operate and maintain the same continuously so as to achieve the level of pollutants to the following standards.

Air Pollution Source Details

S No.	Air Pollution Source	Type of fuel	Stack no	Control Device	Height of Stack
1	2 Nos. 1870 TPH Boilers attached to 2x660 MW units.	Coal	01	Particulate Matter	275 meter high stack from ground level with ESPs

Emmission Quality Standards

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S No.	Stack no	Parameters	Standards
1	01	Oxides of Nitrogen	100 mg/Nm3
2	01	Particulate Matter	30 mg/Nm3
3	01	Sulphur Dioxide	100 mg/Nm3
4	01	Particulate Matter	Mercury (Hg)- 0.03 mg/Nm3

In case of stoppage of functioning of air pollution control equipment, production has to be stopped immediately and this Board has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately

(ii) The unit will not use any type of restricted fuel.

iii) Noise from the D.G. Set and other source(s) should be controlled by providing an acoustic enclosure as is required for meeting the ambient noise standards for night and day time as prescribed for respective areas/zones (Industrial, Commercial, Residential, Silence) which are as follows :-

Day time : from 6.00 a.m. to 10.00 p.m., Night time: from 10.00 p.m. to 6.00 a.m.

Standards for Noise level in db(A) Leq	Industrial Area		Commercial Area		Residential Area		Silence Zone	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
	75	70	65	55	55	45	50	40

4. Conditions under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 :-

The Factory Manager of M/s MEJA URJA NIGAM PRIVATE LIMITED. is hereby granted an authorization to operate a facility for collection and storage of Hazardous wastes. The authorization is granted to operate a facility for generation, collection and storage of hazardous wastes within factory premises for following category of wastes:-

S.No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorised mode of disposal or recycling or utilisation or co-processing, etc.	Quantity(ton/annum)
1	Sludge from treatment of Waste Water (Sch-1, Cat 34.2)	Through TSDF	3.0 MT/Annum
2	Spent Ion exchange resin containing toxic metals (Sch-1, Cat-35.2)	Through TSDF	2.5 KL/Annum
3	Petroleum Oil storage tanks sludge	through TSDF/Authorized Recyclers	2.0 MT/Annum
4	Petroleum Oil Storage Tanks filters contaminated with Oil (Sch-1, Cat-3.3)	Through TSDF	0.5 MT/Annum
5	Spent clay containing Oil (Fullers Earth) (Sch-1, Cat-4.5)	Through TSDF	2.0 MT/Annum
6	Contaminated cotton rags or other cleaning materials (Used Silo Filter Bags)(Sch-1, Cat-33.2)	Through TSDF	2.0 MT/Annum

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7	**Contaminated cotton rags or other cleaning materials (Filter Bags contaminated with FRF or mixed with water etc)(Sch-1, Cat-33.2)**	**Through TSDF**	**1.0 MT/Annum**
8	**Spent Activated Carbon (Sch-1, Cat-36.2)**	**Through TSDF**	**3.0 MT/Annum**
9	**Used or Spent Oil (Sch-1, Cat-5.1)**	**through TSDF/Authorized Recyclers**	**150 KL/Annum**
10	**Empty barrels/containers/ liners contaminated with hazardous chemicals /wastes (Sch-1, Cat-33.1)**	**through TSDF/Authorized Recyclers**	**12 MT/Annum**
11	**Chemicals arising from Decontamination of barrels/containers used for handling of hazardous wastes/chemicals (Sch-1, Cat-34.1)**	**Through TSDF**	**1.0 MT/Annum**
12	**Empty Oil Drums (Sch-1, Cat-33.1)**	**through TSDF/Authorized Recyclers**	**100 KL/Annum**
13	**Insulated Copper Wire Scrap/Cable (Sch-IV, S.No.-7)**	**Authorized recyclers**	**800 MT/Annum**
14	**Used Insulation Material (Glass wool/Mineral Wool) (Sch-II, Class-C4)**	**Through TSDF**	**200 MT/Annum**
15	**Silica Gel (Sch-II, Class B)**	**Through TSDF**	**1.0 MT/Annum**

The authorization shall be in force and shall be valid upto 31/12/2026. The authorization is subject to the conditions stated below and such conditions as may be specified in the rules for the time being in force under Environment (Protection) Act, 1986.

Terms and conditions of Hazardous Waste authorization :-

(i) The authorization shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.

(ii) The authorization and its renewal shall be produced for inspection at the request of an officer authorized by the SPCB.

(iii) The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the SPCB.

(iv) Any unauthorized changes in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.

(v) It is the duty of the authorized person to take prior permission of the SPCB to close down the facility.

(vi) An application for the renewal of an authorization shall be made as laid down under these rules.

(vii) The unit shall comply with any other conditions specified in the guidelines issued by the MoEF or CPCB/SPCB from time to time.

(viii) The authorization is valid for temporary storage of Hazardous Waste within premises only.

(ix) The authorized agency shall ensure that on-line data with regard to quantity and nature of hazardous chemicals being used in the plant as well as air emission and waste generated within premises is displayed on Display Board of size 6x4 feet outside the main factory gate within premises

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(x) It is duty of the authorized person to take prior permission of this Board to close and clean up the facility for treatment, storage and disposal of hazardous waste.
(xi) The applicant shall maintain record of hazardous waste in Form-3 and shall submit annual return in Form-4 on or before the 30th day of June following to the financial year to which that return relates.
(xii) In no case any hazardous waste shall be disposed off on land, in any drain, or into any water stream. All spillage must also be safely collected and stored.
(xiii) Before the hazardous waste is stored or dumped in the facility, applicant must conduct a detailed physical and chemical analysis of hazardous waste sample and report to the Board.
(xiv) Dried hazardous sludge from the process in the plant shall be stored in double lined HDPE pit constructed with R.C.C. or such material which does not react with the waste contained in it.
(xv) The storage area should be fenced properly and Sign/Notice Board indicating 'Danger' and 'Hazardous' shall be displayed at appropriate position both in Hindi and English.
(xvi) The industry shall store non-ferrous metal waste, used oil/spent oil waste in sealed drums placed on impervious floor under covered shed. Hazardous waste if required shall be sold only to Registered Recyclers/Re-processors.
(xvii) In case of any transportation of hazardous waste, the details in Form-10 of the Hazardous and Other Wastes Rules, 2016 shall be submitted to the Board.

5. Essential documents to be submitted by the Industry/Unit as Applicable:-

(i) Annual return in Form-4 and Waste Disposal Manifest in Form-10 under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and Third Party Audit Report.
(ii) Environment Statement in Form-V of Environment (Protection) Rules, 1986.
(iii) Quarterly compliance report of the CCA, photograph of ETP/APCs/Waste Storage Area.
6. Competent Authority reserves the right to change/modify/add any time any condition of this CCA.
7. Unit has to comply with the following specific & general conditions. Non compliance of any provision of this CCA and provisions of the Water Act, Air Act and Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 will results in legal action under the aforesaid Acts and Rules.
8. In compliance to the G.O 1011/81-7-2021-09 (Writ)/2016 dated.13.10.2021 issued by Department of Environment, Forest and Climate Change, Uttar Pradesh. You are directed to develop Miyawaki Forest as per the SOP available at URL:-http://www.upecp.in/TrainingSession.aspx for ensuring timely compliance of this direction, you are hereby directed to submit a bank guarantee with minimum validity of one year of the amount equivalent to the sum of initial consent fees (Air and Water) or Rs. 50,000/- (Rs. Fifty Thousand Only) whichever is more, within 30 days from the date of issuance of this certificate. In case of non-compliance of this direction, your consent will be revoked by the Board.
9. If the unit uses the ground water and requires the permission from SGWA/CGWA for water abstraction then the industry will have to obtain No objection certificate for abstraction of ground water. It will be the responsibility of the industry to comply with the various conditions of the NOC obtained from the competent authority and submit to the Board, within 3 months time failing which CTO will be revoked.

General Conditions:-

1. The applicant shall get analysed the samples of effluent/emission/hazardous wastes at least once in a three month from the laboratory recognized by the MoEF and shall report to the UPPCB.
2. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gases emission or sewage waste from the unit.
3. Treated Industial waste water and domestic waste water shall be disposed jointly at one disposal point. The applicant shall provide discharge measurement equipment at final disposal point.
4. The applicant shall strictly comply with conditions of this CCA and submit compliance report of stipulated conditions within 30 days of receipt of this CCA. If at any point of time, it is found that the industry is not complying with stipulated conditions or any further direction/instruction issued by the Board, legal action

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shall be initiated against the applicant.

5. The applicant shall maintain good house keeping. All valves/pipes/sewer/drains etc. must be leak-proof
6. The industry shall provide uninterrupted entry to the STP/ETP inlet and outlet points, Air Pollution Control equipment and stack for smooth sampling/monitoring of efficiency of pollution control systems.
7. The industry shall provide Inspection Book at the time of inspection to the Board's officials.
8. Whenever due to any accident or other unforeseen act or event, such emission occurs or is apprehended to occur in excess of standards laid down, such information shall be reported to the Board's offices and all other concerned offices. In case of failure of pollution control equipment, the production process connected to it shall be stopped with immediate effect.
9. The industry shall operate in a manner so that all emissions be emitted through designated chimney/stack only.
10. In case of any damage to the agriculture productivity, human habitation etc. by the operation of industry, it shall be imperative to stop production in the industry with immediate effect and such information shall be reported to Board's offices. The industry shall be liable to pay compensation also in such cases as decided by the Competent Authority.
11. The applicant shall apply before the 60 days of expiry of CCA or any change in production types/ production capacity/manufacturing process/capacity enhancement etc. or any change in effluent discharge point or emission point
12. The Board reserves the right to revoke/add/modify any stipulated condition issued along with CCA, as may be necessary.

Specific Conditions:-

1. This CCA is valid for electricity generation -1320 MW (2x660 MW).
2. Industry shall ensure the compliance of orders passed by Hon'ble NGT in O.A. No. 203/2022 and 227/2024 Kamlesh Singh Vs State of UP and Ors. from time to time.
3. Industry shall ensure that water consumption does not exceed 3.0 cubic meter/MWh and shall achieve zero waste water discharge as per standards laid down for Thermal Power Plant commissioned after 01.01.2017.
4. The industry shall install Electro Magnetic Flow meter at water withdrawal source, inlet & outlet of ETP and STP. The logbook of flow meter reading shall be maintained.
5. The industry shall install and operate Online Continuous Effluent Quality Monitoring System and Online Continuous Emission Monitoring System effectively and data shall be transmitted to CPCB and UPPCB server. OCEQMS system shall be calibrated on six monthly basis through recognized agency and calibration certificate should be submitted to UPPCB.
6. The industry shall comply with the conditions of Environmental Clearance issued by MoEF&CC Govt of India and its compliance report should be submitted to UPPCB regularly.
7. Industry shall comply with the conditions of CTE issued by the Board vide letter dated 19-09-2011.
8. Industry shall ensure the compliance of direction regarding installation of FGD as per Notification issued by MoEF&CC vide notification no. G.S.R. 682(E) dated 5th September, 2022. Industry shall install Flu Gas Desulphurization system (FGD) within the prescribed timeline.
9. Industry shall treat DM plant, Back Wash, Cooling Tower Blow down effluent through ETP to recycle and reuse treated effluent in the process, sprinkling in coal handling plant for dust suppression & greenery etc. Decanted effluent of ash dyke after settling through settling pond shall be reused to make ash slurry. Ash pond water shall be 100% recycled and shall maintain zero effluent discharge.
10. Hydrological studies shall be carried out annually to assess the impact on ground water especially around the ash dykes. Specific mitigation shall be undertaken.
11. Domestic effluent shall be treated though STP and treated water shall be used for irrigation and water sprinkling within the premises.
12. Industry shall install PTZ camera at AWRS and re-circulation points for surveillance of effective

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operation within 01 month and shall provide the URL and password to the Board. 987
13. Ground water shall be monitored on quarterly basis nearby ash dikes and analysis report with respect to heavy metals shall be sent to UPPCB.
14. Industry shall comply with the emission standards for Thermal Power Plants as per MoEF&CC Notification S.O. 3305(E) dated 07.12.2015, G.S.R. 593(E) dated 28.06.2018 and as amended from time to time
15. Fly Ash shall be disposed in such manner, so that no water, air and soil pollution takes place. Industry shall comply with provisions of Fly Ash notification S.O. 5481(E) dated 31.12.2021 and its amendment issued on 01.01.2024 and detail of Fly ash disposal shall be submitted on quarterly basis to UPPCB.
16. Thermal power plant shall send the analysis report of water reservoir, natural drain near the ash dykes and at the downstream of Tons river on monthly basis from NABL accredited laboratory.
17. Treated effluent/sewage shall not be discharged in any drain and Tons river and shall be 100% utilized within the premises. Storm Water drain shall be kept separate in such manner that, industrial effluent does not get mixed with storm water.
18. Industry shall develop and maintain green belt as per the guidelines issued by the Board vide office order dated 16/02/2018, which is available on Board's Website- www.uppcb.com. The proposal for plantation in the coming monsson shall be submitted within 01 month.
19. Proponent shall establish Miyawaki forest as per the GO no. 1011/81-7-2021-09(rit)/2016 dated 13.10.2021 of Deptt. of Environment, forest and climate change.
20. Industry shall comply with various provisions of Hazardous and Other waste (Management & Trans-boundary Movement) Rule 2016.
21. Industry shall submit environmental statement in prescribed format as per rule 14 of Environment (Protection) Act, 1986.
22. Industry shall abide by directions given by Hon'ble Courts, MoEF&CC, Central Pollution Control Board and UPPCB for protection and safe guard of environment from time to time.
23. Industry shall comply with the relevant provisions of Environmental Laws.
24. Industry shall maintain effective dust separation /collection system at Coal Handling and Transportation point in such manner so that Ambient Air Quality is not affected at nearby places and Ambient air quality shall be monitored on regular basis and its report shall be submitted on quarterly basis to the UPPCB.
25. Noise level emanating from turbines shall not exceed the prescribed limit of 75 dBA for work zone in the premises.
26. Industry shall provide mechanical sweeping machine and water smog gun for dust suppression to implement the action plan for non attainment cities.
27. Industry shall comply with the Office memorandum no. H 48273/C-1/NGT-83/2020 dated 27.02.2020 issued by UPPCB.
28. If closure order is issued by CPCB or UPPCB against the unit, then CTO issued earlier will remain suspended during the closure period and after ensuring the compliance and after revocation of closure order, the CTO will automatically be effective with additional conditions mentioned in the closure revocation order.
29. The hazardous wastes must be safely collected in leak proof containers and shall be duly marked in a manner suitable for handling, storage and transport and the packaging shall be easily visible and be able to withstand physical conditions and climatic factors. All hazardous waste containers / bags shall be provided with a general label. The storage area should be at an isolated spot in the premises and must be fenced, covered and duly marked.
30. The authorized person/agency shall ensure that no adverse impact on the air, soil and water including groundwater takes place due to activities for which authorization has been requested. Comprehensive safety measures must be followed in handling of wastes and the staff must be properly trained.
31. An application for the renewal of an authorization shall be made in form 1, before its expiry as laid down
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in rule. It is further brought to your notice that as per the order dated 14-11-2003 passed by the Hon'ble Supreme Court in W.P. (c) No. 657 of 1995, no industry covered under Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 shall be allowed to operate without valid authorization. It is also provided in the same orders that industries which are not complying with the conditions of authorization shall not be allowed to operate. Hence in case you fail to apply for authorization, before its expiry or fail to comply with conditions of the earlier authorization issued to you, closure order shall be issued against your industry without any further notice.

32. The applicant must file returns on prescribed Form 4 along with a compliance report of this letter and should also maintain records on Form 3 and present it to Board's inspecting officials.

33. In case of occurrence of an accident, complete details on form must be sent to U.P. Pollution Control Board at the earliest along with details of mitigative and remedial measures taken.

34. The authorized person shall not receive, collect, or store any hazardous waste from any unauthorized occupier or generator of hazardous wastes. In case any hazardous wastes is sold to any other reprocessing unit it must be ensured that such unit is fully complying with environmental requirements and has a valid authorization of the Board.

35. It is within the powers and functions of the U.P. Pollution Control Board to modify / revoke the terms and conditions of the authorization issued under the Rule - 7 of Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

36. You are directed to display board outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant,

37. The occupier, transporter and operator of a facility shall be liable for damages caused to the environment resulting due to improper handling and disposal of hazardous waste listed in schedule 1,2, and 3 and shall be liable to pay a fine as levied by the State Pollution Control Board under the rules.

38. You shall have the valid membership of any common TSDF for S.L.F. (M/S U.P. Waste Management Project Kumbhi Kanpur Dehat or M/s Bharat Oil and Waste Management Ltd., Kumbhi, Akbarpur, Kanpur Dehat. permitted by U.P.P.C.B)., and start sending the stored hazardous wastes for final disposal to the TSDF and report back to U.P.P.C.B. with the required manifesto (document of proof) within three month of this letter. The authorized incinerator is with M/s Bharat Oil Company, Sahibabad, Ghaziabad and M/s Sheetla Waste Management, Sikandrabad for oily waste and paint sludge only.

39. Unit shall store the hazardous waste safely and send it to TSDF/incinerator within Ninety days.

Chief Environmental Officer Circle-2

Copy to:

Regional Officer, UPPCB, Prayagraj with direction to send the compliance report of CCA conditions on quarterly basis to Head Office.

Chief Environmental Officer Circle-2

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मिशन LiFE - पर्यावरण के लिए जीवन शैली

(Lifestyle For Environment)

जनसहभागिता का सन्देश



- स्वच्छता – देशसेवा में अपने परिवेश की स्वच्छता हेतु अपना सक्रिय योगदान सुनिश्चित करें
- संकल्प लें -एकल उपयोग प्लास्टिक उत्पाद जैसे कप, तश्तरी, चम्मच, स्ट्रॉ, ईयरबड्स आदि का उपयोग न हो एवं पर्यावरण अनुकूल विकल्पों जैसे कागज/पत्तों से बने दोने या कटलरी को प्राथमिकता दी जाय |
- एकल उपयोग प्लास्टिक उत्पाद के प्रयोग को रोकने एवं प्लास्टिक बैग के बजाय कपड़े के थैले का उपयोग करने मात्र से 375 मिलियन टन ठोस (प्लास्टिक) कचरे का उत्सर्जन बचाया जा सकता है
- चक्रीय अर्थव्यवस्था (सर्कुलर इकोनॉमी) का समुचित कार्यान्वयन वर्ष 2030 तक लगभग 14 लाख करोड़ रुपये की अतिरिक्त बचत उत्पन्न कर सकता है | वेस्ट /अपशिष्ट फेकने के पूर्व सोचें, ये किसी का संसाधन तो नहीं ...?
- अनुपयोगी इलेक्ट्रिक / इलेक्ट्रॉनिक उत्पाद को कचरे में फेकने से रुकें | इसके उपयुक्त निस्तारण हेतु इसे प्राधिकृत ई – वेस्ट रीसाइकलर को दें | प्राधिकृत ई-रीसाइक्लिंग इकाई में अनुपयोगी इलेक्ट्रिक / इलेक्ट्रॉनिक उत्पाद को देने मात्र से 0.75 मिलियन टन तक ई-कचरे का पुनर्चक्रण किया जा सकता है एवं ई-कचरे के विषम पर्यावरणीय दुष्प्रभाव से बचा जा सकता है
- बाहर जाते समय - सोचें कि क्या आपको वास्तव में परिवहन की आवश्यकता है - वह भी क्या व्यक्तिगत रूप से ? छोटी दूरी के लिए पैदल चलना पसंद करें, अथवा सम्भव हो तो कार पूल के रूप में संसाधन को साझा करें अथवा सार्वजनिक परिवहन पर विचार करें
- घरेलू स्तर पर कम से कम ठोस अपशिष्ट का उत्सर्जन करें और इनका प्थाक्कीकरण करें
- उपयोगी शेष खाद्य सामग्री आपके स्वयं प्रयास अथवा निकटस्थ सक्रिय स्वयं सेवी संस्थाओं की सहायता से समाज के वंचित वर्ग तक पहुंचाई जा सकती है | वहीं अनुपयोगी भोजन /खाद्य सामग्री को कंपोस्ट (वर्मी कम्पोस्ट) करने से 15 अरब टन भोजन को नष्ट होने से बचाया जा सकता है
- ध्यान रखें - उपयुक्त नल और शावर के उपयोग से पानी की खपत को 30 - 40% तक कम किया जा सकता है। एवं उपयोग में न होने पर नलों को बंद रखने मात्र से 9 ट्रिलियन लीटर पानी बचाया जा सकता है
- ट्रैफिक लाइट/रेलवे क्रॉसिंग पर कार/स्कूटर के इंजन बंद करने मात्र से 22.5 बिलियन kWh तक ऊर्जा की बचत हो सकती है
- परम्परागत बल्ब के स्थान पर CFL का उपयोग बिजली की खपत में प्रभावी कमी लाते हैं | उपयोग में न होने पर बिजली उपकरणों को बंद करें | स्टार रेटेड विद्युत उपकरणों के उपयोग को प्राथमिकता दें

हमारे द्वारा अपनी जीवन शैली की प्राथमिकताओं का उचित और पर्यावरण अनुकूल पुनर्निर्धारण समाज और पर्यावरण के प्रति हमारा दायित्व है |

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ANNEXURE-16 CIL Coal Allotment letter 20.06.2024

COAL INDIA LIMITED
MARKETING & SALES
Coal Bhawan, Premises No. 4 MAR, Plot [illegible]-III,
Action Area IA, New Town, Rajarhat, Kolkata [illegible]56
E-mail: hodfsa.cil@coalindia.in
Phone: 033 - 2324 6617 | Fax: 033 - 2324 4229

Ref no. CIL/M&S/SHAKTI B(i)/283 Date: 20.06.2024

To
Shri. Pradipta Kumar Mishra
ED (Fuel Manangement),
NTPC Ltd.

Sub: Coal linkage source allocation for NTPC Group New Projects

Dear Sir,
Apropos your letter dated 12.06.2024 on the captioned subject, requesting to confirm the linkage of source/ mine for the new projects of NTPC Group which are scheduled to be commissioned between FY 2028-29 to 2031-32.

In response, it is to convey that source of coal allocation for the plants of NTPC Group shall be tentatively as under:

S No.	Name of Project	Capacity in MW	Commissioning Timeline	SLC(LT) Meeting	Coal Company
1	Singrauli Stage-III	2x800=1600	2028-29	Granted in SLC(LT) held on 21.12.2018; LOA extended by SLC(LT) up to 20.04.2024	NCL
2	Sipat Stage-III	1x800=800	2028-29	Granted in SLC(LT) held on 21.02.2023	SECL
3	Darlipalli Stage-II	1x800=800	2028-29	Granted in SLC(LT) held on 21.02.2023	MCL
4	Obra Extn	2x800=1600	2031-32	Granted in SLC(LT) held on 03.01.2024	MCL & SECL
5	Anpara E	2x800=1600	2031-32	Granted in SLC(LT) held on 03.01.2024	MCL & SECL
6	Patratu Stage II	2x800=1600	2031-32	Granted in SLC(LT) held on 03.01.2024	CCL
7	Meja Stage-II	3x800=2400	2028-29	Granted in SLC(LT) held on 03.01.2024	BCCL
8	Nabinagar STPP, Stage-II	3x800=2400	2029-30	Granted in SLC(LT) held on 03.01.2024	ECL & BCCL
9	Gadarwara Stage II	2x800=1600	2029-30	Granted in SLC(LT) held on 03.01.2024	MCL & SECL

It is further informed that post submission of applicable Commitment Guarantee by NTPC, formal Letter of Assurance (LoA) containing details of coal linkage and accompanying terms & conditions, will be issued by concerned subsidiaries.

Yours sincerely,

HOD (FSA/Linkage), CIL

Copy for kind information to:
1. Director (Marketing)

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ANNEXURE-17 NIH-Roorkee Hydrogeological Study

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Project No.: CS-219/2021-23/SWHD

Final Report

on

Hydrogeological Study in Meja Prayagraj, UP



Sponsored by:

MEJA URJA NIGAM PRIVATE LIMITED
Meja village, Prayagraj district,
Uttar Pradesh

Prepared by:

NATIONAL INSTITUTE OF HYDROLOGY (NIH)

(An ISO-9001:20015 Certified Organization)

Roorkee – 247 667, Uttarakhand

August, 2024

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PROJECT TEAM

Dr. A.K. Lohani	**Scientist 'G' & Head, Surfacewater Hydrology Division**
Dr. Gopal Krishan	**Scientist 'E', Hydrological Investigations Division**

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Abstract

In order to fulfill the requirements of MOEF&CC as well as MUNPL, MEJA's concern towards conservation of surface and ground water resources for the benefit of the project as well as general population, a detailed Hydro-geological Study is proposed to be undertaken by National Institute of Hydrology, Roorkee. After getting the idea of the concerns, the National Institute of Hydrology (NIH), Roorkee agrees to undertake the investigation as a consultancy with the following objectives and scope of work.

The study surface water, hydrogeology and groundwater flow dynamics; surface water and groundwater quality; rainwater harvesting potential; to assess the impact of plant areas on the groundwater and its quality in the nearby areas. Analysed results of different components and their interpretations have been presented in 11 chapters. Chapter-1 presents introduction; Chapter-2 describes the study area details; Chapter-3 drainage, topography and landuse; Chapter-4 geological settings; Chapter -5 climate and rainfall pattern; Chapter -6 hydrogeology and groundwater level variation; Chapter-7 water quality assessment; Chapter-8 rain water harvesting potential Chapter 9- source sustainability; Chapter 10 describes a critical appraisal and remedial measures and Chapter -11 elaborates the conclusions and recommendations.

The bore hole drilling data reveals that the lithology of the region is basically, Sandstone of various grade and composition. The water bearing zone in the area is comprises of fractured sandstone basically between 200-240, 260-280 ft bgl. The infiltration rate varies from 0.3 (Ladiyari) to 7 mm/hour (Basahih) in various parts of the study area indicating low infiltration rates. Thesis's Time-drawdown curve matching method show Transmissivity value of the piezometer around 0.40 m^2/day, whereas, Theis's recovery method the Transmissivity of the aquifer is coming approx. to 0.37 m^2/day. Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period in September 2023.

In post monsoon 2021, Fluoride and Chloride are found within the acceptable limit at 66 and 93% of locations while all other samples including surface water samples are found within permissible limit at all the locations. Concentration of fluoride in 33% groundwater samples; sulphate and nitrate in 22 % groundwater samples are found beyond the permissible limit.
For arsenic, all samples are found within the permissible limit (50 ppb) for all the sampling locations. The influence of MUNPL, MEJA effluents was analysed in multiple ways through water sampling from MUNPL, MEJA project area and a buffer zone of 25 km.

The values of various groundwater quality parameters are of geogenic nature and no impact of MUNPL, MEJA effluents has been observed on the surface and ground water quality of the study area. However, it is advised to review the groundwater quality status after every three years.

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ACKNOWLEDGEMENTS

Thermal power projects consume large quantities of water for their operation, which is obtained from the surface water sources, which may affect the surface water hydrology of the area. In addition, there are certain structures and activities which may affect the ground water hydrology also such as # dewatering during construction of the project construction of water impoundment structure on streams to draw water, construction of raw water reservoir inside main plant area, construction and operation of ash dyke area etc Further fresh water becoming a scarce resource day by day, MUNPL, MEJA understand its responsibility towards conservation of surface and ground water resources for the benefit of the project as well as general population within the study area, i.e. within 25 km from the boundary of the project.

First of all, we express our sincere and humble gratitude to Dr. J.V. Tyagi, Dr Sudhir Kumar and Dr. M.K. Goel Directors NIH, for providing all kind of cooperation and support, We would like to thank Dr. Nitesh Patidar, Sc. 'C' for soil analysis.

We, on behalf of the Institute and study team thankfully acknowledge the MUNPL, MEJA especially Sh. Anurag Khare, Sh. Saurabh Pathak, Sh. Shiv Prakash Srivastava who took keen interest in this study since its inceptation. Thanks to all the support received from other staff members of MUNPL, MEJA.

Thanks to all helping us in this project work successfully and for their valuable advice and support, which we received from them from time to time. My gratitude would be incomplete without mentioning the names of Mr. Anij Dwivedi, Mr. Vikas Dabral, Mr. Satya Prakash for the field work and critical observations, Thanks to Soil and water Lab for heavy metal analysis.

We also take this opportunity to thank all the staff of Surface water Hydrology Division, Groundwater Hydrology division, finance and bill section during the project work.

Dated: August 31, 2024

Place: Roorkee **(A K Lohani & Gopal Krishan)**

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1. Introduction

Meja, a joint venture incorporated in 2008 between NTPC and UPRVUNL in District Prayagraj of Uttar Pradesh. The present capacity of TPP is 1320 MW (2×660 MW) and the same is under commercial operation. This coal based thermal power plant is located in Meja tehsil of Prayagraj district (Fig. 1.1). It has its own 28-km freight corridor that helps in bringing critical materials, such as coal, to plant by rail. The plant is also connected to river Ganga at Bijora village, through a network of about 30 km pipeline, to transport water for industrial purposes. Meja Thermal Power Station is the first supercritical power plant (SCPP) of Uttar Pradesh.

It uses 20 per cent less coal compared to them. It generates less carbon emissions. A supercritical coal plant is a coal-fired power plant with more modern designs. It differs from traditional coal power plants as the water running through it works as a supercritical fluid. This reduces the amount of heat transfer to the water which in normal cases is needed in a conventional coal plant. Therefore, less coal is used to heat the same amount of water.

In order to fulfill the requirements of MOEF&CC as well as MUNPL, MEJA's concern towards conservation of surface and ground water resources for the benefit of the project as well as general population, a detailed Hydrological Study is being undertaken by National Institute of Hydrology, Roorkee

After getting the idea of the concerns, the National Institute of Hydrology (NIH), Roorkee agreed to conduct a detailed hydrogeological study entitled "*Hydrogeological Study in Meja Prayagraj, UP*" constitutes the required framework of tasks referred by the MUNPL, MEJA to the NIH.

The study is referred to investigate and address the following objectives and scope of work:

1.1 Objectives:

Thermal power projects consume large quantities of water for their operation, which is obtained from the surface water sources, which may affect the surface water hydrology of the area. In addition, there are certain structures and activities which may affect the ground water hydrology also such as # dewatering during construction of the project construction of

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water impoundment structure on streams to draw water, construction of raw water reservoir inside main plant area, construction and operation of ash dyke area etc Further fresh water becoming a scarce resource day by day, MUNPL, MEJA understand its responsibility towards conservation of surface and ground water resources for the benefit of the project as well as general population within the study area, i.e. within 25 km from the boundary of the project.

In view of the above, the study will be carried out with main aim to assess impact of ash ponds on hydrological regime with special emphasis on the geo-hydrological conditions of the ash pond area to appraise the risk of contamination of ground water due to ash disposal to achieve the following objectives:

1.1.1 Surface Water Hydrology:

a) To study on water availability from the identified source - availability, allocation, downstream users, trends in water utilization in past decade.

b) To study the drainage pattern of the study area.

c) Identity the surface water bodies (including degenerated water bodies) within the study area (25 km radius from the plant boundary) their status, exploitation and potential for development of degenerated water bodies.

d) To study the surface water quality and current of contamination, if any.

e) To study the overall impact of construction on intake structures and drawl of water for operation of power project on surface water hydrology.

g) To develop a plan for annual review and monitoring of surface water systems in the study area.

1.1.2 Ground Water Hydrology

a) To define the present hydro - geological scenario of the study area through water contour map.

b) to identify aquifers, their characteristics (geometry, sections, status of groundwater storage, seasonal, fluctuations, direction of flow of groundwater etc.) and present levels of exploration, assessment of groundwater depletion if any.

c) To establish hydraulic characteristics of aquifers present in project area, especially ash pond area through pump test.

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d) Estimation of annual recharge and utilization of ground water in pre –project and post project conditions, as per GEC Norms.

e) To study on groundwater quality and current sources of contamination, if any.

g) To develop a monitoring network for annual review and monitoring of ground water levels and quality.

1.2 Scope of work:

The scope of work for this part shall broadly cover the following:

a) Geological Investigations

- To provide the geological maps of the ash ponds and surrounding regions.
- To draw geological cross-sections of ash pond region and to provide stratigraphic details.

b) Geohydrological Investigations

c) Drilling and Logging

- To carry out drilling and logging at suitable sites
- To evaluate the hydraulic characteristics of aquifers like porosity, permeability, transmissivity, isotropism, yield etc through pump test around the existing and proposed ash ponds
- To use suitable logging methods for study of rock properties

d) Infiltrations Studies

To evaluate infiltration capacity of the soils around the existing and proposed ash ponds

e) Water Quality

- To assess the quality of groundwater in and around the present ash pond.
- To assess impact on surface water and ground regime especially around ash dyke. In case any deterioration is observed specific mitigation measures shall be suggested.
- To develop a plan for annual review and monitoring of surface water systems in the study area.

f) Leachate Studies

- To evaluate the concentration of various elements that are leached from ash as a function of variable leaching conditions, through experimental simulations.

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- Recommendation for installation/fixation of the Piezometers on the basis of the leachates study.

Prior to this study, some studies and reports already done on various aspects in the area were also consulted. CGWB also published its periodicals on the hydro-geological investigations of the Prayagraj district which have been consulted while carrying out this study.

This report deals with comprehensive analysis of data related to meteorology, hydrogeology, topography, drainage network, geological formations, groundwater scenarios and direction, groundwater quality, etc. The data support for carrying out the analysis of different components have been obtained from India Meteorological Department (IMD), Geological Survey of India (GSI), downloading of Shuttle Radar Topography Mission (SRTM)/ Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data, groundwater related data from NWIC (National Water Informatics Centre) and reports, reports published by other organizations, and also from the field measurement and investigations conducted by the NIH team.

To bring conformity with the actual field conditions, all spatially varying databases have been analysed with reference to the geographic coordinate system by their latitudes and longitudes such that the analysed results can easily be verified with the actual field conditions. The report provides the analyses on the scope of work provided by the sponsoring agency, data collected from various sources, and by field investigations. The findings and observations are based on the comprehensive analysis of different components present in the report.

The report deals with the analysis on the following:

i. Delineation of the MUNPL, MEJA core zone area, buffer zone area, drainage network and drainage area characterization describing surface drainage pattern of the area,
ii. Land-use, habitat settlements, water bodies, in and around the study area,
iii. Hydro-meteorological characteristics of the area,
iv. Hydro-geological characterization, groundwater scenarios, groundwater fluctuation and flow direction, etc.
v. Soil characteristics determination based on field tests.
vi. Hydro-chemical characterization of groundwater in and around the MUNPL, MEJA area.
vii. Recommendations for future measures and adaptations.

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Based on the analysis of above components, a section summarizing the analysis, findings and recommendations has been exclusively presented in the report.

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2. Study Area

2.1 Location

Meja Tehsil is situated in Prayagraj district, Uttar Pradesh, India and it is characterized by Active Flood Plains, Older Alluvial Plain and Rocky Surface (Denudational hills). The active flood plain is quite localized and confined only to the river system, whereas the older alluvial plain is characterized by depositional and erosional terraces found in patches along the active plain. The denudational hills found prominent in trans Yamuna area formed mainly of quartzite.

As of the 2001 census, its total population was 471,851. Meja is primarily an agricultural dominated area; the main crops are wheat and rice. Some areas are cultivated with pulses also like Arhar, Urd and Chana. The principal sources of irrigation are canals and tubewells. Meja is 8 km from Meja Road railway station and connects with Koraon from the south and Manda from the east. The wildlife conservation reserve come up on over 126 hectares in Meja forest division known for its rocky, undulating and arid terrain.

The core zone area is comprised of the '*Meja Project Area*' measuring about 6400 ha **(**64 sq**.** km**)** that lies between the latitudes 25° 06' 45" to 25° 11' 33"N and longitudes 81° 52' 30" to 82° 00' 00"E, and the **'***Buffer Zone***'** of 25 km from the *Meja Project Area* measuring about 19,5900 ha **(**1959 sq**.** km**)** that lies between the latitudes 24^{o} 50' to 25^{o} 25' N and longitudes 81^{o} 40' to 82^{o} 15' E (Figure 2.1). The extended buffer zone area all around the *Meja Project Area* has been taken for analysis to investigate the physiography of the surrounding area particularly to see the connectivity of the surface drainage pattern, settlements, water bodies, groundwater, etc. All these areas lie in the Survey of India Toposheet No. 63G16,. A satellite image of the study area as seen from the '*Google Earth*' along with digitized features of the '*Meja Project Area*', and the '*Buffer zone*' is shown in Figure 2.3.

2.2 Hydrogeology and Climate

The location map of the MUNPL, MEJA project area and the buffer zone area is shown below in Figure 2.3. The climate is characterized by Humid Sub-tropical climate with distinct hot summer (March-July), cold winter (December-February) and rainy monsoon (July to September). The highest temperature goes above 42°C in May-June and the lowest up to 9°C in December-January.

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January is the coldest month with mean daily minimum temperature at 9.1°C and mean daily maximum temperature at 23.7°C. May is the hottest month with mean daily maximum temperature at 42.1°C and mean daily minimum temperature at 27.4°C with the advance of the south-west monsoon about middle of June the the Day temperature drops appreciably, but night temperature is a little higher than May. The mean monthly maximum temperature is 32.8°C and means monthly minimum temperature is 19.5°C.

The average annual rainfall is 1042 mm and about 90% of rainfall takes place during south-west monsoon season commences from middle of June to September. During monsoon surplus water is available for deep percolation to ground water. During the monsoon season the air is very humid and after onset of the monsoon season humidity decreases progressively. The mean monthly morning relative humidity is 64% and means monthly evening relative humidity is 48%. During the monsoon season the air is very humid and after onset of the monsoon season humidity decreases progressively. The mean monthly morning relative humidity is 64% and means monthly evening relative humidity is 48%. Winds are generally high throughout the year with some increase in force in summer and monsoon season. The mean wind velocity is 5.1 kmph. The potential evapotranspiration is 1537.5 mm.



Figure 2.1. Location map of the MUNPL, MEJA, Meja, Prayagraj.

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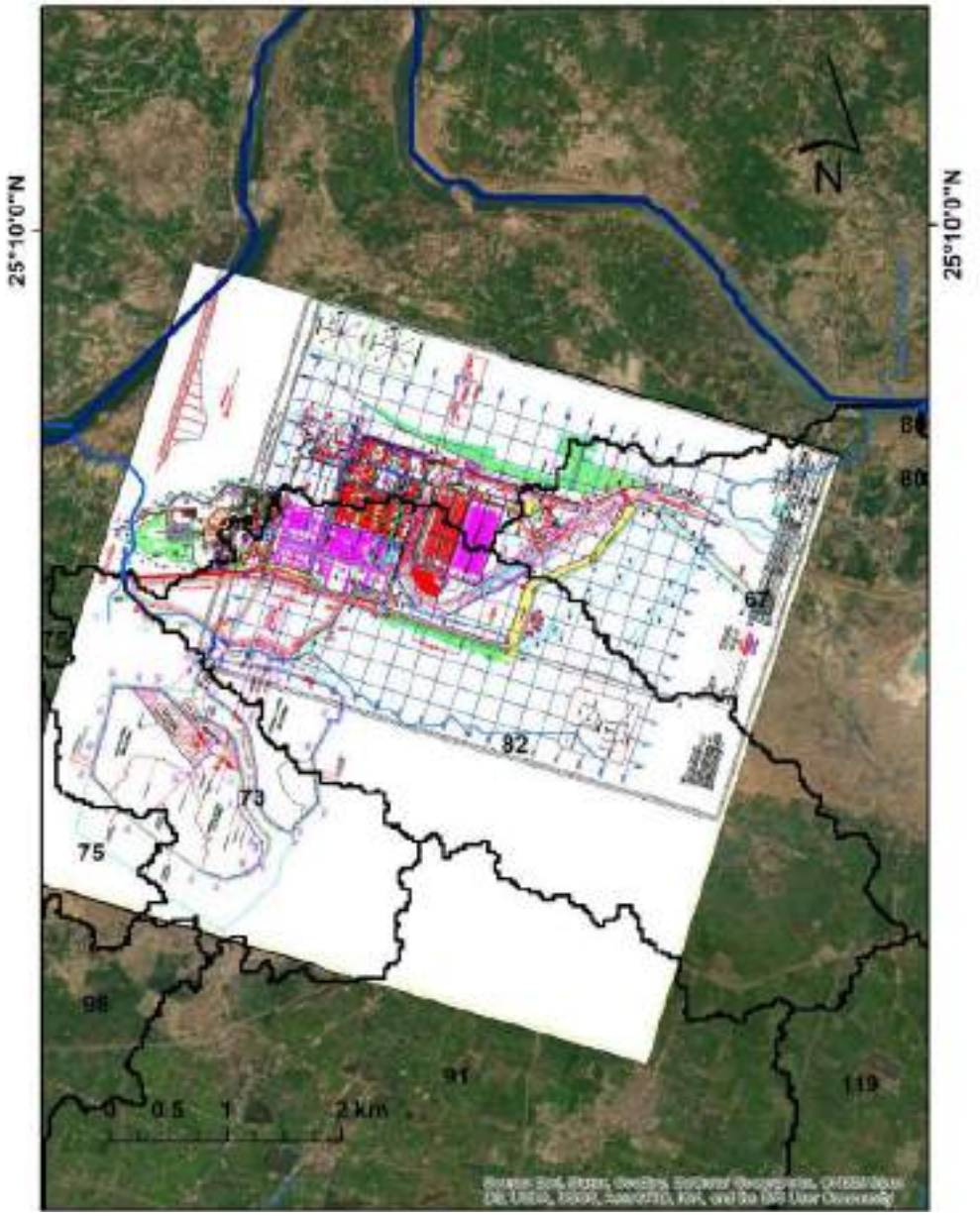


Figure 2.2. Snapshot of the study area seen from the '*Google Earth*' showing boundaries of the MUNPL, MEJA area .

Physiography of study area

Physiography of the lease area is characterized by almost flat country with isolated few low ridges. Prayagraj is located at 25.45°N 81.84°E in the southern part of the Uttar Pradesh at an elevation of 98 meters (322 ft) and stands at the confluence of two, the Ganges and Yamuna. The region was known in antiquity as the Vats country. To its south and southeast is the Bagelkhand region; to its east is middle Ganges valley of North India, or Purvanchal; to its southwest is the Bundelkhand region; to its north and northeast is the Awadh region and to its west along with Kaushambi it forms the part of Doab i.e the Lower

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Doab region.In the north Pratapgarh, in the south Rewa (M.P.), in the east Sant Ravi Das Nagar and in the west Kaushambi districts are located.

The study area is characterized by Active Flood Plains, Older Alluvial Plain and Rocky Surface (Denudational hills). The active flood plain is quite localized and confined only to the river system, whereas the older alluvial plain is characterized by depositional and erosional terraces found in patches along the active plain. The denudational hills found prominent in trans Yamuna area formed mainly of quartzite10 and the core area of the Meja power plant is situated on the denudational hills. The district is well connected by rail and road network. The nearest airports are at Prayagraj and Lucknow. Administratively, Prayagraj town is the Head Quarter of the district.

Groundwater occurs in alluvium and in the weathered and joint sandstones in areas which are underlain by the hard rocks. Two broad hydrogeological units, namely, unconsolidated (Alluvium) and consolidated (hard rock) are the major components. The Alluvial formations occur in the Trans-Ganga and Doab region. Occurrence of consolidated formations is restricted primarily to Trans Yamuna tract. In the study area, the thickness of alluvium is more than 300 m with the discharge rates of 2000-3000 lpm.

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3.0 Drainage, Topography and Land Use Mapping

3.1 General

MUNPL, MEJA project area, along with the buffer zone of 25 km radius, 1959.50 sq. Km, has been digitized in the ArcGIS framework with reference to the geographic coordinate system by their latitudes and longitudes. The MUNPL, MEJA area comprises of various plant units and flourishing plantations; while the buffer zone represents the surrounding area measuring 25 km distance either side from the edge of the MUNPL, MEJA premises.

Making use of the downloaded Shuttle Radar Topography Mission (SRTM)/ data from internet, **a** Digital Elevation Model (DEM) has been prepared. The habitat settlements area, agricultural lands, existing water bodies, etc. have also been delineated from the Copernicus Global Land Cover (CGLS-LC100 Collection 3).

3.2 Area-Drainage Network Map

The area-drainage network map has been prepared using the 90-meter Shuttle Radar Topography Mission (SRTM) data from internet and is shown in Figure 3.1.

The Northern half of the district occupies part of Ganga basin and Southern part of the district occupies the part of Yamuna and Tons Sub- basin. The rivers of the district belong to the main drainage system of the Ganga. The most important tributaries are Yamuna and Tons while those of minor systems include Sai and Yamuna. The Ganga enters the district in the Kaurihar Block. It maintains a meandering course. Yamuna, the second major river, enters the district in the extreme west in the Sankargarh block and flows narrowly before joining to the Ganga at Sangam in the proximity of Prayagraj city. Yamuna has more channel constant and steeper banks. Yamuna has a more rapid stream and flowing fast down a greater bed slope than the Ganga. Its water is comparatively cleaner than Ganga most streams water of the joining the Yamuna are mere drainage channels or ravines.

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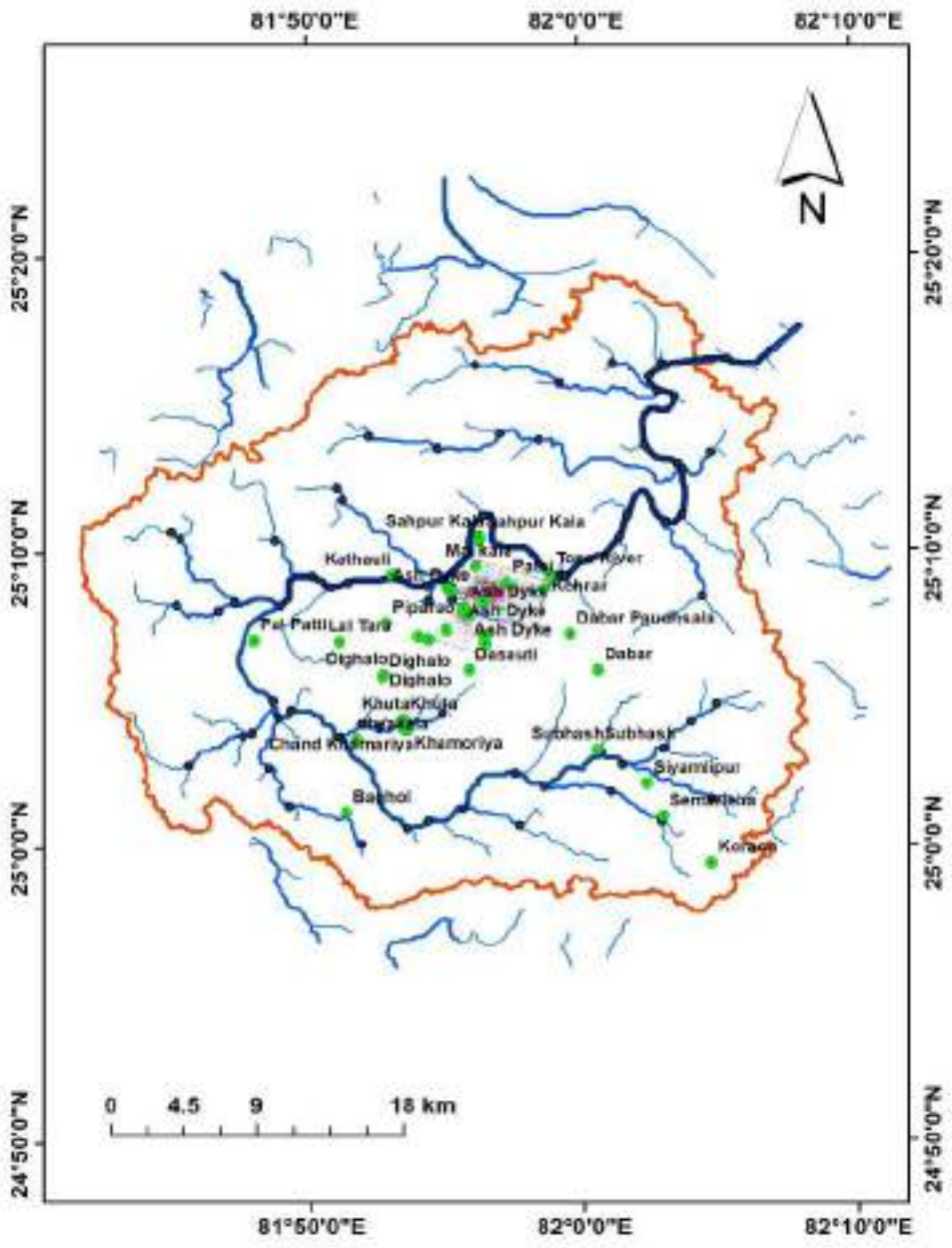


Figure 3.1. Discretized drainage map with canal and small streams in the buffer zone.

3.3 Surface Topography and Contours

Google Earth Terrain data, downloaded from internet, was used to prepare the surface topography of the MUNPL, MEJA area and the buffer zone area (Figure 3.2) and district information taken from CGWB. The study area has slope range of 0 to 30.30 degrees.

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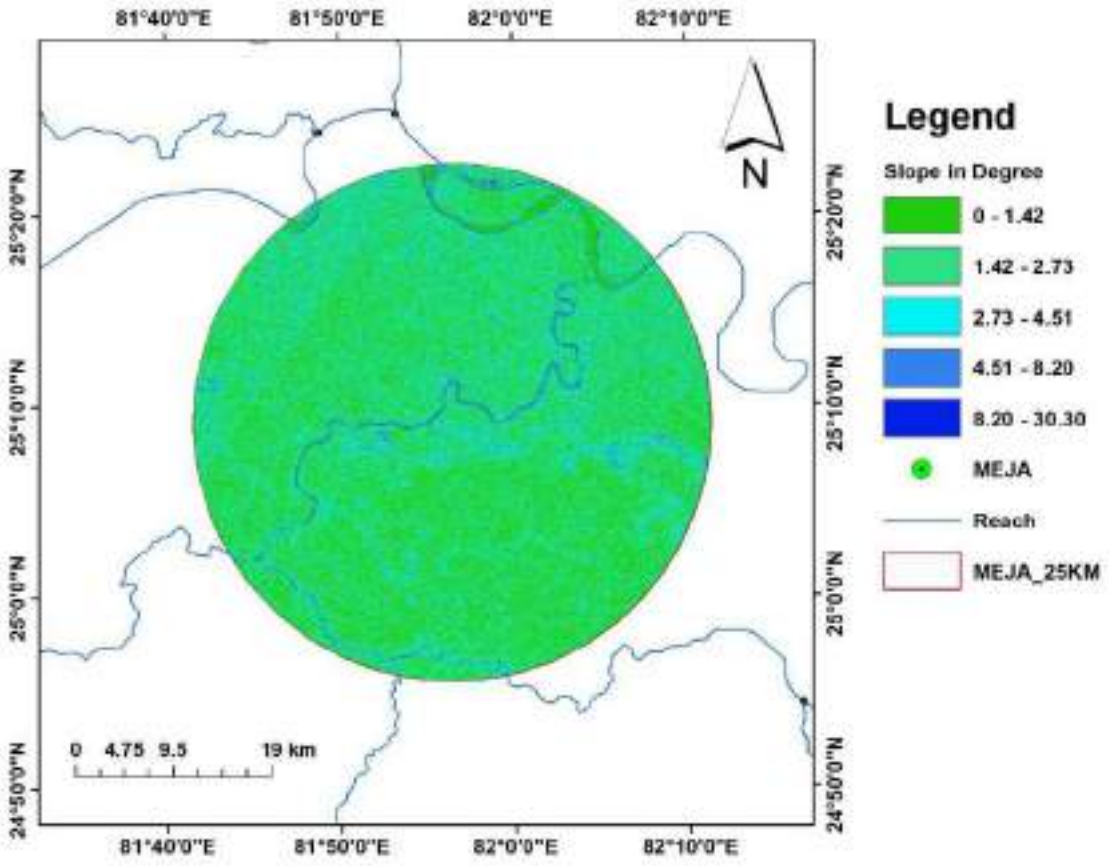


Figure 3.2. Slope map of the study area.

3.4 Land Use

A land use map is prepared for 2020 showing agricultural land, settlement, forest, shrubs, water bodies, etc. in the study area (Figure 3.3). Most of the area in the buffer zone comes under agricultural land, followed by bare/sparse vegetation. From Figure 3.3, it can be seen that there are many small and medium size recognizable water bodies present in the buffer zone (Figure 3.3).

3.4.1 Land use Break-up of the Study Area

The land use area break-up details are given in Table 3.1. It is seen that maximum area lies under the agricultural land in the buffer zone followed by the bare/sparse vegetation.

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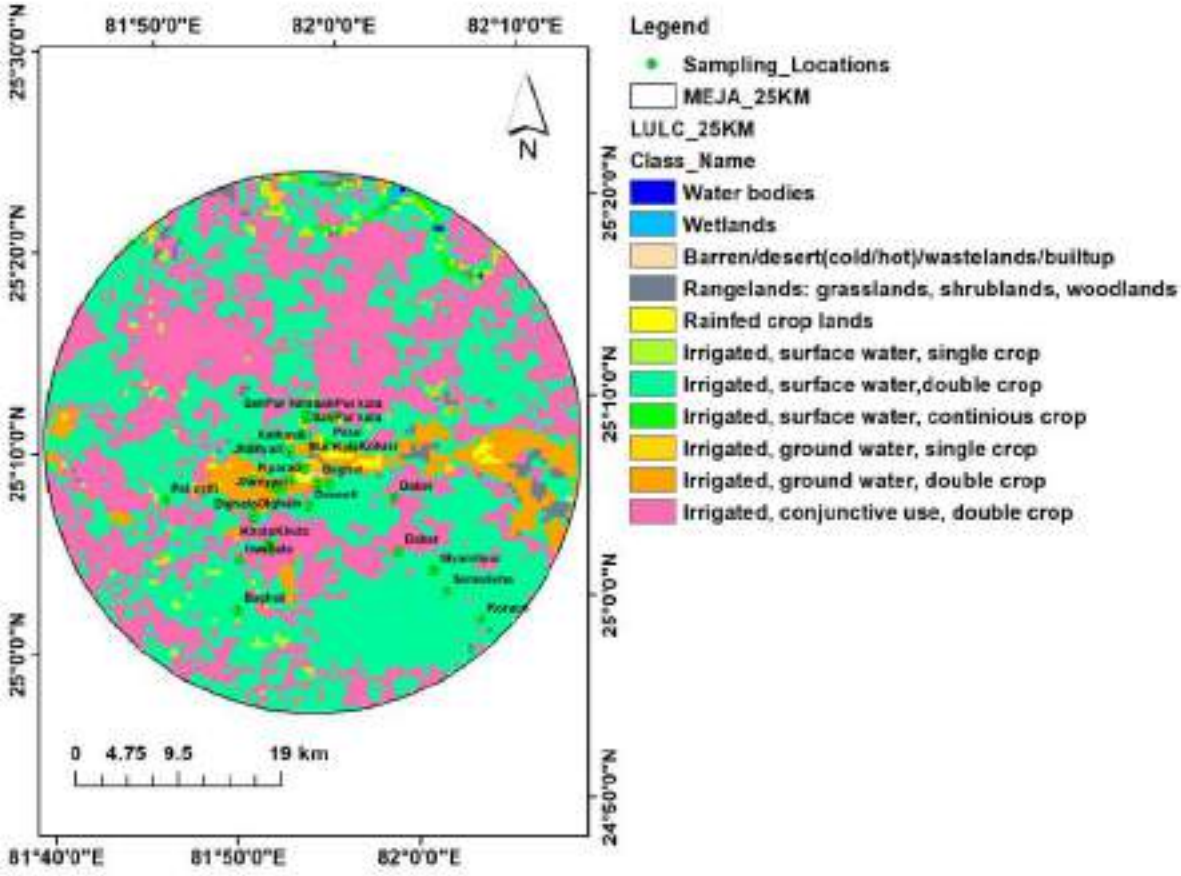


Figure 3.3. Land use map of the study area.

Table 3.1: Land use details for the study area

S. No.	Land use	Area (Ha)	Percentage
1	Water bodies	0.810	0.041
2	Wetlands	2.228	0.114
3	Barren/desert(cold/hot)/ wastelands/builtup	1.556	0.079
4	Rangelands: grasslands, shrublands, woodlands	27.671	1.412
5	Rainfed crop lands	12.063	0.616
6	Irrigated, surface water, single crop	16.695	0.852
7	Irrigated, surface water,double crop	963.421	49.167
8	Irrigated, surface water, continious crop	12.323	0.629
9	Irrigated, ground water, single crop	17.354	0.886

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10	Irrigated, ground water, double crop	112.078	5.720
11	Irrigated, conjunctive use, double crop	793.304	40.485

3.5 Summary

(i) The MUNPL, MEJA project area is occupying part of Ganga basin and another part of Tons Sub- basin. The seasonal rivers as well as tributaries are ephemeral and flow only in response to heavy precipitation.

(ii) The area shows large variations in the topography, with a slope range of 0 to 30.30 degrees

(iii) A number of large and small recognizable size habitat settlements are found scattered in the buffer zone area.

(iv) Most of the area in the buffer zone comes under the agricultural land followed by the bare/sparse vegetation.

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4.0 Geological Setting

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4.1 Regional Geological Setting

The district represents a complex geology with the formation belonging to Quaternary (Alluvium – Sand, silt, clay and Kankar, Laterite.) period covering major part in the northern side of the district overlying the Vindhyan formations (Sand stone and shale -Kaimur sandstone and Bijaigarh Shale) in the southern plateau (CGWB, 2019). The oldest formations exposed are Bijaigarh Shale in the edge of the district around Hanumangunj in Koraon block. Further to the north the sandstone and quartzites, representing the uppermost part of the Kaimur series, are seen as isolated part of the district covering the blocks of Meja,,Manda, Koraon and Shankargarh, The Vindhyans forms the floor of the younger sediments in the Cis-Yamuna area. The Laterite normally overlies Vindhyans at certain places. It is reddish brown to chocolate in color, highly ferruginous, and perforated mass. Alluvium found in the whole of Trans-Ganga, Doab and Part of Trans – Yauna tract of Quaternary age. The alluvium detritus of Vindhyan is found at some places in the southern part of the Doab. In Trans – Yamuna tract, The Vindhyan detritus merges with the Yamuna sand and silt. The thickness of the alluvial sediments gradually increases in the north and maximum thickness is encountered within the flood plain area of river Ganga and Yamuna. Greater thickness is encountered within the Trans – Ganga area where it exceeds 300 meters followed by doab region where it is less than 250 meters and ultimately less than 50 meters in the Trans-Yamuna region. The alluvial sediments essentially composed sands of various grades, clay and silts within the unconsolidated granular mass assemblage of nodular concretions of Calcium Carbonate have been recorded at different depths (CGWB, 2019).

4.2 Surface and Sub-surface geology of MUNPL, MEJA area and Buffer zone

Surface and sub-surface geology guide us about the control of water flow on/in the surface and sub-surface geological formations. Therefore, characterization of the surface and sub-surface geology and their hydraulic properties is essentially required for appraisal of fate of surface water and groundwater. It is in those contexts, surface and sub-surface geology of the area is analysed in detail.

4.3 Surface Soil Features

A soil map for the core zone and buffer zone is prepared based on the soil data available from the National Bureau of Soil Survey and Land Use Planning (NBSS&LUP). The scanned image was geo-10referenced in the ArcGIS software. The geo-referenced was then used to digitize various types of soil polygons falling in the study area. The classified soil map is presented in Figure 4.1. It is seen that most of the area under the buffer zone falls under loamy soils in texture

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with dense sub-surface layer, followed by clayey soils where clay content increases with depth, moderately to slightly acidic in reaction.

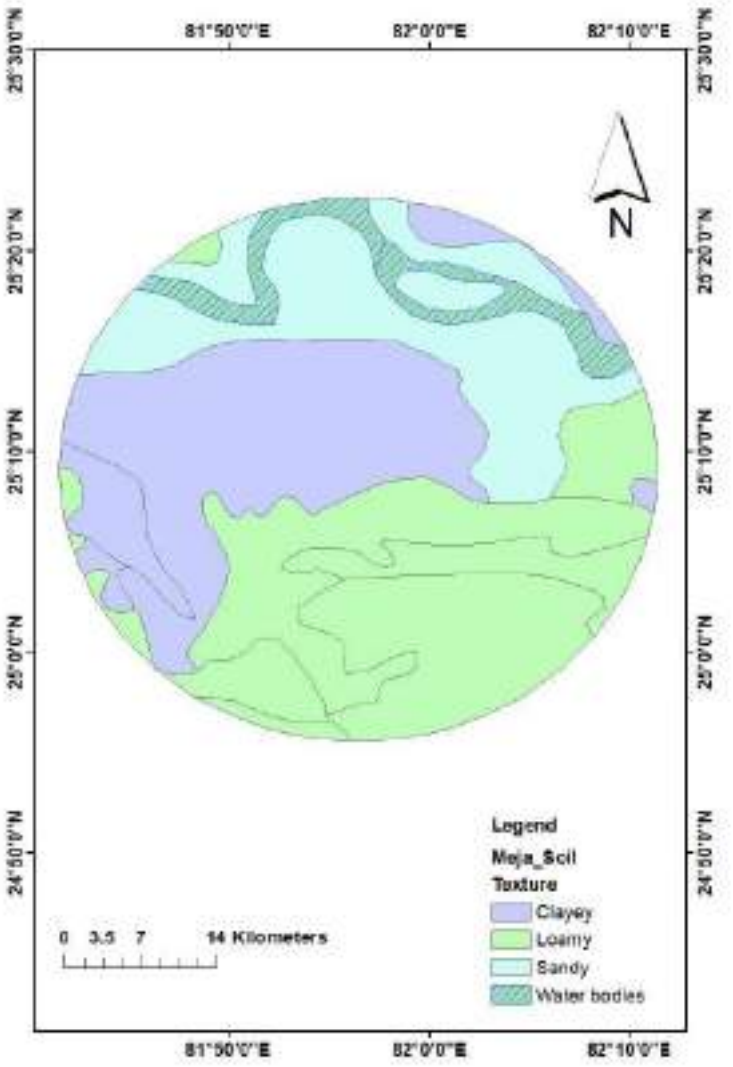


Figure 4.1. Map showing general variation of soil types in the buffer zone.

To identify the rates of infiltration in the study area, infiltration tests were carried out at ten locations, as shown in Figure 4.2. Infiltration is the process by which water on the ground surface enters the soil. The velocity or speed at which water enters into the soil is called the Infiltration rate. Infiltration is the measure of the ability with which soil is able to absorb water. Technically, the Infiltration rate is the volume flux of water flowing into the soil profile per unit of soil surface area. Infiltration is usually measured by the depth (generally in mm) of the water layer that can enter the soil in a specified time (generally one hour). Thus, an Infiltration rate of 15 mm/hour means that a water layer of 15 mm on the soil surface will take one hour to infiltrate.

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Figure 4.2. Map showing infiltration test sites in the study area buffer zone of 25km radius from the NTPC Meja

In dry soil, water infiltrates rapidly. This is called the initial Infiltration rate. As more water replaces the air in the pores, the water from the soil surface infiltrates more slowly and eventually reaches a steady rate. The Infiltration rate decreases to a steady or quasi-steady state as the soil becomes saturated. Therefore, the Infiltration rate curve shows a sharp decline with time. The constant rate approached after a sufficiently large time is referred to as the steady-Infiltration rate. Some water that infiltrates will remain in the shallow soil layer, where it will gradually move vertically and horizontally through the soil and subsurface material. Some of the water may infiltrate deeper, recharging groundwater aquifers.

Infiltration rate is an important component of the hydrologic cycle. It helps to determine how rainfall is divided between recharging the groundwater and running off over the surface as sheet wash and in streams. Infiltration process is responsible for modifying precipitation and converting it to runoff and additions to soil moisture storage. The infiltration and other processes are interrelated through a common dependence on soil moisture conditions. In general, the lower the Infiltration rate, the greater the surface runoff, and thus the greater the potential for soil erosion. A high Infiltration rate lets most of the rain water soak into the soil and make its way downward to the aquifer.

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Soils with low infiltration can be responsible for runoff and flooding and can become saturated during rain events. It, in turn, decreases soil strength and increases erosion potential. It can also cause nutrient deficiencies in plants and generate anaerobic conditions. Soils that have reduced infiltration have an increase in the overall amount of runoff water. This excess water can contribute to local and regional flooding of streams and rivers or result in accelerated soil erosion of fields or stream banks.

A typical variation of infiltration capacity for different soils for different initial conditions is shown in Figure 4.3, It is clear from the figure that the infiltration capacity for a given soil decreases with time from the start of rainfall; it decreases with the degree of saturation and depends upon the type of soil. As discussed earlier, the infiltration capacity values of soils are subjected to wide variation depending upon a large number of factors.

There are a number of available methods which can be used to measure the Infiltration rate in the field. Single Ring and Double Ring Infiltrometer, Mariotte-Double ring Infiltrometer, Disc Permeameter, Rainfall Simulator, Runoff-on-Ponding, Runoff-on-out and Percolation test are the common methods used for Infiltration rate determinations. The Percolation test is the most popular and convenient method for Infiltration rate determination because of its simple experimental setup and straightforward mathematical calculation.

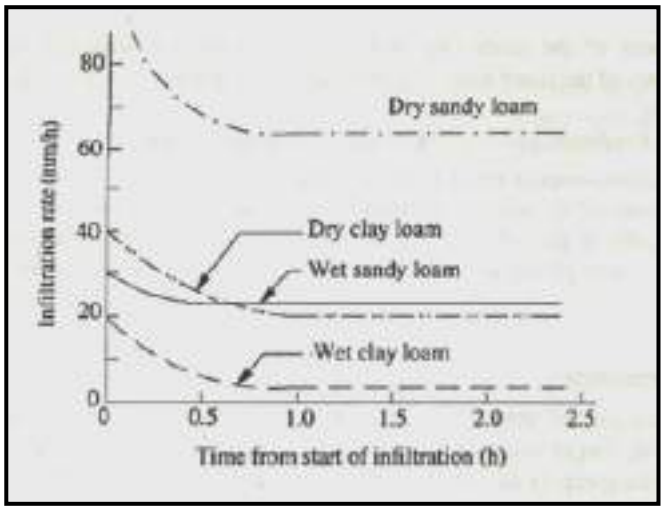


Figure 4.3: Variation of Infiltration capacity (Source: Subramanya, 2013)

(Subramanya K, Engineering Hydrology, Copyright © by McGraw Hill Education (India) Private Limited, Fourth Edition, pp 98-121, 2013)

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Figure 4.4: Field set up of double ring infiltrometer

In the present investigation, the double ring infiltrometer method has been used for the measurement of infiltration rates. The Double Ring Infiltrometer consists of two rings; an inner and outer ring. The purpose in having two rings is to create a one-dimensional flow of water from the inner ring, as the analysis of data is simplified. If water is flowing in one dimension at steady-state condition, and a unit gradient is present in the underlying soil, and the infiltration rate is approximately equal to the saturated hydraulic conductivity. The inner ring is driven into the ground, and there is a second bigger ring around that to help control the flow of water through the first ring. The rings are driven to about 12 cm deep in the soil by using a heavyweight hammer striking on a wooden plank placed on the top of the ring uniformly, without undue disturbance to soil surface. Water is poured into the rings at regular time intervals either with a constant or falling head condition, and the operator records how much water infiltrates from the inner ring into the soil over a given time period. The observations of infiltration rate are carried out in the inner ring with field type point gauge and stopwatch. Figure 4.4 shows the field setup of the double-ring infiltrometer. The results from the double ring infiltrometer (constant head) test sites are shown in Table 4.2a to 4.2h and Figure 4.6a to 4.6h.

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Figure 4.5: The field setup of the double-ring infiltration inside the NTPC Meja Plant and 25 Km radius buffer zone.

The result obtained from the infiltration test indicates very low final infiltration rates varying from 0.3 (Lediyari village) to 7.0 (Basahih) mm/hr of the soil near the plant premises. This indicates that the surface and sub-surface rate of infiltration is low, due to which there are chances of low recharge or high surface runoff.

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1400

1024

Table 4.1a: Infiltration test analysis at location-01

Client:		NTPC Meja			**Date**	December-2021	
Location:		Puraniya			Landmark:		
Latitude:		25.266520N			**Longitude:**	81.991197E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	180	0.011	0.1	0.0004	13.3
0.5	30	1	130	0.008	0.2	0.0003	9.6
1	60	2	180	0.011	0.3	0.0002	6.7
1	60	3	150	0.009	0.4	0.0002	5.6
1	60	4	110	0.007	0.5	0.0001	4.1
2	120	6	80	0.005	0.5	0.0000	1.5
2	120	8	130	0.008	0.6	0.0001	2.4
2	120	10	160	0.010	0.7	0.0001	3.0
2	120	12	190	0.012	0.8	0.0001	3.5
2	120	14	170	0.010	0.9	0.0001	3.1
2	120	16	140	0.009	1.0	0.0001	2.6
2	120	18	140	0.009	1.1	0.0001	2.6

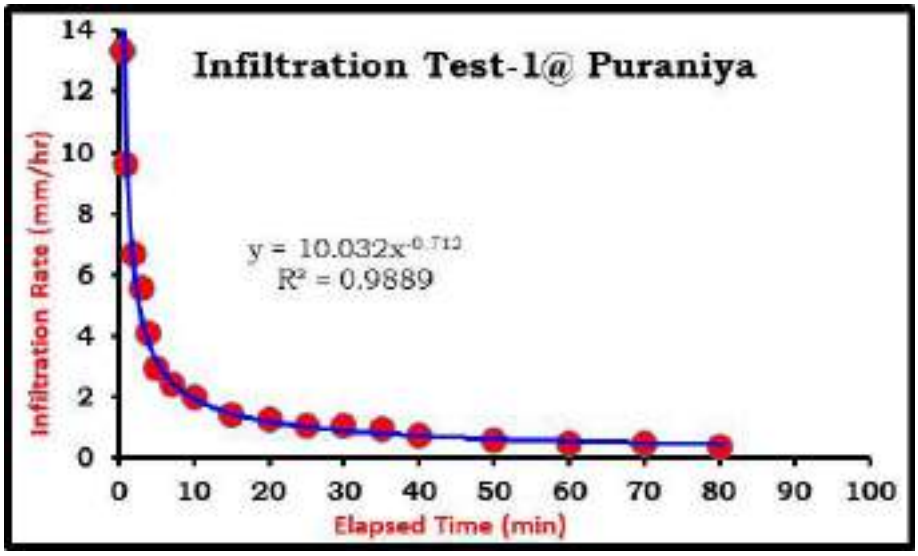


Figure 4.6a: Infiltration rate vs elapsed time graph for location 01

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Table 4.1b: Infiltration test analysis at location-02

1025

Client:		NTPC Meja			Date	08-09-2023	
Location:		Jhari Bazar			Landmark: Near Hanuman Mandir		
Latitude:		25.200896N			Longitude:	81.734189E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	180	0.011	0.1	0.00	13.3
0.5	30	1	130	0.008	0.2	0.00	9.6
1	60	2	180	0.011	0.3	0.00	6.7
1	60	3	150	0.009	0.4	0.00	5.6
1	60	4	110	0.007	0.5	0.00	4.1
1	60	5	80	0.005	0.5	0.00	3.0
2	120	7	130	0.008	0.6	0.00	2.4
3	180	10	160	0.010	0.7	0.00	2.0
5	300	15	190	0.012	0.8	0.00	1.4
5	300	20	170	0.010	0.9	0.00	1.3
5	300	25	140	0.009	1.0	0.00	1.0
5	300	30	140	0.009	1.1	0.00	1.0
5	300	35	130	0.008	1.2	0.00	1.0
5	300	40	100	0.006	1.2	0.00	0.7
10	600	50	160	0.010	1.3	0.00	0.6
10	600	60	130	0.008	1.4	0.00	0.5
10	600	70	120	0.007	1.5	0.00	0.4
10	600	80	100	0.006	1.5	0.00	0.4

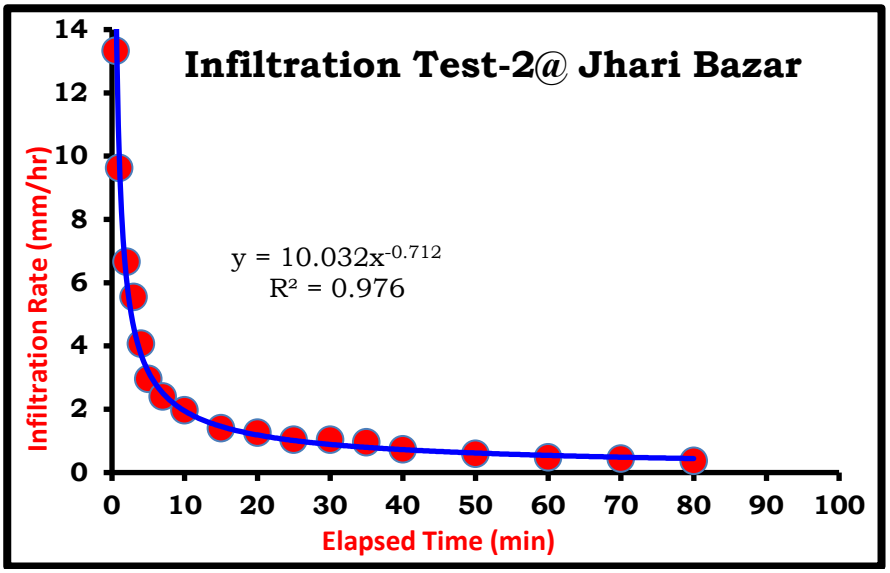


Figure 4.6b: Infiltration rate vs elapsed time graph for location 02

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1402

Table 4.1c: Infiltration test analysis at location 03

1026

Client:		NTPC Meja			**Date**	04-09-2023	
Location:		Chinbana			Landmark: Opps. Shiv Mandir		
Latitude:		25.295730N			**Longitude:**	82.034743E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	160	0.010	0.1	0.00	11.9
0.5	30	1	90	0.006	0.2	0.00	6.7
1	60	2	110	0.007	0.2	0.00	4.1
1	60	3	70	0.004	0.3	0.00	2.6
1	60	4	60	0.004	0.3	0.00	2.2
3	180	7	140	0.009	0.4	0.00	1.7
3	180	10	110	0.007	0.5	0.00	1.4
5	300	15	120	0.007	0.5	0.00	0.9
5	300	20	100	0.006	0.6	0.00	0.7
5	300	25	90	0.006	0.6	0.00	0.7
5	300	30	80	0.005	0.7	0.00	0.6
5	300	35	80	0.005	0.7	0.00	0.6
5	300	40	90	0.006	0.8	0.00	0.7
10	600	50	160	0.010	0.9	0.00	0.6
10	600	60	130	0.008	1.0	0.00	0.5
10	600	70	110	0.007	1.0	0.00	0.4
10	600	80	100	0.006	1.1	0.00	0.4
10	600	90	100	0.006	1.2	0.00	0.4

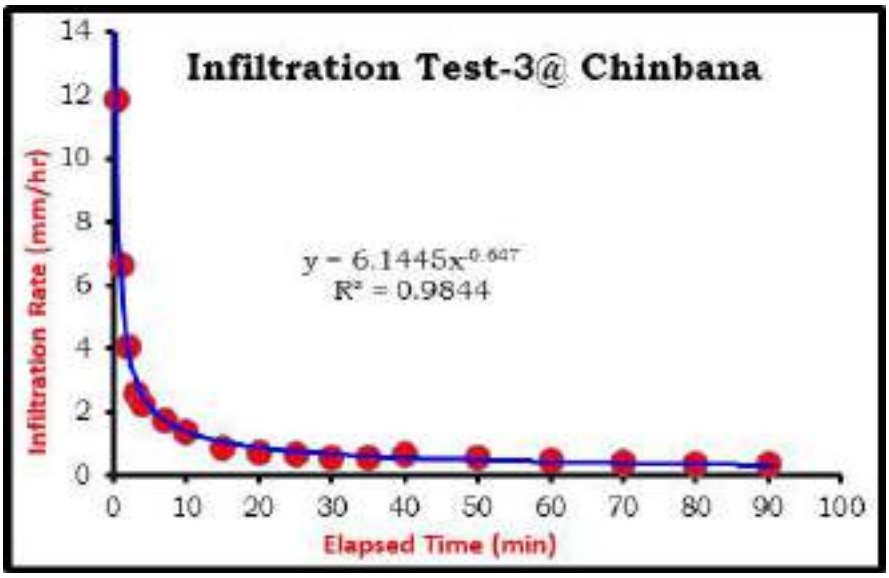


Figure 4.6c: Infiltration rate vs elapsed time graph for location 03

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1403

Table 4.1d: Infiltration test analysis at location 04

1027

Client:		NTPC Meja			**Date**	04-09-2023	
Location:		Basahi			Landmark: Water Supply Tank		
Latitude:		25.295730N			**Longitude:**	82.034743E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	750	0.046	0.5	0.00	55.6
0.5	30	1	420	0.026	0.7	0.00	31.1
1	60	2	580	0.036	1.1	0.00	21.5
1	60	3	540	0.033	1.4	0.00	20.0
1	60	4	430	0.027	1.7	0.00	15.9
1	60	5	380	0.023	1.9	0.00	14.1
2	120	7	670	0.041	2.3	0.00	12.4
2	120	9	710	0.044	2.8	0.00	13.1
3	180	12	930	0.057	3.3	0.00	11.5
3	180	15	780	0.048	3.8	0.00	9.6
5	300	20	1290	0.080	4.6	0.00	9.6
5	300	25	1230	0.076	5.4	0.00	9.1
5	300	30	1210	0.075	6.1	0.00	9.0
5	300	35	1110	0.069	6.8	0.00	8.2
5	300	40	1050	0.065	7.5	0.00	7.8
5	300	45	1080	0.067	8.1	0.00	8.0
5	300	50	1090	0.067	8.8	0.00	8.1
5	300	55	1060	0.065	9.5	0.00	7.9
5	300	60	1030	0.064	10.1	0.00	7.6
5	300	65	990	0.061	10.7	0.00	7.3
5	300	70	1000	0.062	11.3	0.00	7.4
5	300	75	1010	0.062	11.9	0.00	7.5
5	300	80	990	0.061	12.5	0.00	7.3
5	300	85	950	0.059	13.1	0.00	7.0
5	300	90	950	0.059	13.7	0.00	7.0

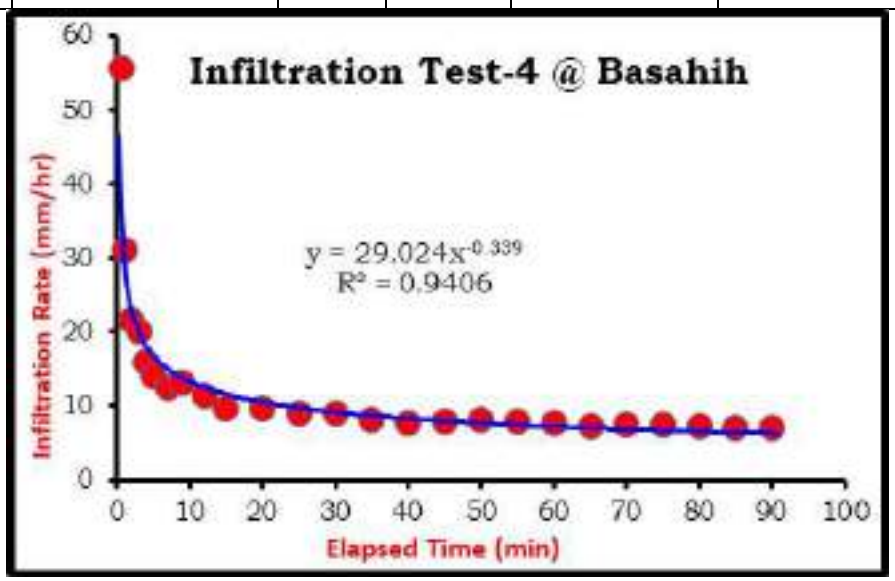


Figure 4.6d: Infiltration rate vs elapsed time graph for location 04

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1404

Table 4.1e: Infiltration test analysis at location 05

1028

Client:		NTPC Meja			**Date**	04-09-2023	
Location:		NTPC Township			Landmark: Market DTDC Courier		
Latitute:		25.142788N			**Longitude:**	81.932318E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	240	0.015	0.1	0.0005	17.8
0.5	30	1	200	0.012	0.3	0.0004	14.8
1	60	2	210	0.013	0.4	0.0002	7.8
1	60	3	190	0.012	0.5	0.0002	7.0
1	60	4	160	0.010	0.6	0.0002	5.9
2	120	6	290	0.018	0.8	0.0001	5.4
2	120	8	310	0.019	1.0	0.0002	5.7
2	120	10	250	0.015	1.1	0.0001	4.6
2	120	12	220	0.014	1.3	0.0001	4.1
3	180	15	270	0.017	1.4	0.0001	3.3
3	180	18	310	0.019	1.6	0.0001	3.8
3	180	21	250	0.015	1.8	0.0001	3.1
3	180	24	260	0.016	2.0	0.0001	3.2
3	180	27	230	0.014	2.1	0.0001	2.8
3	180	30	180	0.011	2.2	0.0001	2.2
5	300	35	350	0.022	2.4	0.0001	2.6
5	300	40	330	0.020	2.6	0.0001	2.4
5	300	45	290	0.018	2.8	0.0001	2.1
5	300	50	270	0.017	3.0	0.0001	2.0
5	300	55	270	0.017	3.1	0.0001	2.0
5	300	60	260	0.016	3.3	0.0001	1.9
5	300	65	250	0.015	3.5	0.0001	1.9
5	300	70	250	0.015	3.6	0.0001	1.9

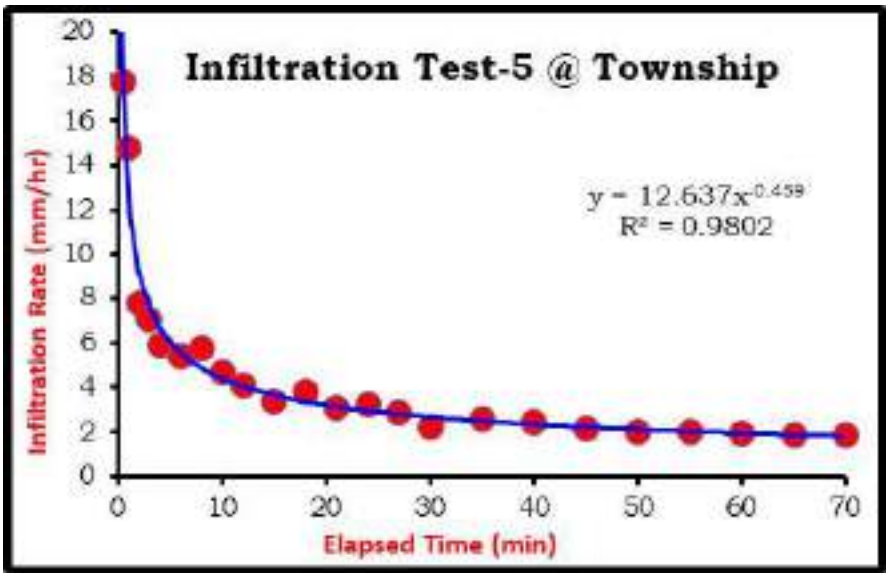


Figure 4.6e: Infiltration rate vs elapsed time graph for location 05

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1405

Table 4.1f: Infiltration test analysis at location 06

1029

Client:		NTPC Meja			**Date**	04-09-2023	
Location:		Dharwara			Landmark: Upper Primary School		
Latitude:		25.182847N			**Longitude:**	81.979608E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	710	0.044	0.4	0.00	52.6
0.5	30	1	530	0.033	0.8	0.00	39.3
1	60	2	550	0.034	1.1	0.00	20.4
1	60	3	510	0.031	1.4	0.00	18.9
1	60	4	440	0.027	1.7	0.00	16.3
1	60	5	350	0.022	1.9	0.00	13.0
1	60	6	230	0.014	2.0	0.00	8.5
2	120	8	190	0.012	2.2	0.00	3.5
2	120	10	150	0.009	2.3	0.00	2.8
5	300	15	260	0.016	2.4	0.00	1.9
5	300	20	180	0.011	2.5	0.00	1.3
10	600	30	240	0.015	2.7	0.00	0.9
10	600	40	210	0.013	2.8	0.00	0.8
10	600	50	200	0.012	2.9	0.00	0.7
10	600	60	190	0.012	3.0	0.00	0.7
10	600	70	190	0.012	3.2	0.00	0.7

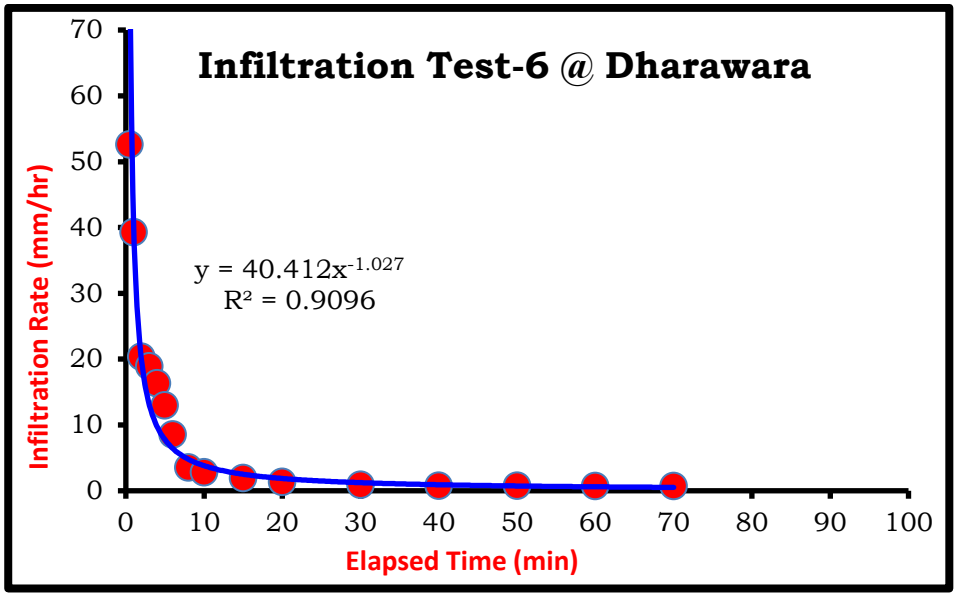


Figure 4.6f: Infiltration rate vs elapsed time graph for location 06

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1406

Table 4.1g: Infiltration test analysis at location 07

1030

Client:	NTPC Meja				**Date**	03-09-2023	
Location:	Uruva village				Landmark: Near Bus Stand		
Latitude:	25.199252N				**Longitude:**	82.123701E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth(cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
1	60	1	390	0.024	0.2	0.0004	14.4
1	60	2	300	0.019	0.4	0.0003	11.1
1	60	3	260	0.016	0.6	0.0003	9.6
1	60	4	300	0.019	0.8	0.0003	11.1
2	120	6	350	0.022	1.0	0.0002	6.5
2	120	8	340	0.021	1.2	0.0002	6.3
2	120	10	330	0.020	1.4	0.0002	6.1
5	300	15	660	0.041	1.8	0.0001	4.9
5	300	20	550	0.034	2.1	0.0001	4.1
5	300	25	530	0.033	2.5	0.0001	3.9
5	300	30	500	0.031	2.8	0.0001	3.7
5	300	35	460	0.028	3.1	0.0001	3.4
5	300	40	420	0.026	3.3	0.0001	3.1
5	300	45	380	0.023	3.6	0.0001	2.8
5	300	50	370	0.023	3.8	0.0001	2.7
5	300	55	360	0.022	4.0	0.0001	2.7
5	300	60	360	0.022	4.2	0.0001	2.7
10	600	70	700	0.043	4.7	0.0001	2.6
10	600	80	690	0.043	5.1	0.0001	2.6
10	600	90	690	0.043	5.5	0.0001	2.6

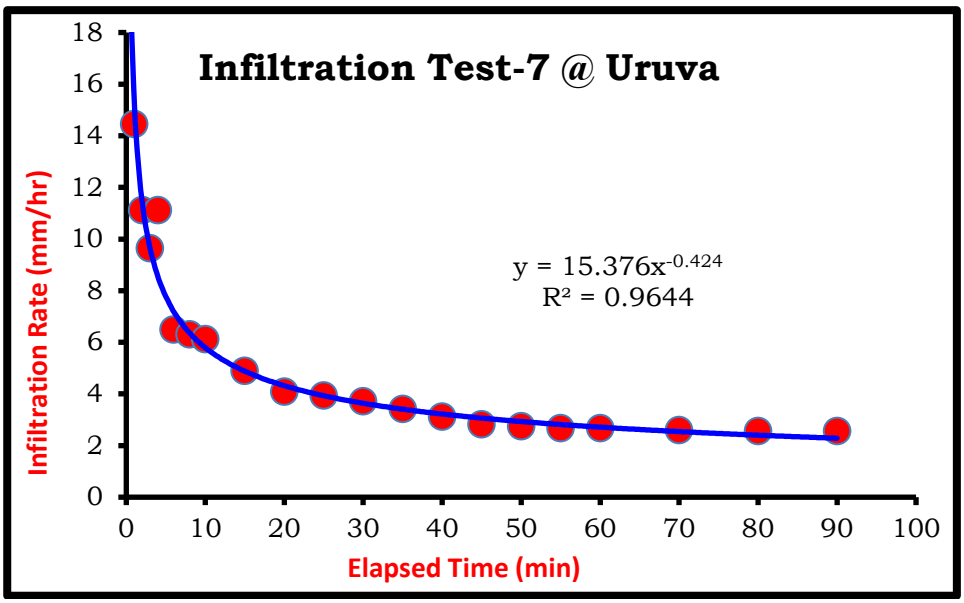


Figure 4.6g: Infiltration rate vs elapsed time graph for location 07

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Table 4.1h: Infiltration test analysis at location 08

1031

Client:		NTPC Meja			**Date**	03-09-2023	
Location:		Kheri Village			Landmark: Upper Primary School		
Latitude:		25.038937N			**Longitude:**	81.810725 E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
0.5	30	0.5	360	0.022	0.2	0.000741	26.7
0.5	30	1	270	0.017	0.4	0.000556	20.0
1	60	2	200	0.012	0.5	0.000206	7.4
1	60	3	160	0.010	0.6	0.000165	5.9
1	60	4	120	0.007	0.7	0.000123	4.4
2	120	6	110	0.007	0.8	0.000057	2.0
2	120	8	100	0.006	0.8	0.000051	1.9
2	120	10	110	0.007	0.9	0.000057	2.0
5	300	15	200	0.012	1.0	0.000041	1.5
5	300	20	160	0.010	1.1	0.000033	1.2
5	300	25	130	0.008	1.2	0.000027	1.0
5	300	30	110	0.007	1.3	0.000023	0.8
10	600	40	190	0.012	1.4	0.000020	0.7
10	600	50	140	0.009	1.5	0.000014	0.5
10	600	60	120	0.007	1.5	0.000012	0.4
10	600	70	120	0.007	1.6	0.000012	0.4
10	600	80	110	0.007	1.7	0.000011	0.4

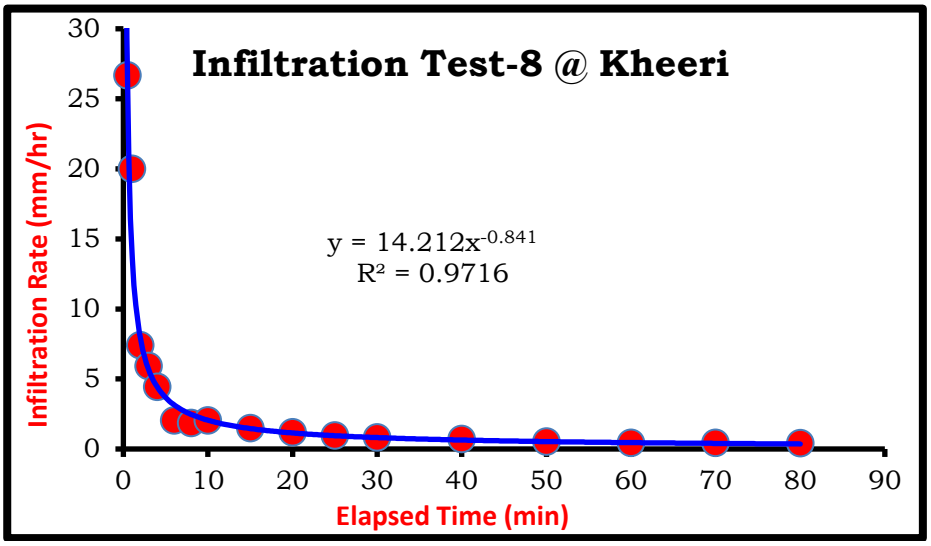


Figure 4.6h: Infiltration rate vs elapsed time graph for location 08

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Table 4.1i: Infiltration test analysis at location 09

Client:		NTPC Meja			**Date**	03-09-2023	
Location:		Leriyari village			Landmark: Opposite Inter college		
Latitude:		24.999414N			**Longitude:**	81.939330E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
1	60	1	910	0.056	0.6	0.000936	33.7
1	60	2	800	0.049	1.1	0.000823	29.6
1	60	3	600	0.037	1.4	0.000617	22.2
1	60	4	440	0.027	1.7	0.000453	16.3
1	60	5	310	0.019	1.9	0.000319	11.5
1	60	6	200	0.012	2.0	0.000206	7.4
2	120	8	360	0.022	2.2	0.000185	6.7
2	120	10	290	0.018	2.4	0.000149	5.4
5	300	15	440	0.027	2.7	0.000091	3.3
5	300	20	310	0.019	2.9	0.000064	2.3
5	300	25	230	0.014	3.0	0.000047	1.7
5	300	30	160	0.010	3.1	0.000033	1.2
10	600	40	130	0.008	3.2	0.000013	0.5
10	600	50	110	0.007	3.3	0.000011	0.4
10	600	60	90	0.006	3.3	0.000009	0.3
10	600	70	80	0.005	3.4	0.000008	0.3
10	600	80	90	0.006	3.4	0.000009	0.3

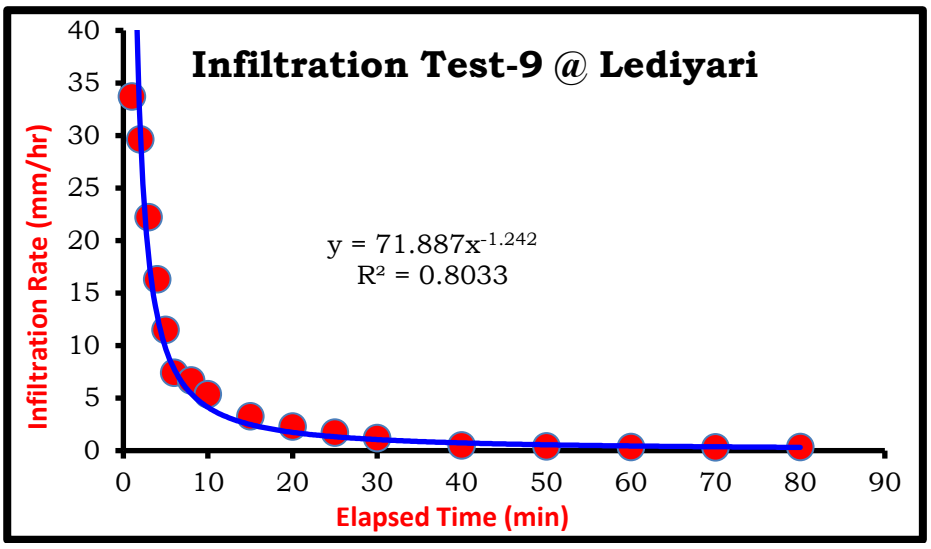


Figure 4.6i: Infiltration rate vs elapsed time graph for location 09

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Table 4.1j: Infiltration test analysis at location 10

1033

Client:		NTPC Meja			**Date**	03-09-2023	
Location:		Pasana village			Landmark: Kisan smaridhi Kendra		
Latitude:		25.077290N			**Longitude:**	82.106697E	
Time (min)	**Time (Sec)**	**Cumulative Time (min)**	**Vol (cm^3)**	**Depth (cm)**	**Cumulative (mm)**	**Infil. Rate cm/sec**	**Infil. Rate mm/hr**
1	60	1	450	0.028	0.3	0.000463	16.67
1	60	2	310	0.019	0.5	0.000319	11.48
1	60	3	170	0.010	0.6	0.000175	6.30
1	60	4	110	0.007	0.6	0.000113	4.07
1	60	5	90	0.006	0.7	0.000093	3.33
2	120	7	160	0.010	0.8	0.000082	2.96
3	180	10	200	0.012	0.9	0.000069	2.47
5	300	15	140	0.009	1.0	0.000029	1.04
5	300	20	100	0.006	1.1	0.000021	0.74
5	300	25	80	0.005	1.1	0.000016	0.59
5	300	30	60	0.004	1.2	0.000012	0.44
5	300	35	70	0.004	1.2	0.000014	0.52
5	300	40	60	0.004	1.2	0.000012	0.44
10	600	50	110	0.007	1.3	0.000011	0.41
10	600	60	100	0.006	1.4	0.000010	0.37
10	600	70	100	0.006	1.4	0.000010	0.37

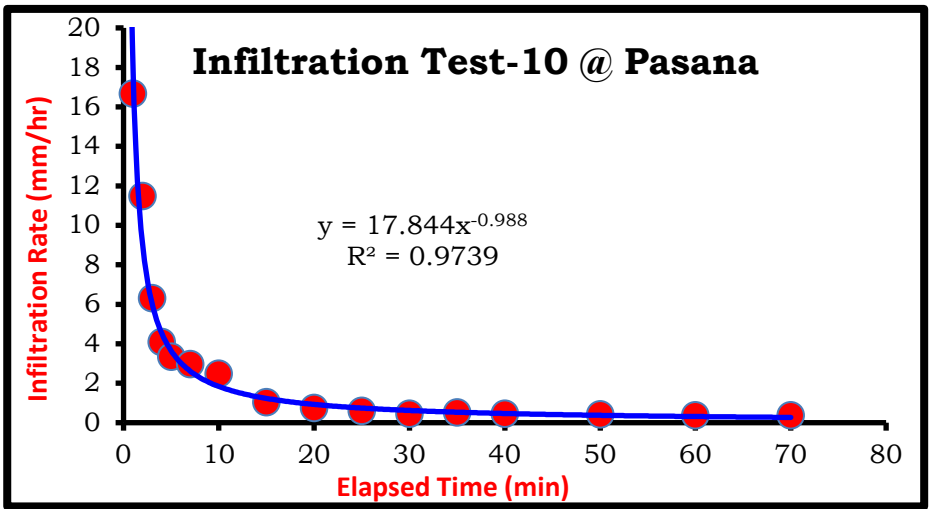


Figure 4.6j: Infiltration rate vs elapsed time graph for location-10

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1410
1034

Table 4.1k: Location of the infiltration tests conducted near NTPC, MEJA along with the initial and final soil infiltration rate:

S. No.	Grid No.	Location	Latitude (N)	Longitude (E)	Initial Infiltration rate (mm/hr)	Steady Infiltration rate (mm/hr)
1	Infiltration-01	Purania	25.266520	81.991197	13.3	2.6
2	Infiltration-02	Jhari Bazar	25.200896	81.734189	13.3	0.4
3	Infiltration-03	Chinbana	25.295730	82.034743	11.9	0.4
4	Infiltration-04	Basahih	25.29573	82.034743	55.6	7.0
5	Infiltration-05	NTPC Township	25.142788	81.932318	17.8	1.9
6	Infiltration-06	Dharawara	25.182847	81.979608	52.6	0.7
7	Infiltration-07	Uruva village	25.199252	82.123701	14.4	2.6
8	Infiltration-08	Kheeri Village	25.038937	81.810725	26.7	0.4
9	Infiltration-09	Lediyari village	24.999414	81.93933	33.7	0.3
10	Infiltration-10	Pasana village	25.07729	82.106697	16.7	0.4

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4.4 Sub-surface Geology

Geologically, the rock formations exposed in the study area belong to Dhandraul Formation of Kaimur group of Vindhyan Super group comprising medium to coarse grained, white to greyish and white sandstone in the study area. The rock exhibits sedimentary structure like ripple marks and cross bedding. The rocks were moderately jointed. The deposition of horizontal and vertical joints has given the blocky nature to the rock (Fig. 4.7). Also, the area exposes quaternary sediments represented by Banda Alluvium (Older Alluvium). The area is covered with thick overburden comprising yellowish brown variegated silty clay with ubiquitous kankar and coarse to fine sand and reddish-brown silt. Porous alluvial formation occurring in the alluvium plain area, forms the most prolific aquifer system, whereas the sedimentary semi-consolidated formations and hard rocks, form aquifer of low yield prospect in the denudational hilly region.

Two broad hydrogeological units, namely, unconsolidated (Alluvium) and consolidated (hard rock) are the major components in the district. Groundwater occurs in alluvium and in the weathered and joint sandstones in areas which are underlain by the hard rocks such as in Salaiya Khurd, Salaiya Kalan and Jhadiyahi denudational hilly region. The drill hole data revealed that the thickness of overburden varies from 0.5 to 34.25 m,bgl in the study area. However, near VES-01 village Salaiya Khurd around 1.65 m,bgl overburden was observed.

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Figure 4.7: Blocky nature of rock due to deposition of horizontal and vertical joint sets near Ash dyke of NTPC Meja

In the study area wells and tube wells are the main ground water abstraction structures. Ground water is being developed in the area by medium to deep tube wells, dug wells, dug-cum bored wells. Based on 3 exploratory wells data in the area CGWB observed yield at Pipraon village was about 770 lpm (good to excellent on groundwater prospective) whereas yield of 107 lpm encountered at Saliya Khurd village belongs to very poor prospective area. Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period (September 2023).

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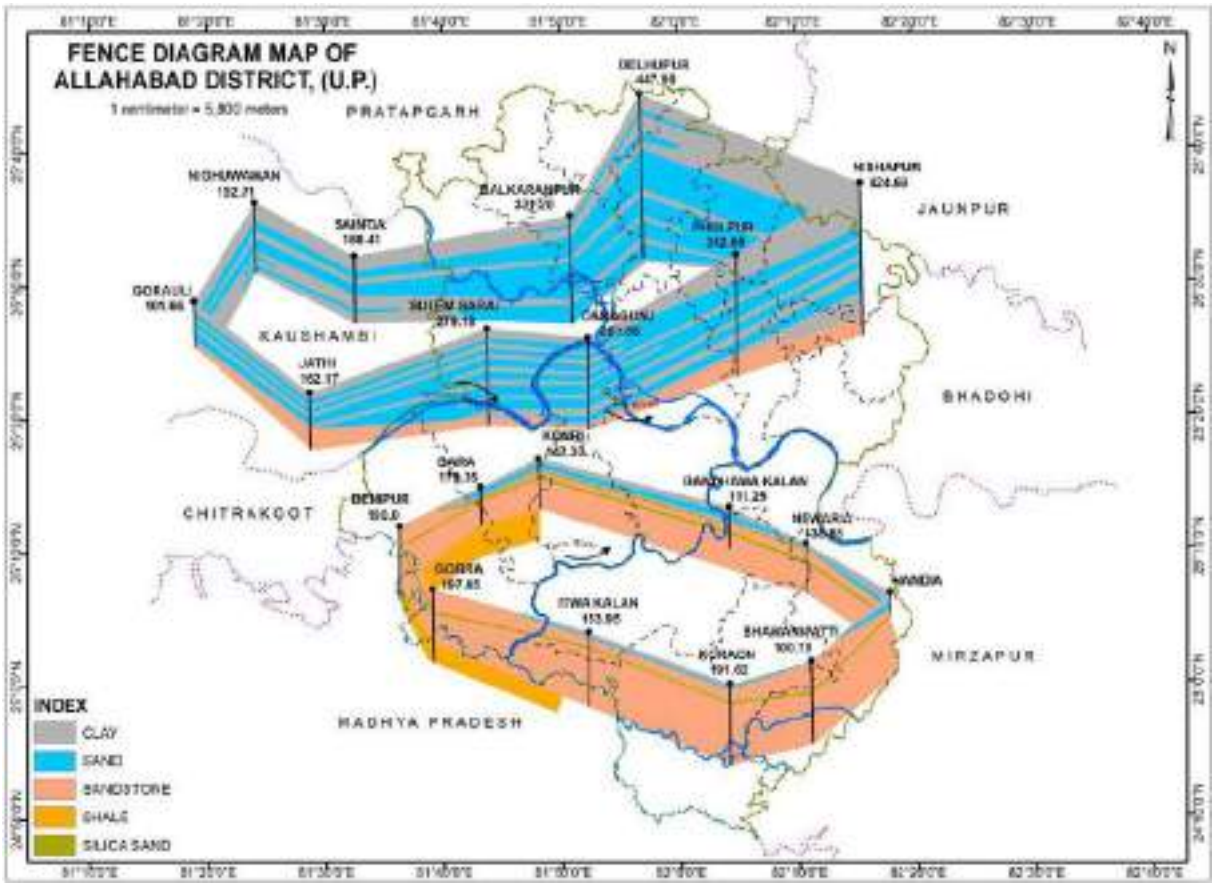


Figure 4.8. 3D lithological model showing hydro-geological condition in the Prayagraj (Allahabad) district (CGWB)

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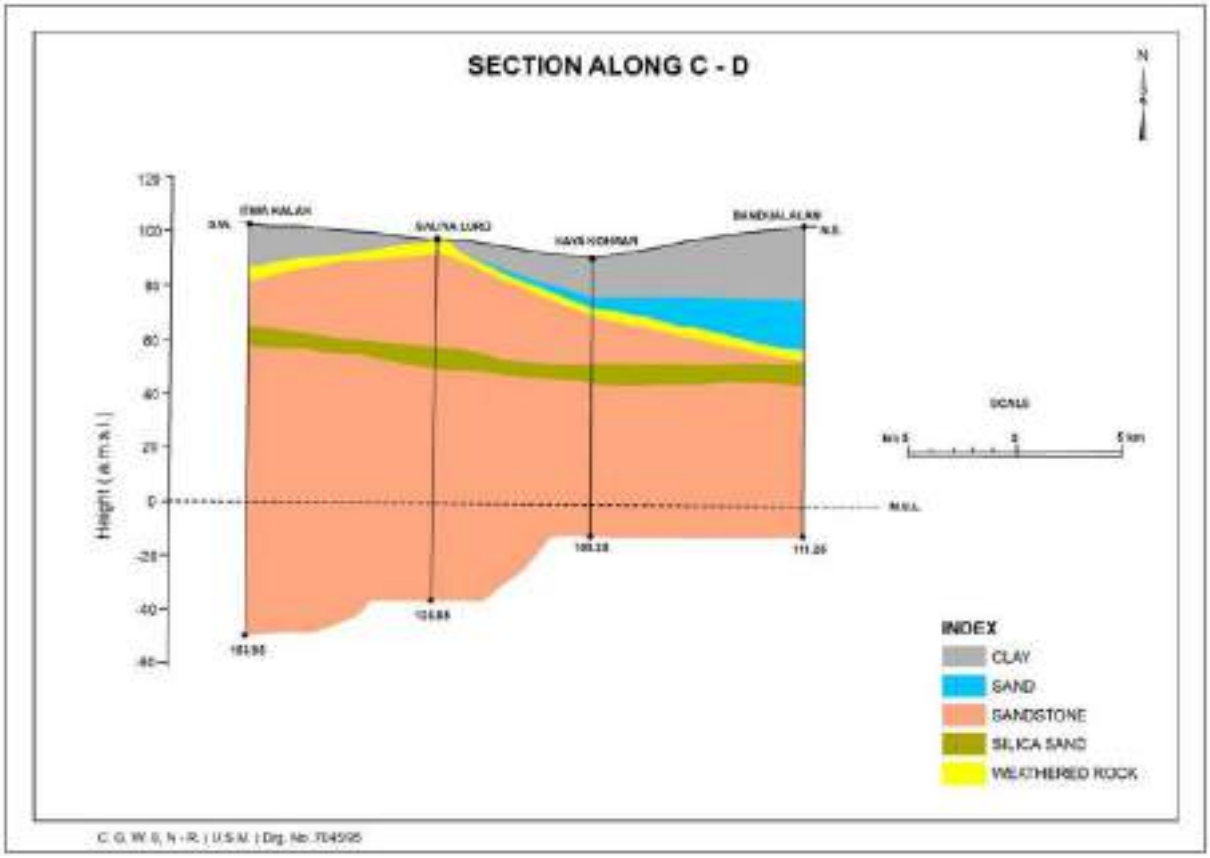


Figure 4.9. Map showing sectional view of hydro-geological variation along section C-D´. (CGWB)

4.5 Summary

(i) Geology of the district exposes rocks belonging to the Dhandraul Formation of Kaimur group of Vindhyan Super group.

(ii) The rock exhibits sedimentary structure like ripple marks and cross bedding. The rocks were moderately jointed. The deposition of horizontal and vertical joints has given the blocky nature to the rock. Also, the area exposes quaternary sediments represented by Banda Alluvium (Older Alluvium).

(iii)The area is covered with thick overburden comprising yellowish brown variegated silty clay with ubiquitous kankar and coarse to fine sand and reddish-brown silt. Porous alluvial formation occurring in the alluvium plain area, forms the most prolific aquifer system, whereas the sedimentary semi-consolidated formations and hard rocks, form aquifer of low yield prospect in the denudational hilly region.

(iv)Groundwater occurs in alluvium and in the weathered and joint sandstones in areas which are underlain by the hard rocks such as in Salaiya Khurd, Salaiya Kalan and

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Jhadiyahi denudational hilly region. The drill hole data revealed that the thickness of overburden varies from 0.5 to 34.25 m,bgl in the study area.

(v) The infiltration rate varies from 0.3 (Ladiyari) to 7 mm/hour (Basahih) in various parts of the study area indicating low infiltration rates.

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5. Climate and Rainfall Pattern

5.1 General

The district Prayagraj experiences humid sub-tropical climate. January is the coldest month and May is the hottest. Peak temperature in summer reaches to 40.4°C. In winter, the minimum temperature falls up to 9.1°C. The humidity is the highest in the month of August with mean daily relative humidity at 82%. Winds are generally high throughout the year with some increase in force in summer and monsoon season. The mean wind velocity is 5.1 kmph. The potential evapotranspiration is 1537.5 mm. Normal rainfall of the district is 1042 mm. Almost 90% of the total annual rainfall is received during the southwest monsoon which enters the district in the second or third week of June and withdraws in the mid of September.

5.2 Rainfall Analysis

The gridded rainfall and temperature data for the study area are collected from the India Meteorological Department (IMD), Pune. Long series of gridded (0.25^o x 0.25^o) daily rainfall records of 36 years from 1985 to 2021 for the study area grids 24.75^o to 25.00^o N latitude and 74.00^o to 74.25^o E longitude from the IMD are used in the analyses. Similarly, long series of gridded (1^o x 1^o) daily temperature records of 37 years from 1986 to 2022 for the grid 24.50^o N latitude and 80.50^o E longitude are used. The annual rainfall of different years from 1985 to 2021 shown in Figure 5.1 depicts that the rainfall varied from year to year that ranges between 379. mm to 1300 mm with an average of 858 mm. The long-term daily average rainfall for the area is shown in Figure 5.2 indicating most of the rainfall (90%) during the monsoon period. It is also seen that rainfall is visible in most of the days which is because of averaging of daily rainfall of 36 years' period. The probability density function of the rainfall data, which is determined based on the different class intervals of rainfall events and their frequency distribution, is also carried out to find out the best fitted distribution of the rainfall pattern. After obtaining the best fitted distribution (in the present case it is observed to be normally distributed as shown in Figure 5.3, the pattern of the daily rainfall distribution estimated based on the mean and standard deviation value of the best fitted frequency distribution (Figure 5.3) is thereafter redefined, and the distribution is shown in Figure 5.3. The mean and the standard deviation of the fitted normal frequency distribution, which has the following mathematical form (Equation 1) are found to be 857 and 235, respectively.

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}}\, exp\left[-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2\right] \quad \ldots \quad (5.1)$$

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where f(x) is the probability density function; μ is the mean; σ is the standard deviation; and x is the class interval value.

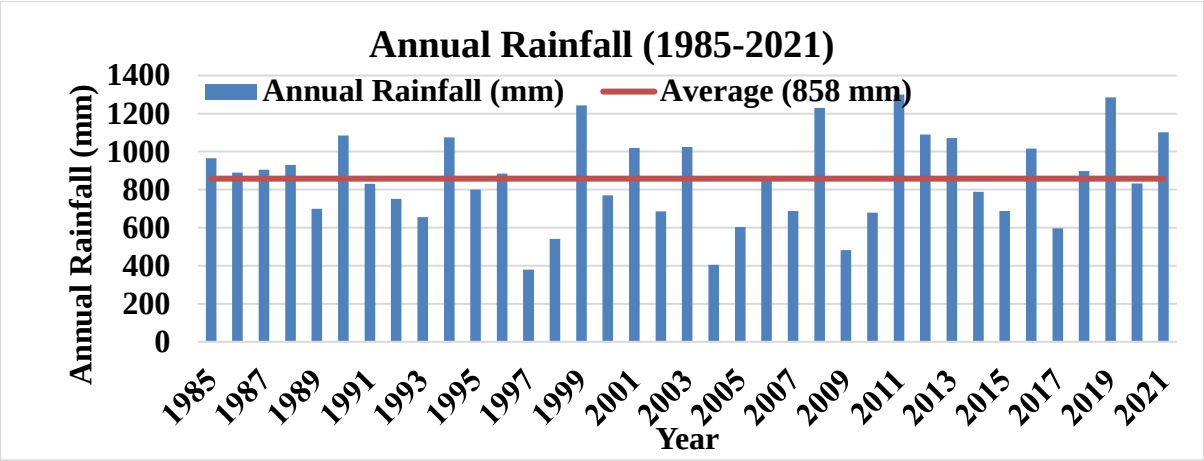


Figure 5.1. Variation of annual rainfall in the study area.

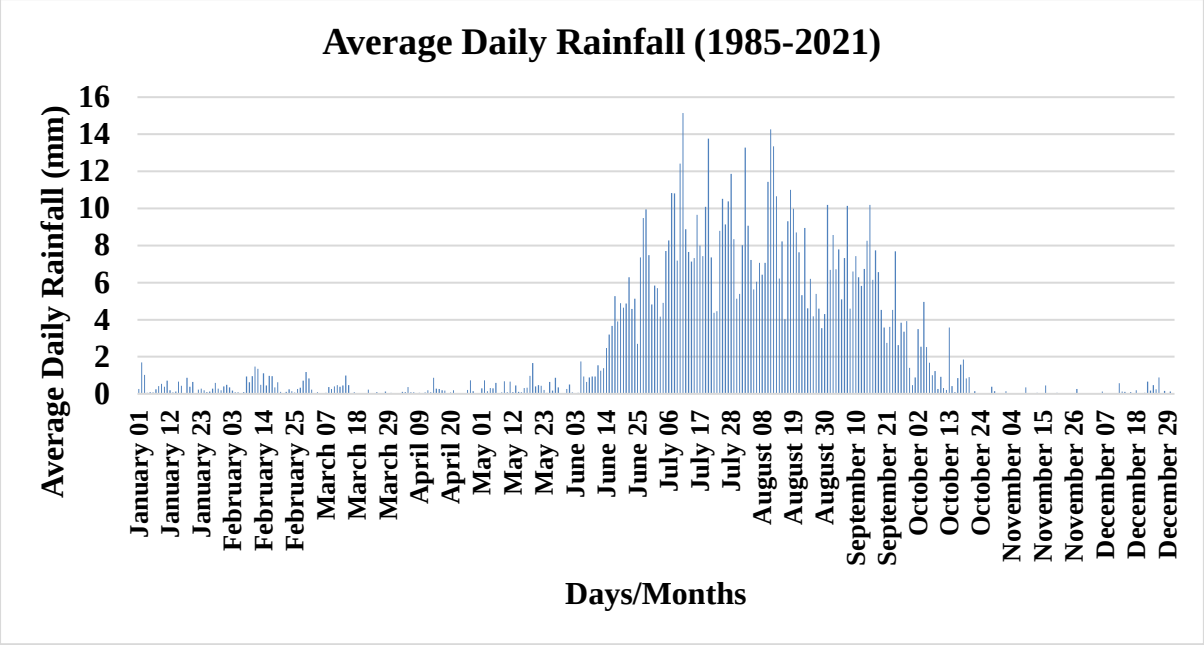
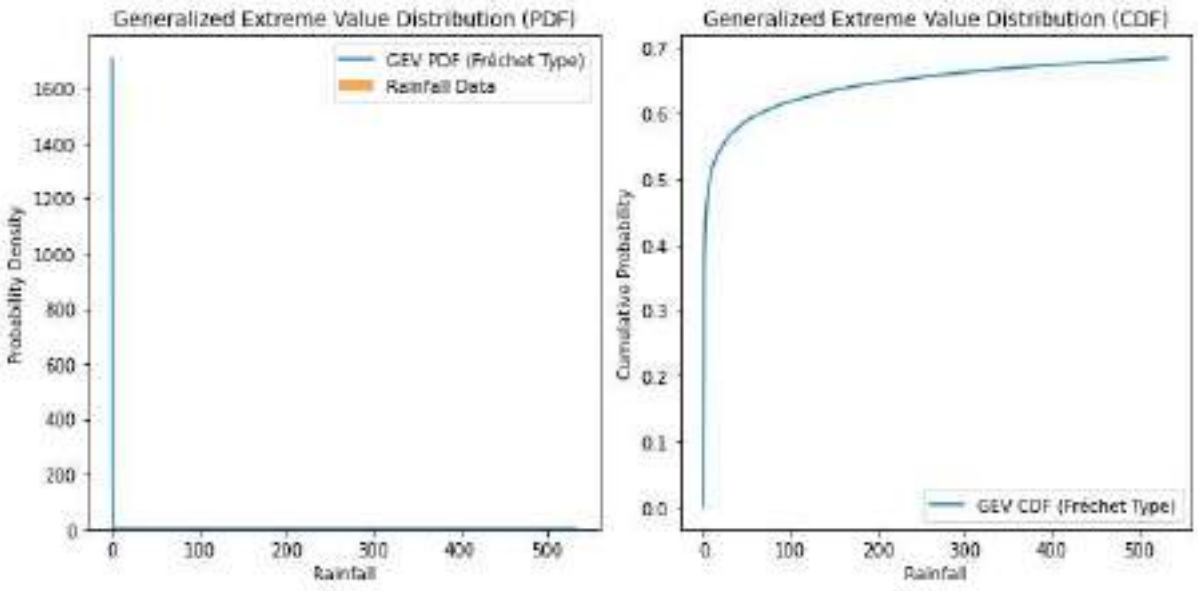


Figure 5.2. Average daily rainfall distribution in the study area derived from the analysis of 36 years (1985-2021) rainfall data.

Estimated Mean (μ): 2.348705154802776, Estimated Standard Deviation (σ): 8.23416394388357

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Best fitted frequency distribution of 36 years' **Monthly** rainfall data for the study area

Estimated Mean (μ): 71.48739068019081, Estimated Standard Deviation (σ): 113.36208576851793

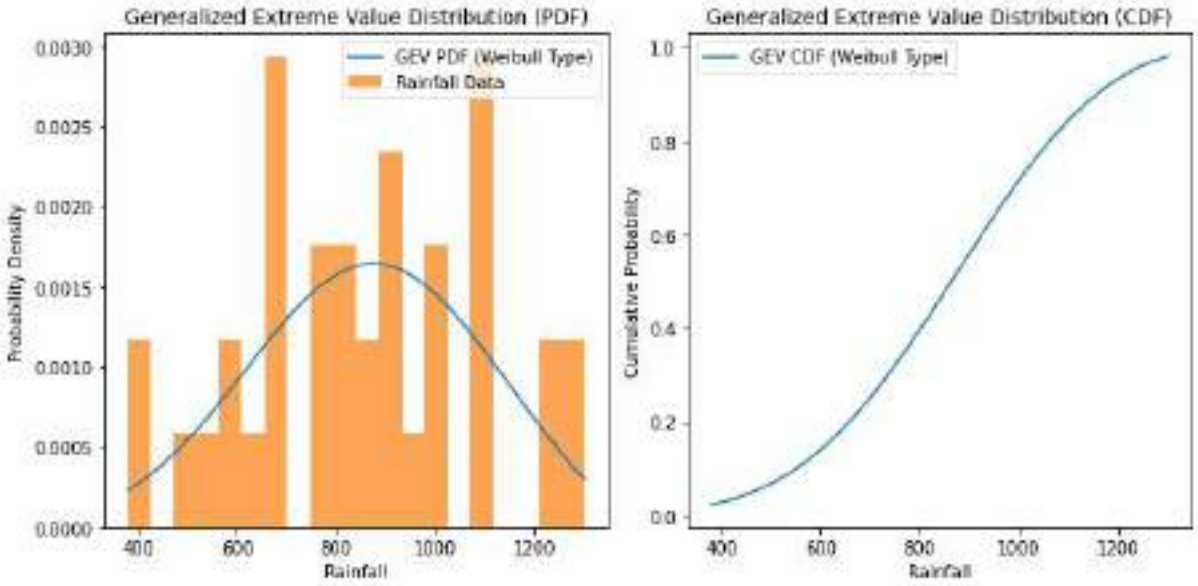


Figure 5.3. Best fitted frequency distribution of 36 years daily rainfall data for the study area. The Probability Density Function (pdf) showed a normally distributed curve with mean of 857 and standard deviation of 235.

Estimated Mean (μ): 857.8486881622896, Estimated Standard Deviation (σ): 235.16427171094404

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We have taken the sign of the shape parameter into estimations and correctly identifies the type of GEV distribution (Weibull, Fréchet, or Gumbel). The plots display the GEV PDF and CDF with the appropriate type based on the estimated shape parameter.

The annual average rainfall of the study area is found to be 858 mm. Trend analysis is carried out on the annual rainfall time series covering 36 years' period from 1985 to 2021. Mann-Kendall's trend analysis was performed to see whether there is any trend in the annual rainfall. The analysis indicated S_{stat} as 208, Z_{comp} as 2.707, and Z_{tab} as 1.96 at 5 % significance level. The trend analysis results show the significant rising trend in the annual rainfall in the area under investigation.

The distribution of the average monthly rainfall is given in Table 5.1, which indicates that June through September is the wettest months. In the wettest months (monsoon season) about 921 mm (89.07 % of the annual rainfall) is received. Table 5.1 indicates that as if in every month, the area receives some amount of rainfall, which may not be true physically in every area. This is because of the averaging of 36 years daily rainfall.

Table 5.1: Estimated average monthly rainfall in the area

Month	**Average monthly rainfall (mm)**
January	17
February	20
March	11
April	7
May	10
June	137
July	332
August	275
September	187
October	36
November	4
December	6
Total	**1042**

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In order to ascertain the certainty of rainfall that may occur, the probability analysis of the rainfall data for the period from 1985 to 2021 is also carried out for different probability levels. Lower probability indicates less assurance to the occurrence of rainfall, while higher probability indicates that rainfall has more chance to occur. For doing the analysis, average daily rainfall data has been converted to the average monthly data. The monthly rainfall data has thereafter been analysed for different probability levels. The probability of annual rainfall at different percentage of probability is shown in Figure 5.4. The probability of monthly rainfall for different probability of exceedance is shown in Figure 5.5. Figures 5.4 and 5.5 showed that as the probability increases the magnitude of rainfall events (Figure 5.4) and the quantity of annual rainfall decrease implying more assurance in the occurrence of the corresponding rainfall events. The rainfall distribution at various probabilities with desired assurance can be used for planning water usages and manage the water resources during low rainfall years.

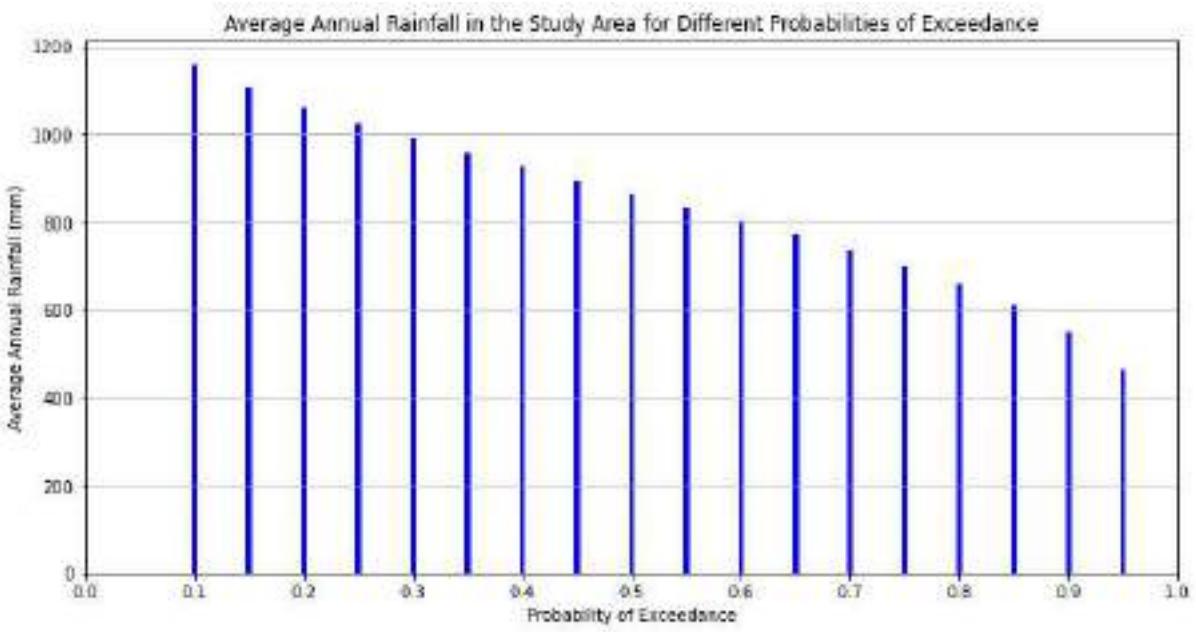


Figure 5.4. Average annual rainfall in the study area at different probability of exceedance.

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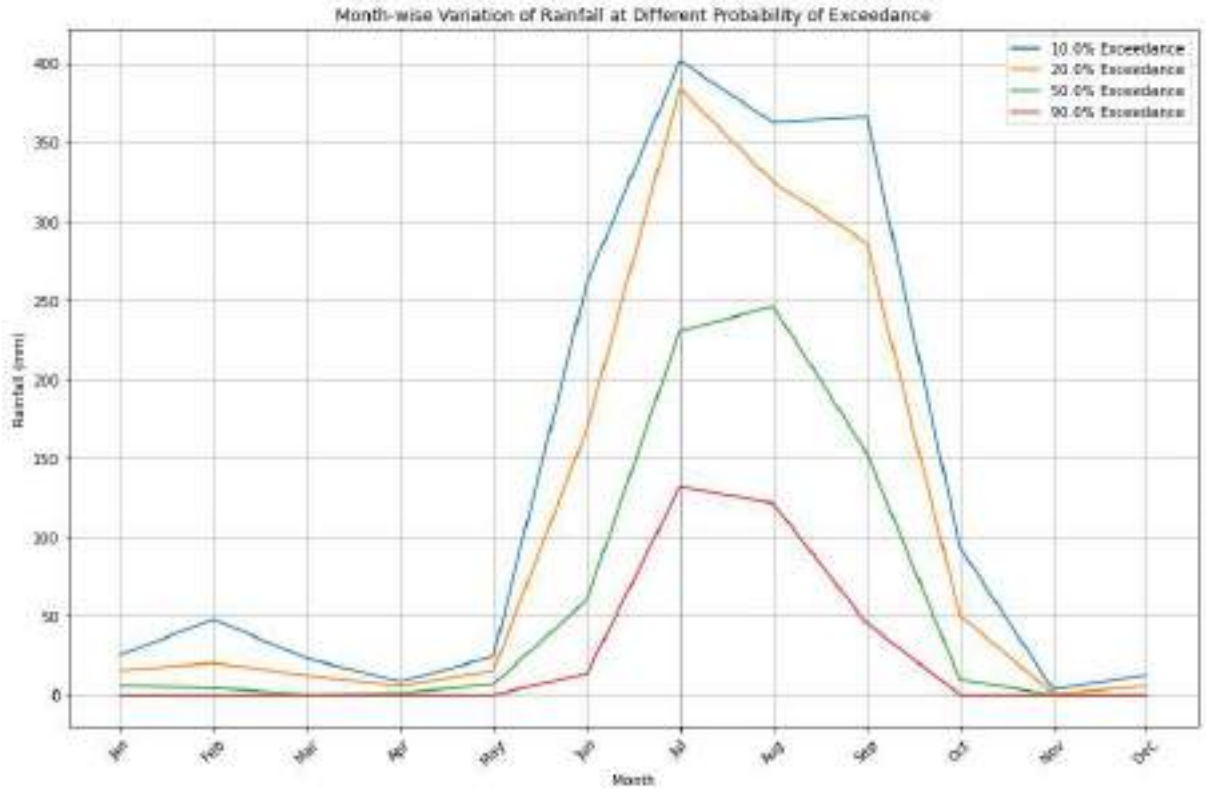


Figure 5.5. Month-wise variation of rainfall of the study area at different probability of exceedance.

5.3 Temperature Analysis

The variation of minimum, average and maximum temperature on monthly basis is shown in Figure 5.6. It is seen that the monthly average temperature varies from 8.5 ^{o}C in January to 40.8 ^{o}C in May. January and December are the coldest months while May and June are the hottest months.

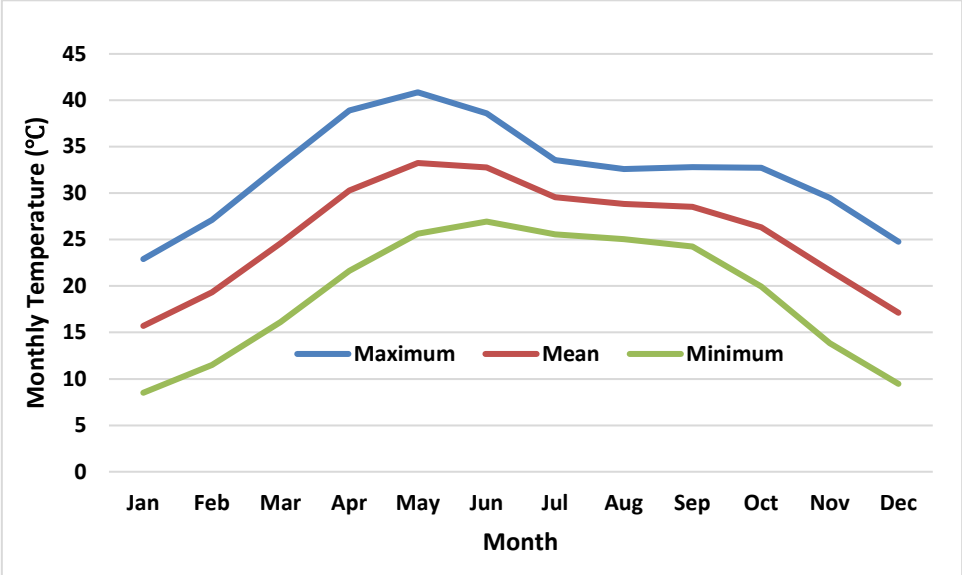


Figure 5.6. Variation of minimum, average and maximum average temperatures**.**

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The variation of minimum, average and maximum temperature on weekly basis is shown in Figure 5.7. It is seen that the weekly average temperature varies from 8.3 ^{o}C in the 1st week (January) to 41 ^{o}C in the 20th week (May).

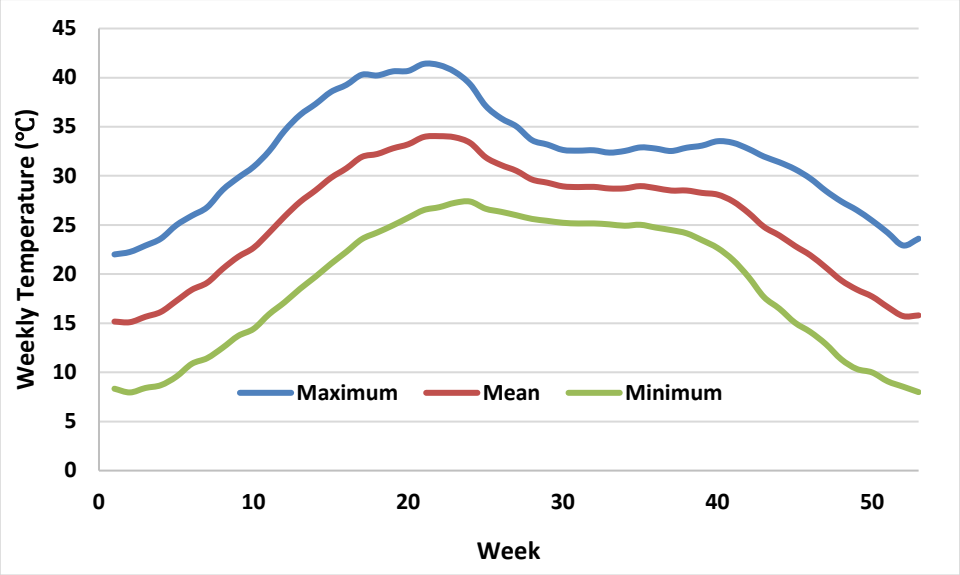


Figure 5.7. Variation of minimum, average and maximum weekly temperatures**.**

5.4 Summary

(i) Analysis of long series daily rainfall data of 36 years (1985-2021) of the study area showed that annual rainfall varied from year to year ranging between 379. mm to 1300 mm with an average of 858 mm.

(ii) About 921 mm (89.07 % of the annual rainfall) is received during the monsoon months, June through September.

(iii)Probability analysis of the annual rainfall data carried out at various dependability levels showed that the quantity of rainfall at 20%, 50%, and 90% probability of exceedance is 370, 250, and 130 mm, respectively.

(iv)The trend analysis carried out on the annual rainfall time series covering 36 years' period from 1985 to 2021 indicated the significant rising trend in the annual rainfall of the area.

(v) The monthly average temperature varies from 9.1 ^{o}C in January to 40.8 ^{o}C in May. January is the coldest month while May is the hottest month. The weekly average temperature varies from 8.3 ^{o}C in the 1st week (January) to 41 ^{o}C in the 20th week (May).

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6. Hydrogeology, Groundwater, geophysical survey and pump test

6.1 General

Analysis of hydrogeology will help to understand how water interacts with geological systems. Groundwater flow direction will help delineate movement of groundwater. Hydrogeology together with its hydraulic properties and groundwater flow direction will help assess the groundwater potential.

To characterize the hydrogeology, groundwater level variation and groundwater flow direction of the study area, these aspects are first analysed in the regional scale and thereafter analysis is focused to local scale. For analysis of the above components, groundwater level data available from the Central Ground Water Board (CGWB, 2021-22), Govt. of India were used.

6.2 Hydrogeology

Occurrence of ground water in the district is mainly controlled by the topographic and structural features present in geological formations. Ground water occurs mainly under water table conditions in all formations. Ground water in the district occurs both in alluvium and the weathered and jointed sandstone in area which are underlain by hard rocks. Two-broad based hydrogeological units namely unconsolidated (Alluvium) and consolidated (Hard Rock) have been identified. The unconsolidated or alluvial formations occur in the Trans-Ganga and Doab region. Localized patches of Trans Yamuna region are also covered by the unconsolidated formations. Occurrence of consolidated formations is restricted primarily Trans – Yamuna tract and this sizable area flanks the southernmost segment of the district. In the Alluvium Area, ground water occurs within the primary porosity of alluvial sediments in the north, the aquifer materials are medium to coarse grained sands. The shallow aquifer materials are medium to coarse grained sands. The shallow aquifer occurs under unconfined condition while deeper aquifers are under semi confined to confined conditions.

Ground water occurs in the pore spaces of the unconsolidated alluvial sediments in the zone of saturation. The sediments consist of fine to medium sand with intercalated pockets of clayey material within, and a thin layer of clayey sediments at the top. Alluvial formations have also been encountered in Trans Yamuna area but has limited extension adjacent to river Yamuna. Vindhyan plateau is characterised by jointed and faulted hard rock formation which have limited ground water potential. Fissured formations are only found in

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Trans Yamuna area and particularly dominant in southern part of Trans Yamuna area. It has developed secondary porosity and has limited yield prospects. Sandstone and Quartzites are important formations with layer of silica sand which forms the fissured formations for ground water withdrawal and act as potential horizons. Infiltration from rainfall is the main source of ground water recharge in the area. Influent seepage from the surface water bodies is also responsible for recharge to the ground water reservoir

Ground water is being developed in the area by medium to deep tube wells, dug wells, dug-cum bored wells. Based on 3 exploratory wells data in the area CGWB (2023) observed yield at Pipraon village was about 770 lpm (good to excellent on groundwater prospective) whereas yield of 107 lpm encountered at Saliya Khurd village belongs to very poor prospective area. Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period (September 2023). There is rise of 2-4 mbgl observed in post monsoon season as compared to pre-monsoon season which depicts a good infiltration and recharge of precipitation.

Groundwater level in May, 2021 was 4.94 mbgl, rise in ground water level observed in August, 2021 (1.35 mbgl); decreased to 3.86 mbgl in November, 2021 and slight rise was observed in January, 2022 (3.69 mbgl). Groundwater rise was found in pre monsoon was 0.1013 m/year and in post-monsoon was 0.0485 m/year (CGWB, 2022) with minimum water level fluctuation. Ground water flow is towards the river Ganga in the north and river Yamuna in the south.

Some of the observations of the groundwater levels are given in Table 6.1:

Table 6.1: Ground water level seasonal variations

Sr. No.	Location	Total depth of well (m)	Water level (mbgl) year 2022		
			Pre-Monsoon	Monsoon	Post-monsoon
1	Salaiya Khurd (well 1)	6.50	5.50	0.91	1.80
2	Salaiya Khurd (well 2)	7.30	5.80	1.60	2.50
3	Jhariyahi	14.50	13.75	11.80	12.50
4	Mai kalan	12.00	10.50	5.00	5.75
5	Salaiya kalan	16.00	14.50	7.75	8.65

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6.3 Geophysical Investigation

Varieties of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using vertical electrical soundings (VES). This method is described below.

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivities than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, shows the lower resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock. The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = Rs * L/A \text{ (in Ohm)}$$

where Rs is known as the specific resistivity, characteristic of the material and independent of its shape or size. With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$Rs = (A/L) * (dV/I) \text{ (in Ohm m)}$$

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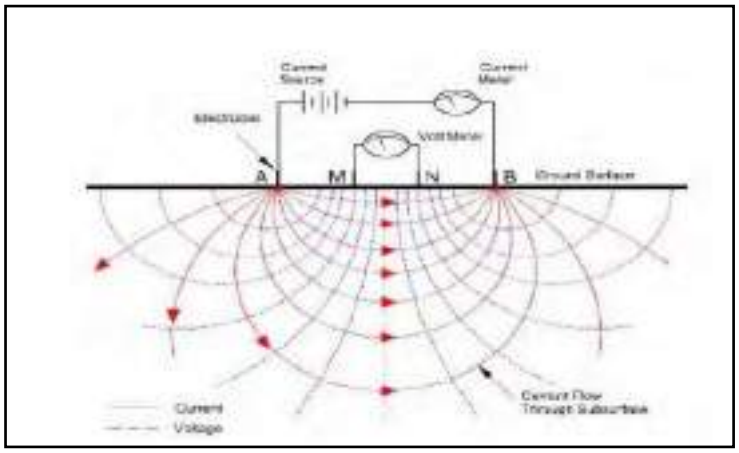


Figure 6.1: Electrical Circuit for Resistivity Survey

6.3.1 Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the centre of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (in what is known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydrogeologist with information on the geological layering and thus the occurrence of groundwater.

Vertical electrical sounding (VES) method of geophysical investigation has been favourably applied in the areas of groundwater potential studies. Vertical electrical sounding is one of the best methods of investigating the electrical properties of the subsurface such as resistivity/conductivity variation with depth and is the best geophysical method known and applied for groundwater prospecting in many areas.

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6.3.2 VES Field survey

Fieldwork was carried on 5rd Sep.to 7th Sep. 2023 to conduct VES survey at two locations in and around the NTPC MEJA plant premises (Table 6.1). The vertical electrical sounding (VES) was executed in order to unveil the hydro stratigraphy of the area. The subsurface stratigraphy and clay, sand-silt and gravels layer conditions of the investigated site in general are considered to be fairly non-uniform.



Figure 6.2: Conducting Geophysical Survey (VES Test) at two locations (1) Near Ash Dyke (2) Inside the NTPC Meja Plant.

Table 6.2: Latitude, longitude and elevation of the conducted VES tests near NTPC MEJA.

VES	Lat.	Long	Depth of Survey (m)
1	25.121049	81.933251	95 (~300ft)
2	25.143598	81.928773	70 (~225ft)

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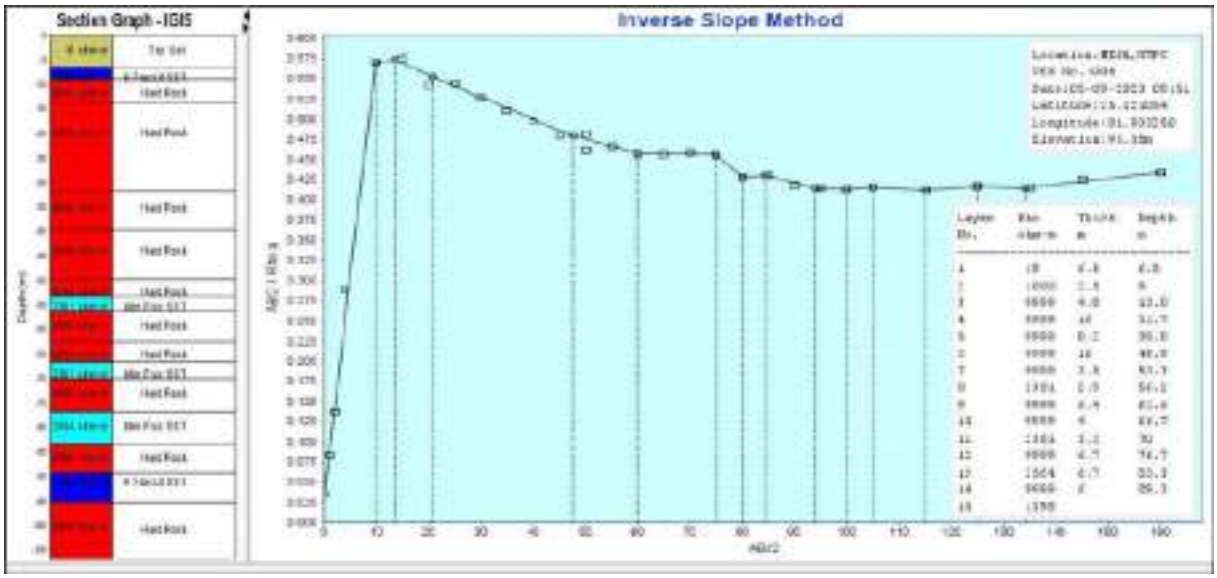


Figure 6.3: VES-01 Survey conducted at NTPC, MEJA.

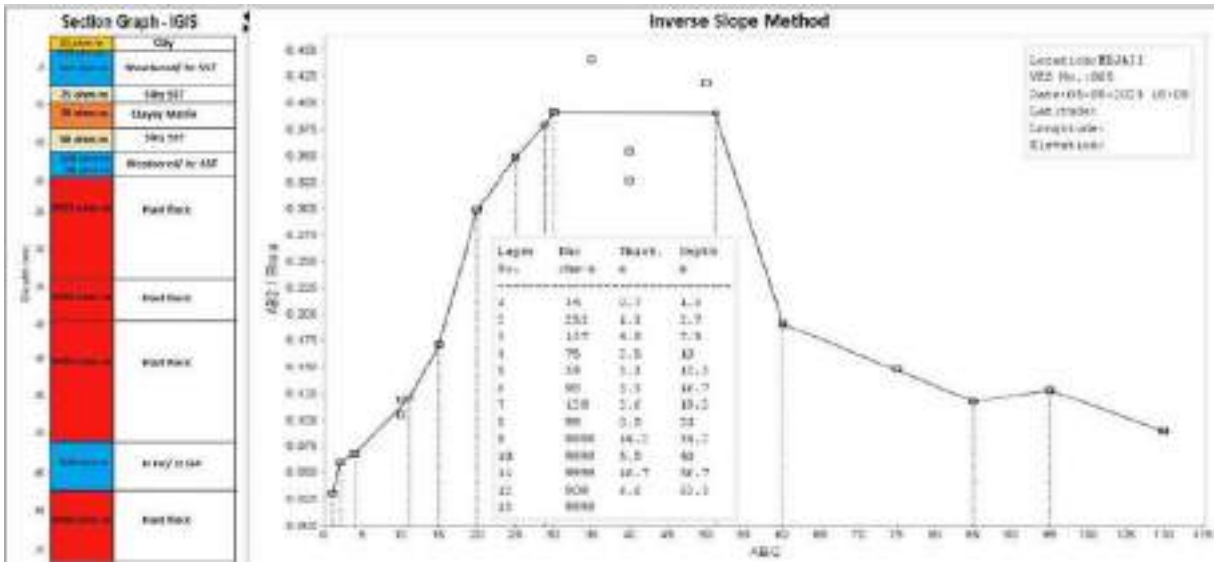


Figure 6.4: VES-02, Survey conducted inside the township of NTPC, MEJA

VES-01:

Near ash dyke VES survey was carried out upto the depth of 95 meter (~310 ft). The results of VES-01, indicate that the zone between 6.5-8.5 m show a low resistivity zone which is interpreted as a fractured/jointed sandstone zone, this may be a water-saturated basically upper most aquifer which is recharged from the nearby ash pond or reservoir. Hard and compact Sandstone is the major lithological units observed in resistivity log varied from 8.5 to 53.0 m, 56.0 to 67.5m which is totally impervious and unsaturated. However various

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small zone of saturation was observed in VES data between 53.0 to 56.0m, 67.5 to 70.0m and 77.0 to 84.0 m where the fractured/jointed sandstone layers are showing relatively low resistivity values. However, between 89.3 m to 95.0 m, highly fractured Sandstone shows the signature of water bearing zone. In the drilling cuttings it was observed that secondary porosity was developed in vugs/veins resulting increased porosity and permeability, hence these sandstones are producing low to medium discharge.

VES -02

The results of VES-02, indicate that the zone between 3-7 m show a low resistivity zone which is interpreted as a weathered-fractured/jointed sandstone zone, this may be a water-saturated basically upper most aquifer which is recharged from the nearby ash pond or reservoir. The log is further succeeded by silt and clay deposited low resistivity zone from 7 to 15m, however 15-20m zone indicating fractured/weathered sandstone and might be the good option to develop recharge borewell for rainwater harvesting purpose. Hard and compact Sandstone is the major lithological units observed in resistivity section varied from 20-56 m. However, another zone of saturation was observed in VES data between 56 to 63m where the fractured/jointed sandstone layers are showing relatively resistivity values close to water bearing zone and also act as a suitable zone for recharge well.

6.4 Drilling of Borewell

As per the scope of the work, 1 nos. of Borehole/Piezometer was drilled near the Ash dyke of the NTPC, Meja. Proposed depth of the piezometer was decided ~150 ft, but due to encountering the water table at deeper depth the total drilling depth was 280 ft. The geographical location of Borewell/Piezometers was provided by the NIH Authority after consulting with NTPC officials. A DTH drilling rig was deployed to drilled the borehole of desired depth.

S. No.	Location	Code	Latitude	Longitude	Drilled Depth (ft)	Casing depth. (ft)
1	Ash Dyke Area	PZ-1	25.120573	81.932327	280	60 ft

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Figure 6.5: Drilling operation in progress for construction of the Piezometer around new Ash Dyke, NTPC Meja,

During the course of drilling cutting were collected at every 20ft interval for preparation of detailed lithology of the borehole and the collected samples handed over to the NIH Laboratory for further analysis.



Figure 6.6: Soil/Sediment from drilling samples collected from the newly installed Piezometers at NTPC, Meja

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The detail of the bore well-constructed is:

Main location: NTPC temple

Hole Depth- 280 ft

Hole size – 7 inch

Casing size- 5 inch

Casing Depth- Uncased (weathered /fracture zone 200-240, 260-280, total casing 60ft)

Pumping capacity- 2 H. P. Submersible pump

LPM- 40-50

6.5 Pump Test

Hydrogeologists determine the hydraulic characteristics of water-bearing formations, by conducting pumping tests. The basic principle of a pumping test is that if we pump water from a well and measure the pumping rate and the drawdown in the well then, we can substitute these measurements into an appropriate formula and can calculate the hydraulic characteristics of the aquifer. It is also called as aquifer tests for aquifer parameter evaluation. Aquifer pump tests are made to determine the transmissibility and, when using the nonequilibrium procedure, the coefficient of storage of an aquifer. The principle of a pumping test involves applying a stress to an aquifer by extracting groundwater from a pumping well and measuring the aquifer response to that stress by monitoring drawdown as a function of time. These measurements are then incorporated into an appropriate well-flow equation to calculate the hydraulic parameters of the aquifer. The objectives of the pumping test is to determine well yield, well efficiency and aquifer parameters. The number of observation wells required to furnish adequate information depends on the geologic and hydrologic conditions present and the aquifer test method to be used.

Pumping tests provide very useful information that is needed to properly select pumping equipment, assess aquifer conditions, and evaluate well performance. An aquifer test is designed to exert a known stress on an aquifer so that the aquifer's response may be recorded. An aquifer's response is captured by drawdown and recovery data collected at the pumping well and all observation wells during the test.

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The methods employed during the test are Constant rate and Recovery Phase, during the discharge stage, the well was pumped at a constant rate, and the water level in the pumped well was measured at intervals. After pumping for 4 hours, the well was allowed to recharge, and the water level was measured again at the same intervals as that of the discharge stage. The following equipment were used in carrying out the pumping test.

1. Submersible pump and cable
2. Flow meter (to measure volume of water discharged)
3. Depth/water level sounder (for determining the depth and water level)
4. Stopwatch (for taking time intervals)
5. Digital water level recorder (DWLR)

6.6 Results of Pumping Test:

The methods adopted for this study are Jacob straight line method and Theis's Recovery method. The data was analyzed using the Excel based spread sheet developed for the pump test.

In Thesis's Time-drawdown curve matching method the time versus drawdown were plotted on a double logarithmic paper taking time (t) along horizontal axis and drawdown (s) along vertical axis. Transmissivity (T) is computed by Theis's equation, which can be written as:

$$\text{Transmissivity (T)} = 2.303*Q/4\,\pi\,\Delta s$$

Where Q is discharge in m^3/day

Δs change in drawdown over a log cycle,

Thus,

In case of Exploratory Well, Jacob's straight-line method

Discharge (Q) = 57.6 m^3/day

ΔS = 26 m

$T = 2.303*Q/4*\pi\,\Delta s$

T1 = 2.303 x 57.6 / 4*3.14*26

T1= 0.40 m^2/day

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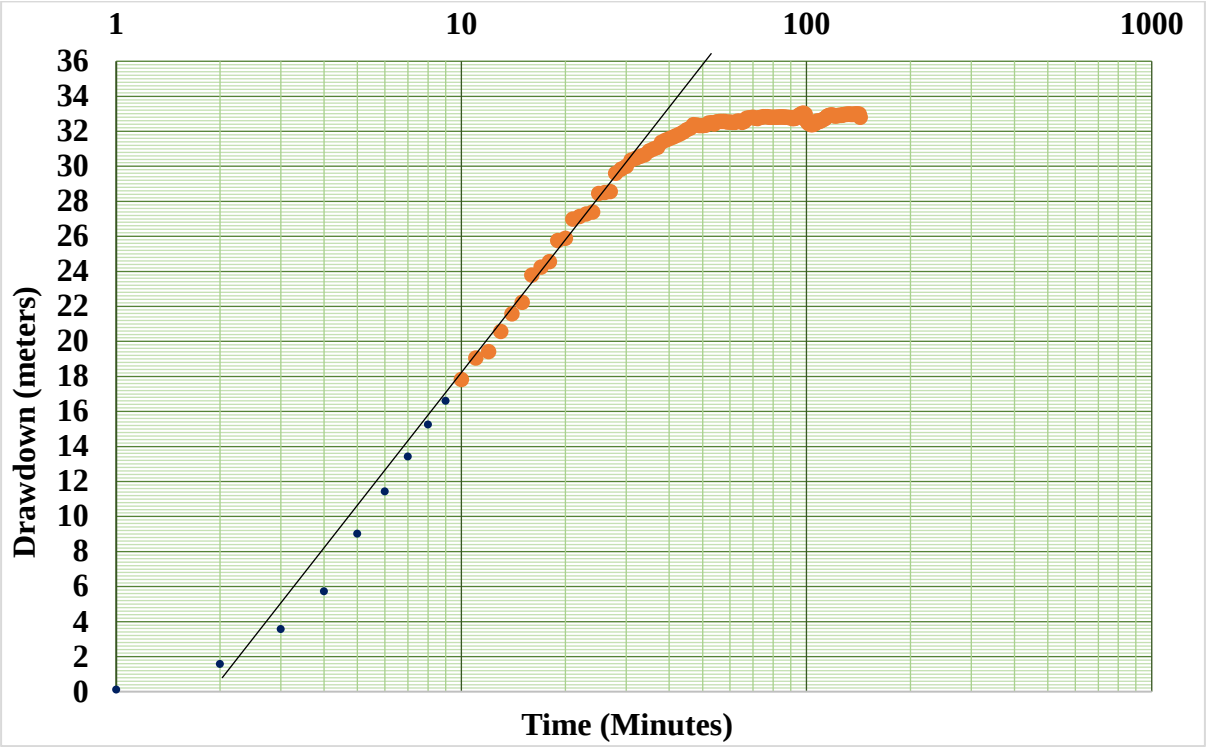


Figure 6.7: Jacob;s straight line recovery method

In case of Exploratory Well, Theis's recovery method, residual drawdown **(s')** is plotted versus t/t' on a semi-logaritmic paper **(**t/t' on the logarithmic scale**).**

Discharge (Q) = 57.6 m^3/day

ΔS = 28 m

T2 = 2.303*Q/4* π Δs

T2 = 2.303 x 57.6 / 4*3.14*28

= 0.37 m^2/day

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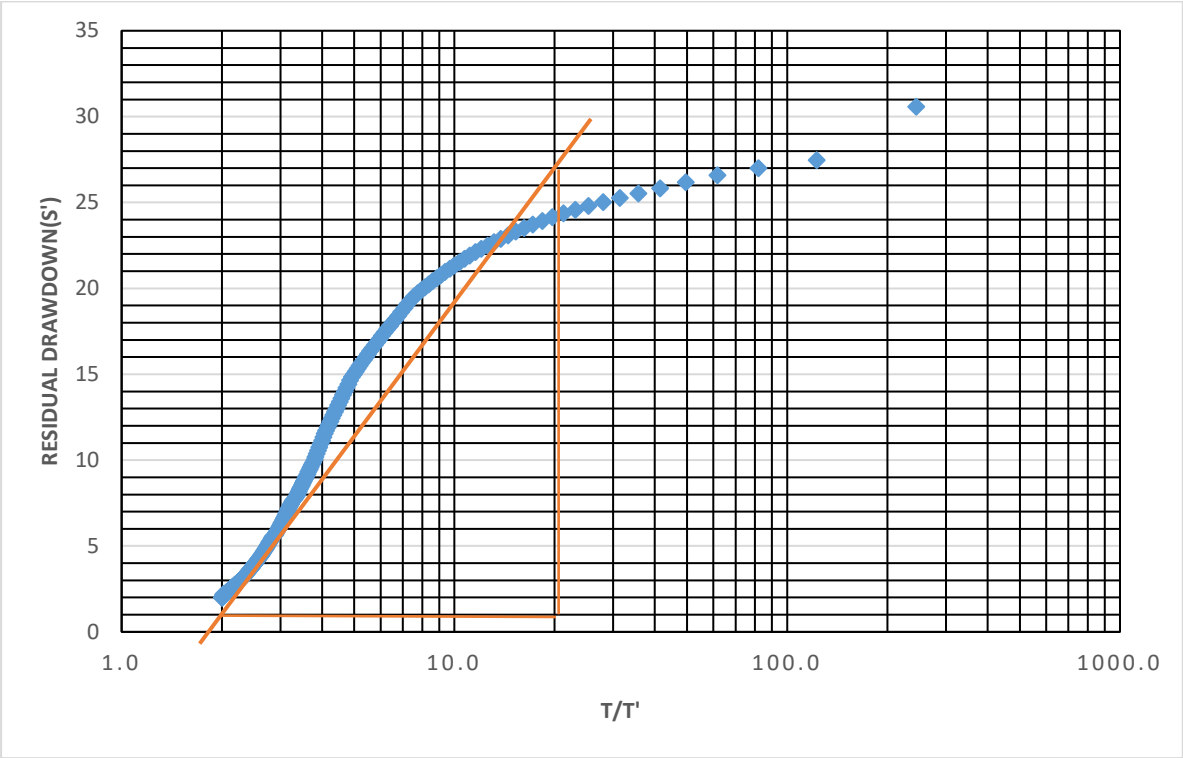


Figure 6.8: Theis recovery method

The Transmissivity of the aquifer has been determined using two methods. The results obtained are given in the table:

Table 6.3: Transmissivity values using Theis recovery and Jacob's strainght line methods

S. No.	Method	Transmissivity (m^2/d)
1	Jacob straight line method	0.40
2	Thesis Recovery method	0.37

6.7 Summary

(i) The bore hole drilling data reveals that the lithology of the region is basically, Sandstone of various grade and composition. The water bearing zone in the area is comprises of fractured sandstone basically between 200-240, 260-280 ft bgl. In the drilling cuttings it was observed that secondary porosity was developed in vugs/veins resulting increased porosity and permeability, hence these sandstones are producing low to medium discharge.

(ii) The resistivity (VES-01) data demarked the zones between 53.0 to 56.0m, 67.5 to 70.0m and 77.0 to 84.0m and 89 to 95m, are jointed/ fractured Sandstone showing

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the signature of water bearing zone in VES-01. Moreover, at VES-02 between 15 to 20m and 56 to 63m depth where the fractured/jointed sandstone layers are showing relatively low resistivity values close to water bearing zone and might be the good option to develop recharge borewell for rainwater harvesting purpose.

(iii) In the pump test, Thesis's Time-drawdown curve matching method show Transmissivity value of the piezometer around 0.40 m^2/day, whereas, Theis's recovery method the Transmissivity of the aquifer is coming approx. to 0.37 m^2/day. Indicating very low value of transmissivity and that can result to low yield.

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7. Water Quality Assessment

7.1 General

The effluent of MUNPL, MEJA plant is being discharged after proper treatment. The effluents may consist of a number of pollutants, like oil and grease, carbonate, bicarbonate, nitrite, phosphate, TSS, TDS, volatile solids, organic matter and other toxic elements. The disposal of wastewater without proper management leads to significant water quality problems when mixed with fresh water or seepage into groundwater. This downward seepage may contaminate the groundwater resource and, therefore, assessment of ambient groundwater quality is very necessary.

To assess the groundwater water quality in and around the MUNPL, MEJA plant area, the water samples for quality monitoring were collected as 32 samples in December, 2021; 37 samples in May, 2022 and 40 samples in August, 2022 for the 3 seasons post-monsoon, pre-monsoon and monsoon, respectively from thirteen locations from MUNPL, MEJA plant area as well as a buffer zone of 25 km radius (Table 7.1). Figures 7.1 (a) and (b) show the locations of water sampling sites, which include ponds, wells, hand pumps, zinc pond, etc. These locations are well distributed in the study area**.** The water quality parameters include: pH, water temperature, electrical conductivity, total dissolved solids (TDS), alkalinity, total hardness, bicarbonate, fluoride, chloride, sulphate, nitrate, calcium, magnesium, sodium, potassium, and trace metals viz. iron (Fe), zinc (Zn), copper (Cu), arsenic (As), lead (Pb), cadmium (Cd), chromium (Cr) and nickel (Ni).

Table 7.1. Details of various sampling sites for water quality assessment

Sl. No.	Post monsoon (Dec 21)		Pre-Monsoon (May 22)		Monsoon (Aug 22)	
	Sample id	Village	Sample id	Village	Sample id	Village
1	11	Ash Dyke	11	Ash Dyke	11	Ash Dyke
2	12	Patai	12	Patai	12	Patai
3	13	Mai Kala	13	Mai kala	13	Mai kala
4	14	SahPur kala1	14	Sahpur Kala1	14	Sahpur Kala1
5	15	SahPur kala2	15	Sahpur Kala2	15	Sahpur Kala2
6	16	SahPur kala3	16	Sahpur Kala3	16	Sahpur Kala3
7	17	Jhariyari1	17	Jhariyari1	17	Kohrar

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8	18	Jhariyari2	18	Jhariyari2	18	Lal Tara
9	19	Kohrar	19	Kohrar	19	Saliya Khurd
10	20	Lal Tara	20	Lal Tara	20	Salaiya Kala1
11	21	Salaiya Khurd	21	Saliya Khurd	21	Salaiya Kala2
12	22	Salaiya Kala1	22	Salaiya Kala	22	Piparao
13	23	Salaiya Kala2	23	Piparao	23	Dighalo1
14	24	Piparao	24	Dighalo1	24	Dighalo2
15	25	Dighalo1	25	Khuta 1	25	Khuta 1
16	26	Dighalo2	26	Khuta 2	26	Khuta 2
17	27	Khuta1	27	Kathauli	27	Kathauli
18	28	Khuta2	28	Dabar	28	Dabar
19	29	Kathauli	29	Subhash	29	Subhash
20	30	Dabar1	30	Semarieha	30	Shamlipur
21	31	Dabar2	31	Koraon	31	Semarieha
22	32	Siyamlipur	32	Dasauti	32	Koraon
23	33	Semarieha	33	Itwakala	33	Dasauti
24	34	Koraon	34	Baghol	34	Itwakala
25	35	Dasauti	35	Saliya Khurd2	35	Baghol
26	36	Itwakala	36	Chand Khamariya	36	Saliya Khurd2
27	37	Baghol1	37	Pal Patti	37	Chand Khamariya
28	38	Baghol2	38	Jhariyari3	38	Pal Patti
29	39	Chand khamariya	39	Ash Dyke2	39	Jhariyari
30	40	Pal patti	40	Dabar Paudhsala	40	Ash Dyke2
31	41	Jhariyari	41	Subhash2	41	Dabar Paudhsala
32	42	Ash Dyke2	42	Ash Dyke3	42	Subhash2
33			43	Ash Dyke4	43	Ash Dyke3
34			44	Dighalo2	44	Jhadiyahi
35			45	Shambholri Nagar	45	Dighalo
36			46	Khamoriya	46	Shambri
37			47	Tons River	47	Khamoriya
38					48	Tons River
39					49	Lal Tara2
40					50	Pal Patti2

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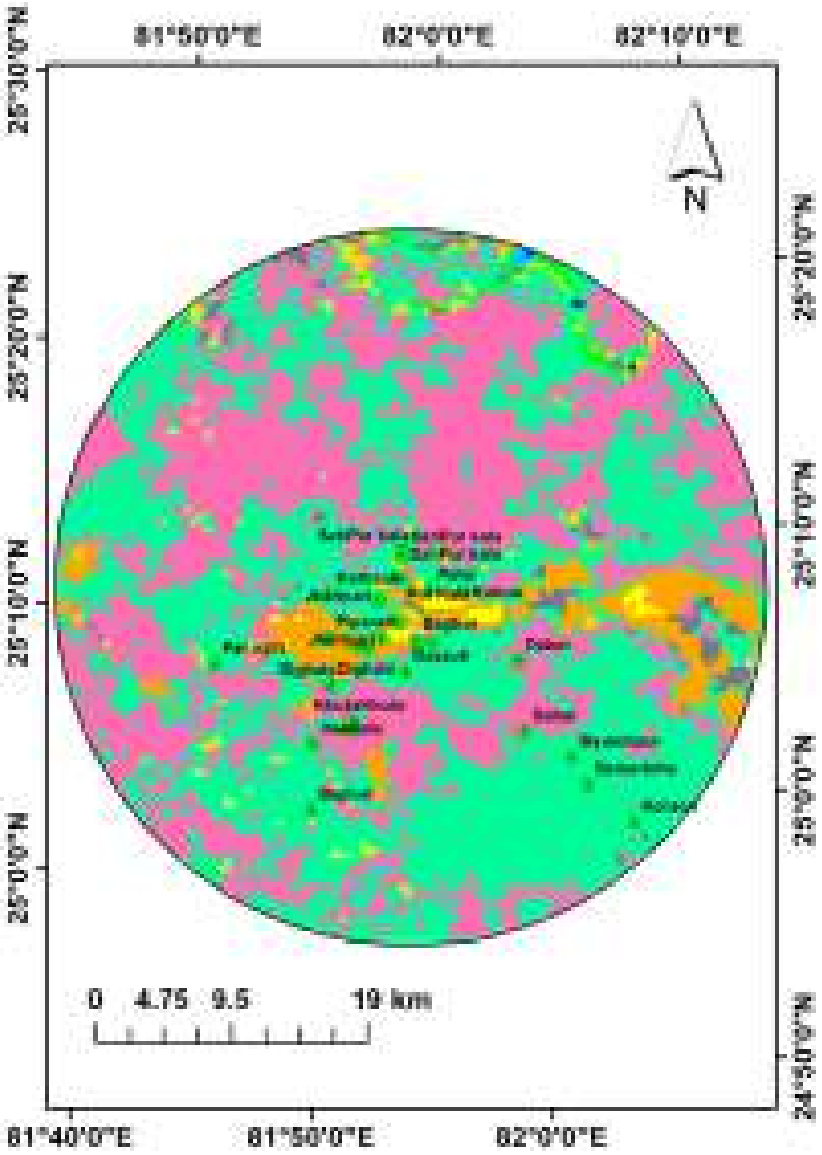


Figure 7.1(a). Map showing water sampling sites for water quality assessment in the study area.

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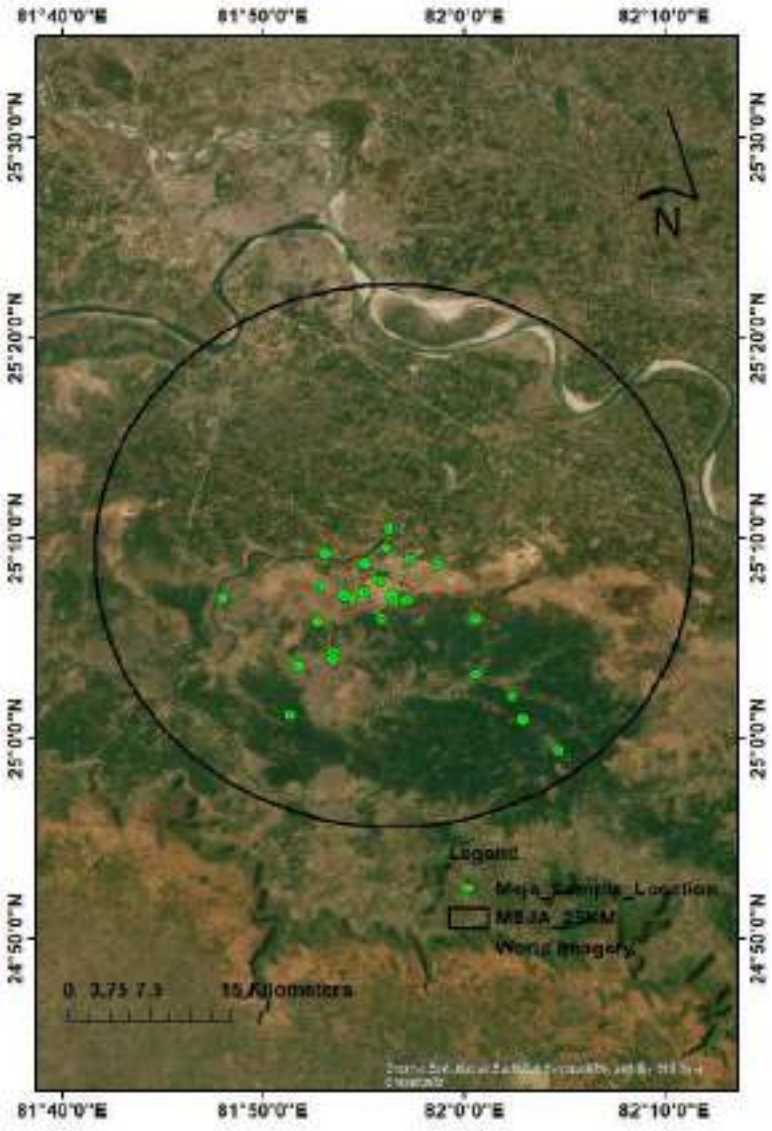


Figure 7.1(b). Google view showing water sampling sites for water quality assessment in the study area.

7.2 Chemicals and Reagents

Analytical grade reagents were used in the digestion and extraction processes. Milli-Q water was used throughout the experiment and other dilution purposes. All stock solutions were kept in a state of darkness in a lab refrigerator at 4°C.

7.3 Sample Collection and Preservation

Groundwater samples were collected from hand pumps using outside taps after thoroughly flushing the water for at least 15 min or until temperature measurements indicated

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that all onsite storage was purged and water originated from the well bore or aquifer. All sampling containers were rinsed three times with sample water before collecting the final sample. The samples were collected in acid washed LDPE (Low-Density Polyethylene) tarson bottles. The samples for metal analysis are preserved by the addition of nitric acid by adding 6-8 drops of conc. HNO_3 in 60 ml water sample to acidify the sample to pH < 2 in the field itself. Samples for analysis of major anions (bicarbonate, sulphate, fluoride, chloride, and nitrate) and cations (sodium, potassium, calcium and magnesium) were collected as unpreserved.

7.4 Laboratory Analysis

Water samples were analysed in the laboratory at the National Institute of Hydrology **(**NIH**)**, Roorkee to determine various water quality constituents**.** The samples were filtered through 0.45µm and used for the analysis of major cations (Na^+, K^+, Ca^{2+} and Mg^{2+}) and anions (F^-, Cl^-, SO_4^{2-}, NO_3^-, etc.) using the ion chromatography (IC) technique. For trace metals analysis (Fe, Zn, Cu, Cd, Cr, Ni, Pb, As, etc.), inductively coupled plasma-optical emission spectrometer (ICP-OES) was used. Cations and anions analysis were performed in three replicates for each sample. An overall precision, expressed as percent relative standard deviation (RSD), was obtained below 10% for the entire samples. The summary of water quality results of collected water samples is presented in Table 7.2 along with the prescribed limits by BIS, 2012.

Table 7.2: Statistical summary of groundwater quality parameters of samples collected from the study area

Post monsoon 2021

Parameters	Min. Value		Av. Value		Max. Value		BIS:10500 (Acceptable Limit)	BIS:10500 (Permissible Limit)	%age GW/SW Samples within Acceptable Limit	%age GW/SW Samples within Permissible Limit
	Ground Water (29 nos.)	Surface water (3 nos.)	Ground Water (29 nos.)	Surface water (3 nos.)	Ground Water (29 nos.)	Surface water (3 nos.)				
pH	6.50	7.40	7.50	7.67	7.90	7.90	6.5-8.5	6.5-8.5	100/100	100/100
EC (µS/cm)	110	140	1295	527	5800	1090	-	-	-	-
HCO_3^- (mg/L)	54.9	54.9	458.4	314.4	1293.9	658.8	-	-	-	-
TDS (mg/L)	70	90	829	333	3712	698	500	2000	31/100	93/100
F^- (mg/L)	0.21	0.02	0.89	0.43	2.36	1.18	1	1.5	66/100	83/100

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Cl^- (mg/L)	10	18	120	46	660	91	250	1000	93/100	100/100
NO_3^- (mg/L)	0.10	nd	0.61	0.03	3.10	0.10	45	45	100/100	100/100
Ca^{++}(mg/l)	3.18	11.87	26.50	43.88	127.13	61.71	75	200	93/100	100/100
Mg^{++}(mg/l)	2.33	4.57	8.42	7.54	11.30	9.09	30	100	100/100	100/100
Na^+(mg/l)	2.56	6.68	143.23	88.25	816.60	176.2	-	-		
K^+(mg/l)	0.35	1.31	31.93	4.35	334	9.9	-	-		
Fe (mg/L)	0.01	0.06	1.50	1.09	14.85	2.81	0.3	0.3	45/33	45/33
Zn (ppb)	14.56	18.81	162.10	41.99	556.08	54.40	5000	15000	100/100	100/100
Cu (ppb)	0.13	0.96	2.79	3.13	12.52	5.01	50	1500	97/100	100/100
Total Arsenic (ppb)	0.04	2.44	5.74	5.51	10.89	8.26	10.00	50.00	93/100	100/100
Pb (ppb)	0.12	2.02	3.03	4.00	11.31	7.07	10	10	97/100	97/100
Cd (ppb)	0.05	0.16	0.87	0.42	5.63	0.63	3	3	93/100	93/100
Cr (ppb)	0.06	0.04	1.99	1.53	9.89	3.93	50	50	100/100	100/100
Ni (ppb)	0.12	0.03	2.80	1.31	10.98	0.87	20	20	100/100	100/100

ND: Not Detected.

Pre monsoon 2022

Parameters	Min. Value		Av. Value		Max. Value		BIS:10500 (Acceptable Limit)	BIS:10500 (Permissible Limit)	%age GW/SW Samples within Acceptable Limit	%age GW/SW Samples within Permissible Limit
	Ground Water (32 nos.)	Surface water (5 nos.)	Ground Water (32 nos.)	Surface water (5 nos.)	Ground Water (32 nos.)	Surface water (5 nos.)				
pH	7.05	6.92	7.55	7.34	8.02	7.62	6.5-8.5	6.5-8.5	100/100	100/100
EC (µS/cm)	210	260	1116	930	5400	1600	-	-	-	-
HCO_3^- (mg/L)	90.28	48.80	410.84	155.4	866.20	262.3	-	-	-	-
TDS (mg/L)	257	288	864	773	3361	1432	500	2000	22/40	94/100
F^- (mg/L)	0.03	1.14	0.73	6.63	4.72	16.31	1	1.5	94/60	94/60
Cl^- (mg/L)	5.29	33.93	120.98	137.38	923.70	336.8	250	1000	91/80	100/100
NO_3^- (mg/L)	0.18	0.31	61.89	8.59	1068.50	33.97	45	45	78/100	78/100
SO_4^{--}(mg/l)	0.11	14.68	85.51	269.51	572.66	627.2	200	400	91/60	94/60
Ca^{++}(mg/l)	27.16	13.89	65.01	70.61	142.80	130.7	75	200	66/40	100/100
Mg^{++}(mg/l)	4.63	4.30	7.75	7.34	10.24	8.80	30	100	100/100	100/100
Na^+(mg/l)	15.51	14.62	121.24	120.37	808.10	227.5	-	-		
K^+(mg/l)	0.43	2.57	12.94	23.03	136	39.6	-	-		
Fe (mg/L)	0.01	0.01	0.87	0.91	4.56	2.18	0.3	0.3	60/20	60/20
Zn (ppb)	10.98	55.91	514.05	199.37	4461.23	335.4	5000	15000	100/100	100/100
Cu (ppb)	0.12	3.72	7.10	7.16	18.35	17.29	50	1500	97/100	100/100
Total Arsenic	0.17	2.81	6.96	9.47	24.45	19.56	10.00	50.00	78/60	100/100

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(ppb)										
Pb (ppb)	0.92	12.7	10.51	12.7	42.40	12.7	10	10	94/80	94/80
Cd (ppb)	0.26	0.41	40.01	1.18	2.22	2.39	3	3	94100	94/100
Cr (ppb)	0.11	0.95	1.79	2.25	7.72	3.68	50	50	100/100	100/100
Ni (ppb)	0.40	1.10	4.38	7.88	31.71	19.62	20	20	100/100	100/100

ND: Not Detected.

Monsoon, 2022

Parameters	Min. Value		Av. Value		Max. Value		BIS:10500 (Acceptable Limit)	BIS:10500 (Permissible Limit)	%age GW/SW Samples within Acceptable Limit	%age GW/SW Samples within Permissible Limit
	Ground Water (35 nos.)	Surface water (5 nos.)	Ground Water (35 nos.)	Surface water (5 nos.)	Ground Water (35 nos.)	Surface water (5 nos.)				
pH	6.65	6.95	7.23	7.76	8.10	8.20	6.5-8.5	6.5-8.5	100/100	100/100
EC (µS/cm)	80	160	978	870	1500	1600	-	-	-	-
HCO_3^- (mg/L)	39.04	96.38	387.33	127.5	978.44	187.9	-	-	-	-
TDS (mg/L)	169	177	799	715	2738	1224	500	2000	26/60	94/100
F^- (mg/L)	ND	0.01	0.25	3.46	1.87	12.98	1	1.5	94/80	94/80
Cl^- (mg/L)	3.18	14.73	92.83	107.18	518.52	225.8	250	1000	91/100	100/100
NO_3^- (mg/L)	0.01	1.40	41.13	1.99	275.38	2.97	45	45	71/100	71/100
SO_4^{--}(mg/l)	4.42	4.82	74.24	299.7	381.57	594.2	200	400	98/60	98/60
Ca^{++}(mg/l)	26.40	13.89	56.88	77.45	197.21	122.8	75	200	83/100	100/100
Mg^{++}(mg/l)	1.42	4.32	12.02	11.61	19.16	16.8	30	100	100/100	100/100
Na^+(mg/l)	0.42	9.54	134.27	46.21	817.70	194.8	-	-		
K^+(mg/l)	0.08	1.76	17.91	13.97	145	29.5	-	-		
Fe (mg/L)	0.02	0.38	1.06	0.31	6.69	0.53	0.3	0.3	60/40	60/40
Zn (ppb)	6.56	28.12	280.98	43.03	2261.12	50.79	5000	15000	100/100	100/100
Cu (ppb)	1.23	1.42	3.38	4.28	9.22	7.14	50	1500	100/100	100/100
Total Arsenic (ppb)	6.01	9.32	14.37	13.72	72.10	18.59	10.00	50.00	63/40	94/100
Pb (ppb)	5.43	ND	25.15	ND	44.87	ND	10	10	97/100	97/100
Cd (ppb)	2.34	ND	10.07	ND	17.80	ND	3	3	97100	97/100
Cr (ppb)	5.02	ND	5.53	ND	6.03	ND	50	50	100/100	100/100
Ni (ppb)	2.88	22.55	10.73	22.55	44.33	22.55	20	20	97/80	97/80

ND: Not Detected.

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7.5 Results and Discussion

The comparative analysis of results is done for all the locations considering BIS: 10,500 (BIS, 2012) standards acceptable and permissible limits for various water quality parameters. Based on the data presented above, results are discussed parameter-wise as follows:

7.5.1 pH

In water, pH indicates the acidic and alkaline conditions of water because of various geochemical reactions taking place. If pH is below 7, it indicates acidic nature of water. pH value at 7 indicates neutral condition, while pH above 7 indicates alkaline conditions.

Based on the measured values, pH varies between 6.5 to 7.9 (avg. 7.7) and falls under the acceptable limit at all the locations in post monsoon season. In pre-monsoon 2022, pH varies between 7.5 to 8.02 (avg. 7.55) and falls under the acceptable limit at all the locations. In monsoon 2022, pH varies between 7.5 to 8.02 (avg. 7.55) and falls under the acceptable limit at all the locations.

7.5.2 Electrical Conductivity (EC)

The EC of groundwater is a rapid and good measure of dissolved solids (TDS) and is directly related to the concentration of ions present in water. In post monsoon season 2021, the data indicates that EC varies considerably from 110 to 5800 µS/cm with an average of 1295 µS/cm in the groundwater samples. EC, with an equivalent limit of total dissolved solids (TDS), is found within the equivalent acceptable limit (31% samples) and all surface water samples fall within the category of equivalent permissible limit at all the sampling points.

In pre-monsson season 2022, the data indicates that EC varies considerably from 210 to 5400 µS/cm with an average of 1116 µS/cm in the groundwater samples. EC, with an equivalent limit of total dissolved solids (TDS), is found within the equivalent acceptable limit (22% samples), majority of the groundwater samples have high TDS values to the

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dissolution of salts while most of the surface water samples fall in the acceptable limit and all samples were within the permissible limits.

In monsoon 2022, the data indicates that EC varies considerably from 210 to 5400 µS/cm with an average of 1116 µS/cm in the groundwater samples. EC, with an equivalent limit of total dissolved solids (TDS), is found within the equivalent acceptable limit (22% samples), majority of the groundwater samples have high TDS values to the dissolution of salts while most of the surface water samples fall in the acceptable limit and all samples were within the permissible limits.

7.5.3 Major Anions

In post monsoon 2021, the concentration of HCO_3^-, F^-, Cl^-, and NO_3^- in groundwater range from 54.9 to 1293.9 mg/l, 0.21 to 2.36 mg/l, 10 to 260 mg/l, and 0.10 to 3.10 mg/l, with average 458, 0.89, 120 and 0.61 mg/l, respectively. Fluoride and Chloride are found within the acceptable limit at 66 and 93% of locations while all other samples including surface water samples are found within permissible limit at all the locations. For bicarbonate parameter, no limit is set by BIS (2012). Thus no concerns exist with regard to major anions on the groundwater quality of the study area. Order of dominance of anions $HCO_3^- > Cl^- > SO_4^{2-} > NO_3^- > F^-$ for groundwater and $HCO_3^- > Cl^- > SO_4^{2-} > F^- > NO_3^-$ for surface water samples (fig. 2).

In pre-monsoon season 2022, the concentration of HCO_3^-, F^-, Cl^-, SO_4^{2-} and NO_3^- range from 90.28 to 866.20 mg/l, 0.03 to 16.31 mg/l, 5.29 to 923.70 mg/l, 0.11 to 572.66 mg/l, and 0.78 to 1068.50 mg/l, with average 410.84, 0.73, 120.98, 85.51 and 61.89 mg/l, respectively while in surface water samples values for these anions range from 48.80 to 262.3 mg/l, 1.14 to 16.31 mg/l, 33.93 to 336.8 mg/l, 14.68 to 627.2 mg/l, and 0.31 to 33.97 mg/l, with average 155.4, 6.63, 137.38, 269.51 and 8.61 mg/l, respectively. Chloride and sulphate are found within the acceptable limit at 91% locations in groundwater samples and 80% & 60%, respectively for surface water samples. Nitrate in 78% groundwater samples were within acceptable limit and in surface water it was safe at all the locations, while for fluoride 94% samples of groundwater and 60% samples of surface water are within the acceptable and permissible limit. For bicarbonate parameter, no limit is set by BIS (2012). Thus no concerns exist with regard to major anions on the groundwater quality of the study area. Order of

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dominance of anions HCO_3^- > Cl^- > SO_4^{2-} > NO_3^- > F^- for groundwater and SO_4^{2-} > HCO_3^- > Cl^- > NO_3^- > F^- for surface water samples (fig. 2).

In monsoon 2022, the concentration of HCO_3^-, F^-, Cl^-, SO_4^{2-} and NO_3^- range from 90.28 to 866.20 mg/l, 0.03 to 16.31 mg/l, 5.29 to 923.70 mg/l, 0.11 to 572.66 mg/l, and 0.78 to 1068.50 mg/l, with average 410.84, 0.73, 120.98, 85.51 and 61.89 mg/l, respectively while in surface water samples values for these anions range from 48.80 to 262.3 mg/l, 1.14 to 16.31 mg/l, 33.93 to 336.8 mg/l, 14.68 to 627.2 mg/l, and 0.31 to 33.97 mg/l, with average 155.4, 6.63, 137.38, 269.51 and 8.61 mg/l, respectively. Chloride and sulphate are found within the acceptable limit at 91% locations in groundwater samples and 80% & 60%, respectively for surface water samples. Nitrate in 78% groundwater samples were within acceptable limit and in surface water it was safe at all the locations, while for fluoride 94% samples of groundwater and 60% samples of surface water are within the acceptable and permissible limit. For bicarbonate parameter, no limit is set by BIS (2012). Thus no concerns exist with regard to major anions on the groundwater quality of the study area. Order of dominance of anions HCO_3^- > Cl^- > SO_4^{2-} > NO_3^- > F^- for groundwater and SO_4^{2-} > HCO_3^- > Cl^- > NO_3^- > F^- for surface water samples (Fig. 2).

7.5.4 Major Cations

In post-monsoon 2021, the concentration of Ca^{2+}, Mg^{2+}, Na^+ and K^+ in groundwater samples range from 3.18 to 127.13 mg/l, 2.33 to 11.30 mg/l, 2.56 to 840.60 mg/l and 0.35 to 334 mg/l, with average 36.50, 8.42, 143.23 and 31.93 mg/l, respectively while in surface water samples values for these cations range from 11.87 to 61.71 mg/l, 4.57 to 9.09 mg/l, 6.68 to 176.2 mg/l and 1.31 to 9.9 mg/l, with average 43.88, 7.54, 88.55 and 4.33 mg/l, respectively. Calcium is found within the acceptable limit in 93% groundwater samples and 100% surface water sample while magnesium is found within acceptable limit at all the locations and all samples are found within permissible limit at all locations. Sodium and potassium are found in low concentrations. For both these parameters, no limits are set by BIS (2012). Thus there are no concerns of major cations on the groundwater quality. Order of dominance of cations are found as Na^+ > Ca^{2+} >K^+> Mg^{2+} in all the water samples (Fig. 2).

In pre-monsoon 2022, the concentration of Ca^{2+}, Mg^{2+}, Na^+ and K^+ in groundwater samples range from 27.16 to 142.80 mg/l, 4.63 to 10.24 mg/l, 15.51 to 808.10 mg/l and 0.43

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to 136 mg/l, with average 65.01, 7.75, 121.24 and 12.94 mg/l, respectively while in surface water samples values for these cations range from 13.89 to 130.7 mg/l, 4.30 to 8.80 mg/l, 14.62 to 227.5 mg/l and 2.57 to 29.6 mg/l, with average 70.61, 7.34, 120.37 and 23.03 mg/l, respectively. Calcium is found within the acceptable limit in 66% groundwater samples and 40% surface water sample while magnesium is found within acceptable limit at all the locations and all samples are found within permissible limit at all locations. Sodium and potassium are found in low concentrations. For both these parameters, no limits are set by BIS (2012). Thus there are no concerns of major cations on the groundwater quality. Order of dominance of cations are found as $Na^+ > Ca^{2+} > K^+ > Mg^{2+}$ in all the water samples (Fig. 2).

In monsoon 2022, the concentration of Ca^{2+}, Mg^{2+}, Na^+ and K^+ in groundwater samples range from 27.16 to 142.80 mg/l, 4.63 to 10.24 mg/l, 15.51 to 808.10 mg/l and 0.43 to 136 mg/l, with average 65.01, 7.75, 121.24 and 12.94 mg/l, respectively while in surface water samples values for these cations range from 13.89 to 130.7 mg/l, 4.30 to 8.80 mg/l, 14.62 to 227.5 mg/l and 2.57 to 29.6 mg/l, with average 70.61, 7.34, 120.37 and 23.03 mg/l, respectively. Calcium is found within the acceptable limit in 66% groundwater samples and 40% surface water sample while magnesium is found within acceptable limit at all the locations and all samples are found within permissible limit at all locations. Sodium and potassium are found in low concentrations. For both these parameters, no limits are set by BIS (2012). Thus there are no concerns of major cations on the groundwater quality. Order of dominance of cations are found as $Na^+ > Ca^{2+} > K^+ > Mg^{2+}$ in all the water samples (Fig. 2).

7.5.5 Total Arsenic

In post monsson 2021, Arsenic ranges between 0.04 to 10.89 ppb with an average of 5.74 ppb. Ninety three percent (93%) samples are found within the acceptable limit (10 ppb) but all samples are found within the permissible limit (50 ppb) at all the locations. The locations where arsenic concentration is also slightly exceeded its acceptable limit are Jhariyari, and Piparao. This again indicates no concerns of groundwater as well as surface water quality.

In pre-monsoon 2022, Arsenic ranges between 0.17 to 24.45 ppb with an average of 6.96 ppb in groundwater samples and between 2.81 to 19.56 ppb with an average of 9.47 ppb in surface water samples. 78% of groundwater and 60% samples are found within the

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acceptable limit (10 ppb) but all samples are found within the permissible limit (50 ppb) at all the locations. This again indicates no concerns of groundwater as well as surface water quality.

In monsoon 2022, Arsenic ranges between 0.17 to 24.45 ppb with an average of 6.96 ppb in groundwater samples and between 2.81 to 19.56 ppb with an average of 9.47 ppb in surface water samples. 78% of groundwater and 60% samples are found within the acceptable limit (10 ppb) but all samples are found within the permissible limit (50 ppb) at all the locations. This again indicates no concerns of groundwater as well as surface water quality.

7.5.5 Trace Metals

In post monsoon 2021, Fe, Zn, and Cu concentration range between 0.01 to 14.85 mg/l, 14.56 to 556.08ppb and 0.13 to 12.52 ppb, with average 1.50 mg/l, 162.10 ppb, and 2.79 ppb, respectively. For iron, 45% of the samples are found within the acceptable and permissible limits. There is no relaxation for the permissible limit. Zinc is found within the acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

The Pb, Cd, Cr and Ni concentration have no relaxation above their acceptable limits as per BIS (2012) standards. The concentration of Pb, Cd, Cr and Ni range between 0.12 to 11.31, 0.05 to 5.63, 0.06 to 9.89 and 0.12 to 10.98 ppb, with average of 3.03, 0.87, 1.99, and 2.80, respectively. The maximum concentration values indicate that the concentrations of all these trace metals are within the acceptable limits of BIS (2012) at all the sampling locations at all times.

In pre-monsoon 2022, Fe, Zn, and Cu concentration in groundwater samples range between 0.01 to 4.56 mg/l, 10.98 to 4461.23 ppb and 0.12 to 18.35 ppb, with average 0.87 mg/l, 514.05 ppb, and 7.10 ppb, respectively while in surface water samples these values range between 0.01 to 2.18 mg/l, 55.91 to 335.4 ppb and 3.72 to 17.29 ppb, with average 0.91 mg/l, 199.37 ppb, and 7.16 ppb, respectively. For iron, 60% of the groundwater samples and 20% of surface water samples are found within the acceptable and permissible limits, respectively. There is no relaxation for the permissible limit. Zinc is found within the

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acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

The Pb, Cd, Cr and Ni concentration have no relaxation above their acceptable limits as per BIS (2012) standards. The concentration of Pb, Cd, Cr and Ni in groundwater samples range between 0.92 to 42.40, 0.26 to 2.22, 0.11 to 7.72 and 0.40 to 31.71 ppb, with average of 10.51, 40.01, 1.79 and 4.38 ppb, respectively while in surface water samples these values range between 12.7, 0.41 to 2.39, 0.95 to 3.68 and 1.10 to 19.62 ppb, with average of 12.7, 1.18, 2.25 and 7.88 ppb, respectively. The maximum concentration values indicate that the concentrations of all these trace metals are within the acceptable limits of BIS (2012) at all the sampling locations at all times.

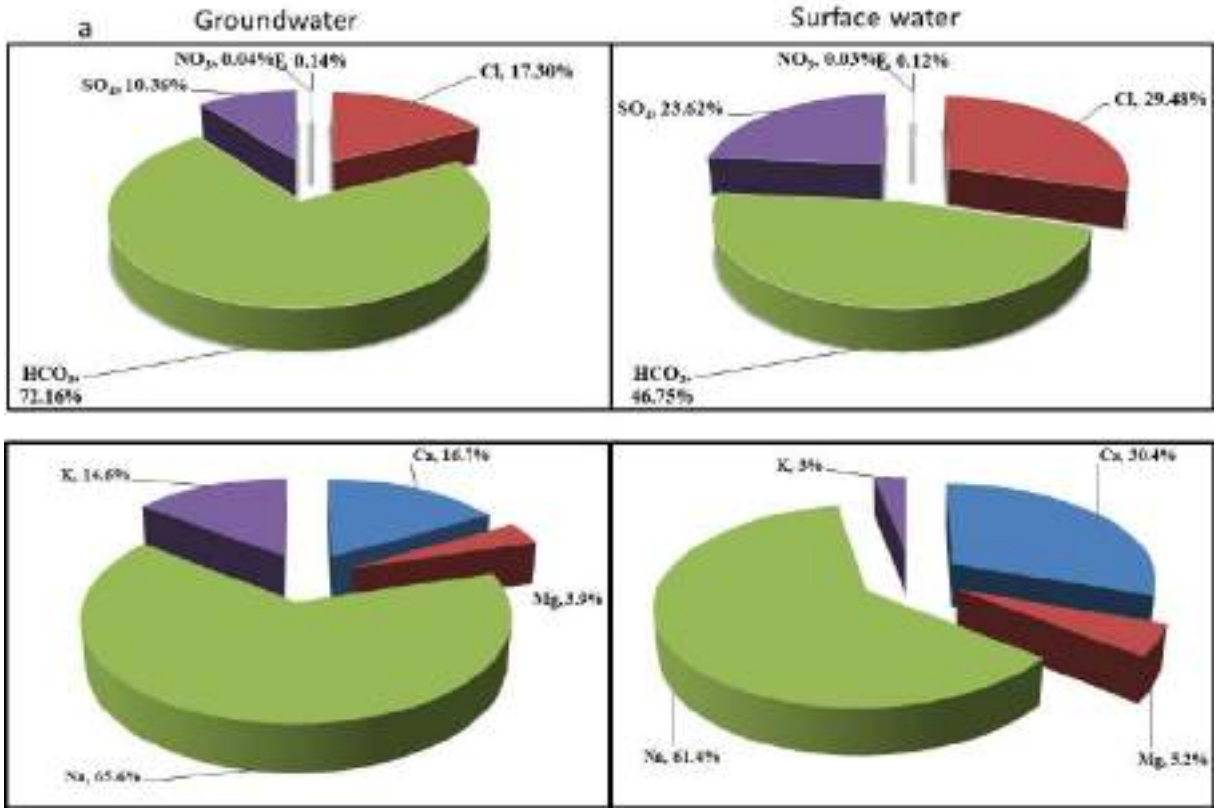
In monsoon 2022, Fe, Zn, and Cu concentration in groundwater samples range between 0.01 to 4.56 mg/l, 10.98 to 4461.23 ppb and 0.12 to 18.35 ppb, with average 0.87 mg/l, 514.05 ppb, and 7.10 ppb, respectively while in surface water samples these values range between 0.01 to 2.18 mg/l, 55.91 to 335.4 ppb and 3.72 to 17.29 ppb, with average 0.91 mg/l, 199.37 ppb, and 7.16 ppb, respectively. For iron, 60% of the groundwater samples and 20% of surface water samples are found within the acceptable and permissible limits, respectively. There is no relaxation for the permissible limit. Zinc is found within the acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

The Pb, Cd, Cr and Ni concentration have no relaxation above their acceptable limits as per BIS (2012) standards. The concentration of Pb, Cd, Cr and Ni in groundwater samples range between 0.92 to 42.40, 0.26 to 2.22, 0.11 to 7.72 and 0.40 to 31.71 ppb, with average of 10.51, 40.01, 1.79 and 4.38 ppb, respectively while in surface water samples these values range between 12.7, 0.41 to 2.39, 0.95 to 3.68 and 1.10 to 19.62 ppb, with average of 12.7, 1.18, 2.25 and 7.88 ppb, respectively. The maximum concentration values indicate that the concentrations of all these trace metals are within the acceptable limits of BIS (2012) at all the sampling locations at all times.

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The composition and various anions and cations and type of water was also investigated using various diagrams viz. Piper diagram, Wilcox diagram, Durov's diagram, and Schoeller's diagram as follows**:**

Piper diagram of the groundwater samples collected from various locations of the buffer zone are presented in the Figure 7.3. Most of the water samples show Na^+ - Mg^{2+} and HCO_3^- type of water. Such waters have dominance of weak acidic anions. Such waters have temporary hardness. The water samples from some of the locations belong to the Cl^- - SO_4^- and Na^+ **/ mixed** type of water. Such waters have dominance of strong acidic anions.



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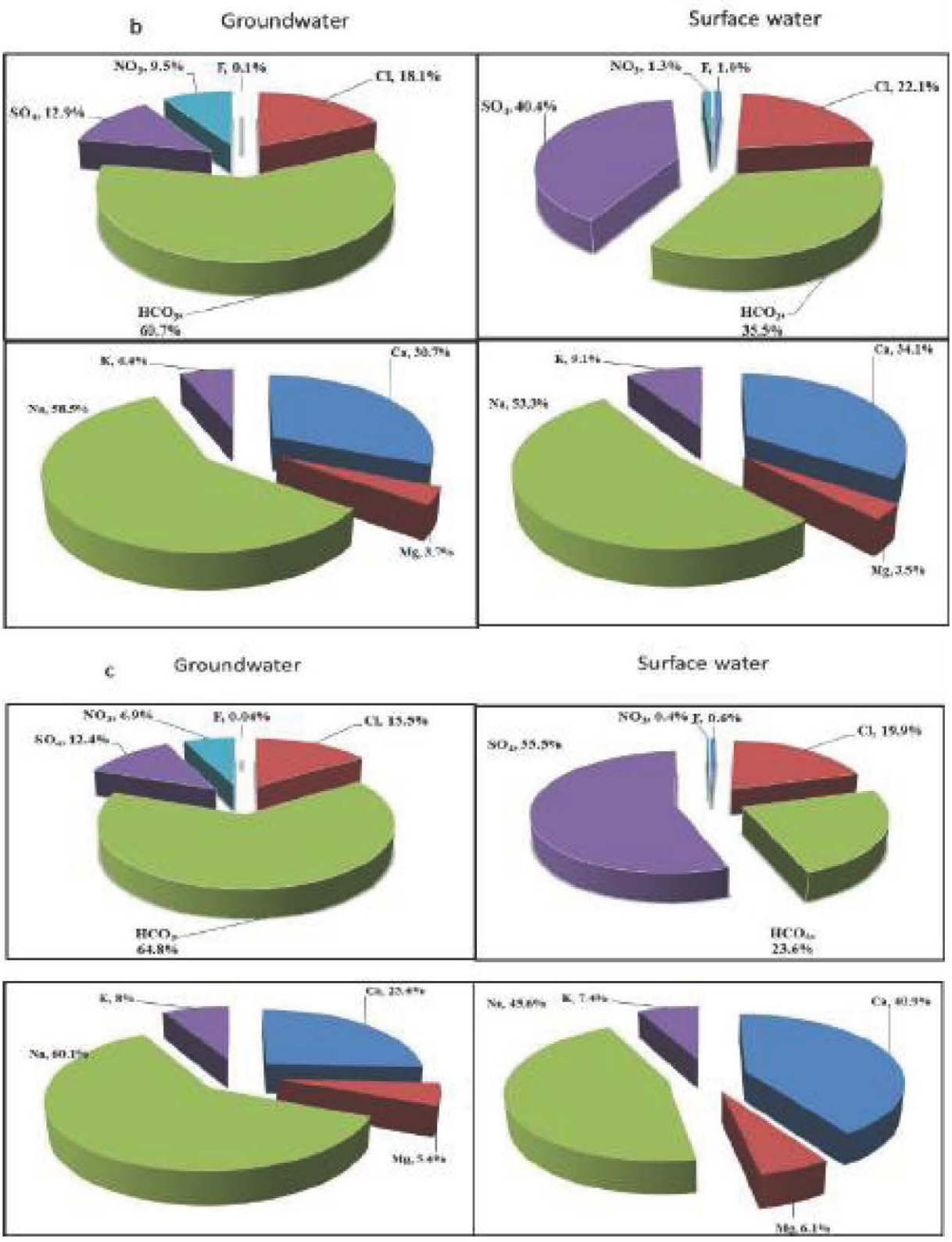


Figure 7.2. Dominance of anion and cation in water samples collected from MUNPL, MEJA

(a**)** Pre**-**monsoon, **(**b**)** monsoon **(**c**)** post monsoon**.**

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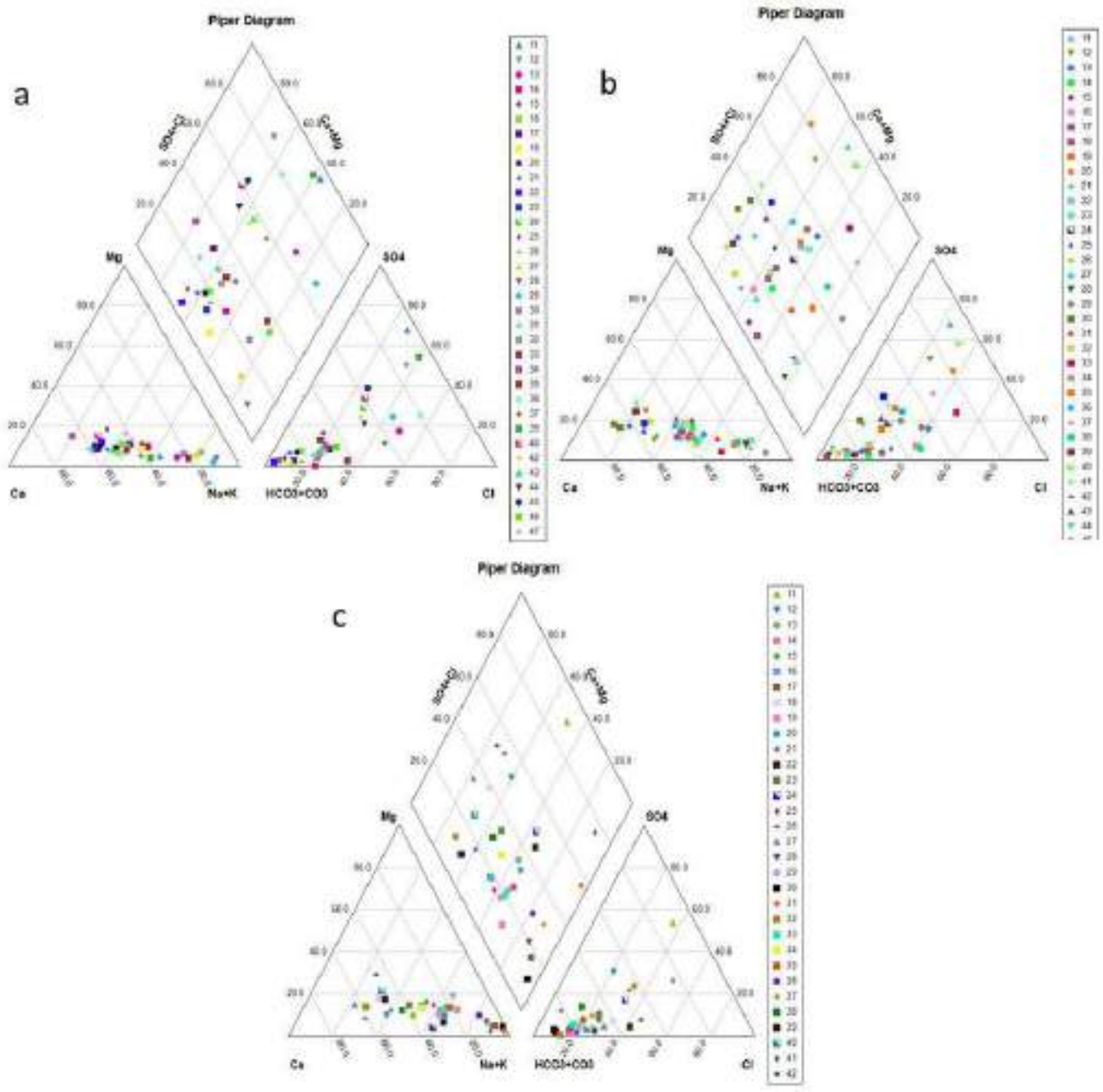


Figure 7.3. Piper diagram showing variation of anion and cation in water samples collected from MUNPL, MEJA **(**a**)** Pre**-**monsoon, **(**b**)** monsoon **(**c**)** post monsoon**.**

Wilcox diagram (Wilcox, 1955) is a useful representation of sodium alkalinity and salinity hazards. Based on this plot (Figure 7.4), most of the samples fall under the good to permissible categories

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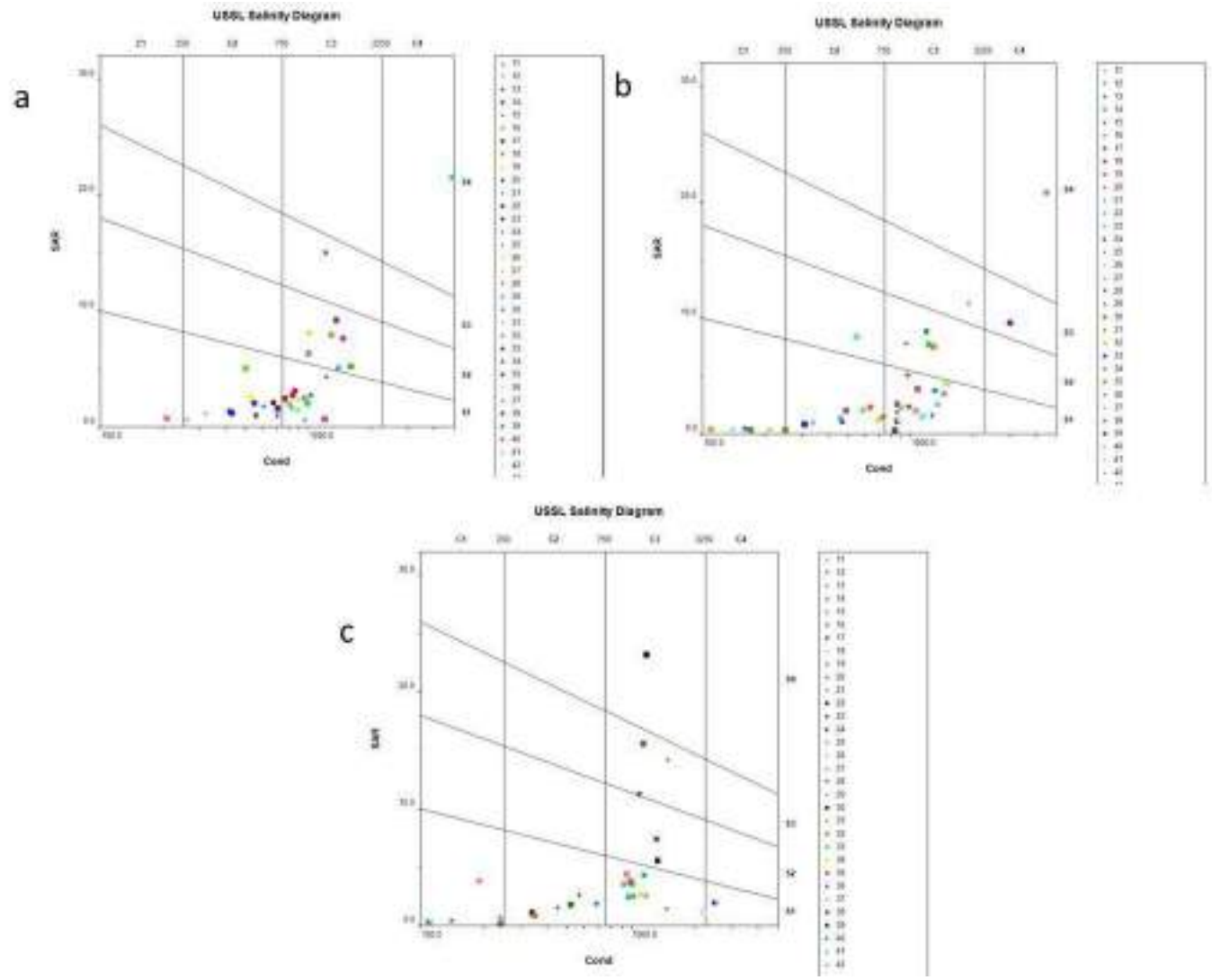


Figure 7.4. Wilcox diagram showing sodium and salinity hazard in water samples collected from MUNPL, MEJA **(**a**)** Pre**-**monsoon, **(**b**)** monsoon **(**c**)** post monsoon**.**

Durov's diagram is used to identify processes and reaction paths such as mixing, cation exchange, and dissolution affecting groundwater composition. Groundwater samples plotted on the Durov's diagram (Figure 7.5) show that the water samples for most of the samples show Na^+ – Cl^- - HCO_3^- type of water except for few locations.

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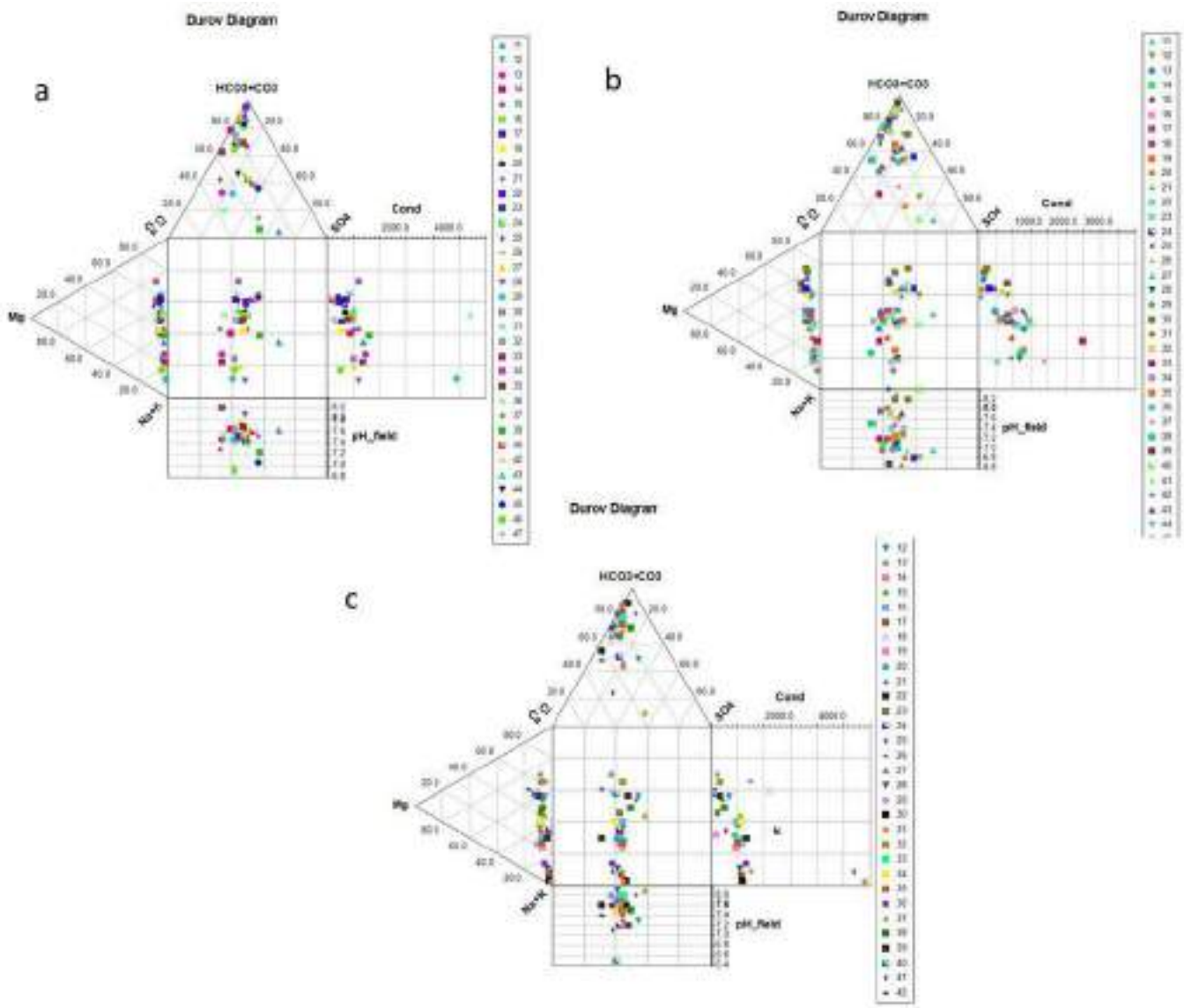


Figure 7.5. Durov's diagram dissolution effects and reaction paths in water samples collected from MUNPL, MEJA **(**a**)** Pre**-**monsoon, **(**b**)** monsoon **(**c**)** post monsoon**.**

Groundwater chemical analysis is also performed on the Schoeller's diagram (Figure 7.6), which reveals that the groundwater samples of the study area had more or less the same trend of major ions; most dominated by the Na^+ and HCO_3^- ions.

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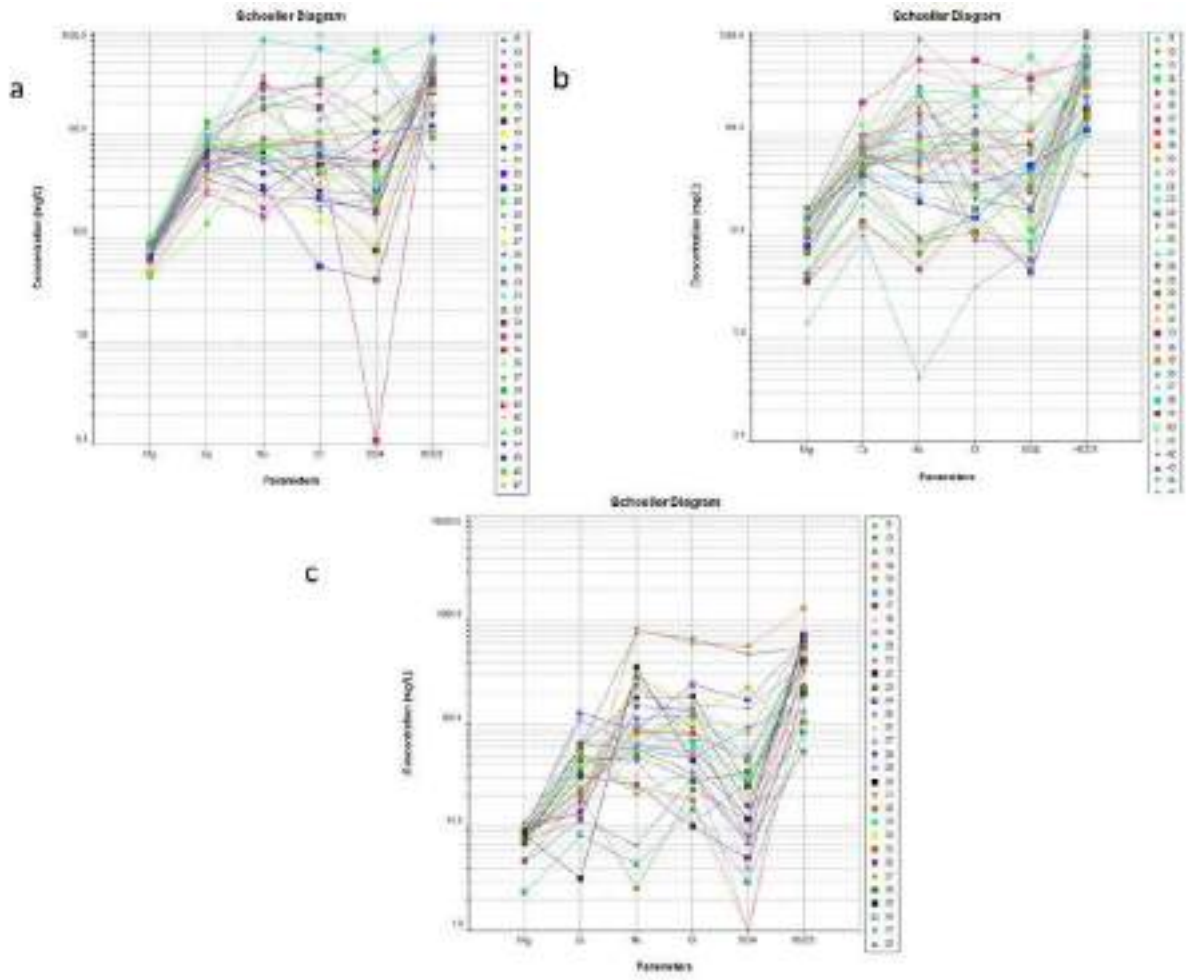


Figure 7.6. Schoeller's diagram showing facies of water samples collected from MUNPL, MEJA **(**a**)** Pre**-**monsoon, **(**b**)** monsoon **(**c**)** post monsoon**.**

7.8 Summary

(i) Ambient groundwater and surface water from various locations of the buffer zone have been analysed based on the samples collected from the field. The sampling locations were widespread in and around the study area. In general, mostly the water quality parameters were found within the permissible limits and some exceeding the limits.

(ii) pH and EC/TDS are found mostly within the permissible limits except TDS of few samples was found exceeding the permissible limit. Bicarbonates are found in low concentration, therefore, total hardness is also within the permissible limit..

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(iii)Calcium is found exceeding the permissible limit in some groundwater samples, being geogenic in nature, and one surface water sample. Potassium is found in low concentration while concentration of sodium at few locations is found in higher concentration.

(iv)In post monsoon 2021, Fluoride and Chloride are found within the acceptable limit at 66 and 93% of locations while all other samples including surface water samples are found within permissible limit at all the locations.

(v) In pre-monsoon 2022, Chloride and sulphate are found within the acceptable limit at 91% locations in groundwater samples and 80% & 60%, respectively for surface water samples. Nitrate in 78% groundwater samples were within acceptable limit and in surface water it was safe at all the locations, while for fluoride 94% samples of groundwater and 60% samples of surface water are within the acceptable and permissible limit.

(vi) In monsoon 2022, Chloride and sulphate are found within the acceptable limit at 91% locations in groundwater samples and 80% & 60%, respectively for surface water samples. Nitrate in 78% groundwater samples were within acceptable limit and in surface water it was safe at all the locations, while for fluoride 94% samples of groundwater and 60% samples of surface water are within the acceptable and permissible limit.

(vii) Concentration of fluoride in 33% groundwater samples; sulphate and nitrate in 22 % groundwater samples are found beyond the permissible limit.

(viii) For arsenic, all samples are found within the permissible limit (50 ppb) for all the sampling locations.

(ix) In post monsoon 2021, iron in 45% of the samples are found within the acceptable and permissible limits. There is no relaxation for the permissible limit. Zinc is found

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within the acceptable limits for all locations**.** For copper, 97**%** samples are found within acceptable limits and all samples are found within permissible limits**.**

(x) In pre monsoon 2022, iron in 60% of the groundwater samples and 20% of surface water samples are found within the acceptable and permissible limits, respectively. There is no relaxation for the permissible limit. Zinc is found within the acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

(xi) In monsoon 2022, iron in 60% of the groundwater samples and 20% of surface water samples are found within the acceptable and permissible limits, respectively. There is no relaxation for the permissible limit. Zinc is found within the acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

(xii) No impact of MUNPL, MEJA effluents is found on the surface and ground water regime because no effluents are discharged out by the MUNPL, MEJA and the effluents from the ash dyke also do not indicate any harmful parameter.

Table 7.3: Comparison of groundwater quality parameters of samples collected from the study area

PLOTS	PRE-MONSOON	POST-MONSOON	MONSOON
Pie chart	The majority of samples are Na-HCO_3 type then Ca-Cl or $CaSO_4$type	The majority of samples are Na-HCO_3 type then Ca/K-Cl type.	-
Wilcox	0.67% of samples are unsuitable and 2% are permissible to doubtful while a significant majority of 97.33% fall in the excellent to good category.	0.67% of samples are unsuitable 1% are doubtful to unsuitable 2.3% are permissible to doubtful 16.7 fall in good to permissible while a significant majority of 79.3% fall in the Excellent to good category.	

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Piper Water Type	47% Ca-HCO_3 14.7% Na-Cl-SO4 type and Ca-Na-HCO_3 type each,8.82% $NaHCO_3$ 11.8% mixed Ca Mg Cl type 2.9% CaCl	41.22 % Ca-HCO_3 14.7% Na-Cl-SO4 type 17.64% mixed CaMg-Cl type and CaNa-HCO_3 type each 5.9% Na-HCO_3 type 2.9% CaCl	17.64% $NaHCO_3$ 5.9% $NaClSO_4$ 11.8% mixed CaMgCl 23.5% $CaHCO_3$ 41.16 % $CaNaHCO_3$
Durov Dominance	67.5% of samples belong to field 5, indicating exchanged water where HCO_3^- and Na^+ are dominant,20.8% fall in field 8, indicating the dominance of Na+ and Cl-,5.9% of samples belong to field 2, 2.9% of samples in field 6, indicating either a dominance of Sulphate or an indiscriminate anion, and Na^+ dominant cation,2.9% of samples in field 7 indicates Cl and Na dominance, which may be due to reverse ion exchange of NaCl waters.	67.3% of the data points fall in field 5, indicating exchanged water where HCO_3^- and Na^+ are dominant 20.8% fall in field 8, indicating the dominance of Na+ and Cl-rest 2.9% of samples fall in field 2 dominated by Ca and HCO_3 ions.	67.7% of samples belong to field 5, indicating exchanged water where HCO_3^- and Na^+ are dominant,29.4% of samples belong to field 8 indicating the dominance of Na+ and Cl-,2.9% of samples fall in field 2 dominated by Ca and HCO_3 ions.
USSL	,11.8%C_3S_2 17.6% C_1S_1 29.4%C_1S_2 29.6% C_3S_1 2.9% C_4S_4 2.9% C_3S_4 2.9% C_3S_3 2.9% C_2S_2	2.9% C_4S_4 2.9% C_3S_3 2.9% C_1S_1 20.6% C_3S_2 35.3 % C_2S_1 35.4% C_3S_1	2.9% C_3S_1 2.9% C_4S_1 8.8% C_3S_3 8.8% C_3S_2 14.7% C_1S_1 17.6% C_2S_1 44.3% C_3S_1
Schoeller	Higher levels of Na, HCO_3, and Cl lower levels of Mg, Ca and SO_4 .weak acids (CO_3^{2-} and HCO_3^-), dominant over strong acids (Cl^- and SO_4^{2-})	Higher levels of Na, HCO_3, Cl, and SO4 lower levels of Mg, Ca weak acids (CO_3^{2-} and HCO_3^-), almost equal to strong acids (Cl^- and SO_4^{2-})	Higher levels of Na, HCO_3, Cl, and SO_4 lower levels of Mg, Ca weak acids (CO_3^{2-} and HCO_3^-), almost equal to strong acids (Cl^- and SO_4^{2-})
HPI	Dighalo(238.41) has the highest HPI while the rest have low HPI	Dighalo(99.57) and Baghol(118.68) have higher HPI, Salaya Khurd and Salaiya Kala have medium HPI while the rest have low HPI	Salaiya kala(33.15) and Dasauti(21.37) have medium HPI and Baghol(57.8) has a slightly higher HPI while Dighalo (369.78) has the highest HPI. Rest have low HPI

The values of various groundwater quality parameters are of geogenic nature and no impact of MUNPL, MEJA effluents has been observed on the surface and ground water quality of the study area.

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8 Source sustainability

8.1 General

Sustainable water systems should provide adequate water quantity and appropriate water quality for a given need, without compromising the future ability to provide this capacity and quality. Water systems in the realm of sustainable development may not literally include the use of water, but include systems where the use of water has traditionally been required. There are 3 important components required: economic feasibility, social responsibility and environmental integrity

8.2 Water usage in plant

In the plant area and residential area, water is generally used for:

(1) drinking,
(2) in industrial operations (energy production, manufacturing of goods, etc.),
(3) domestic applications, and
(4) agriculture (irrigationg the plantations)

The total allocated water to the power plant is 32,29,480 m^3/month and maximum usage of the water is 28,47,173 m3 during the period 2021-24 which is well within the limits.

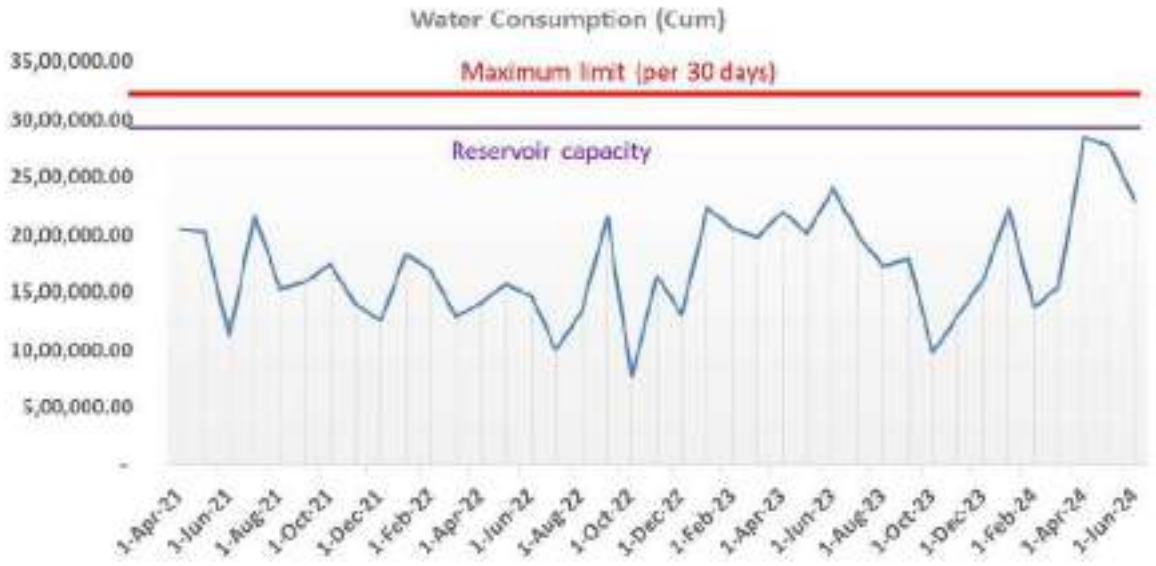


Figure 8.1. Water usage in the power plant.

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9 APPRAISAL AND REMEDIAL MEASURES

9.1 Influence of MUNPL, MEJA, Meja power plant Effluents on the Water Quality of the Area and its Surroundings

In the present investigations, groundwater and surface water samples were collected from MUNPL, MEJA, Meja power plant area and surrounding areas including plant effluents. After the determination of selected heavy metal content in groundwater and surface water samples, the collected data was used for the calculation of heavy metal pollution index (HPI) by using the permissible limits of heavy metal for drinking water and the permissible limits for occurrence in natural water resources. By using the statistical formulae and methodology, heavy metal pollution index for groundwater and surface water resources for the selected sampling sites were determined. The calculated heavy metal pollution index for the representative samples of ground and surface water are summarized in Table 10.1.

The heavy metal pollution index (HPI) of the underground and surface water samples was calculated using the following equation:

$$HPI = \frac{\sum_{n=1}^{n} WiQi}{\sum_{n=1}^{n} Wi} \quad \ldots \quad (10.1)$$

Where, Wi = Unit Weightage of the i^{th} parameter, Qi = Sub index of the ith parameter, n = is the total number of parameters considered. Weighted arithmetic index method has been used for calculation of HPI. The unit weight (Wi) has been found out using the formula:

$$Wi = \frac{K}{Si} \quad \ldots \quad (10.2)$$

Where, K = proportionality constant, Si = standard permissible value of the ith parameter.

The sub-index (Qi) of the parameter is calculated by the equation:

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$$Qi = \sum_{n=1}^{n} \frac{|Mi - Ii|}{Si - Ii} \quad \ldots \quad (10.3)$$

Where, Mi = is the monitored value of heavy metal of the ith parameter, Ii = is the ideal value of the ith parameter which is taken from the Indian drinking water specification (BIS, 2012), Si = is the standard value of the i^{th} parameter (ppb). After completion of the result, the concentration of each pollutant was converted into the HPI. The higher HPI value causes the greater damage to the health. Generally, the critical heavy metal pollution index value is 100.

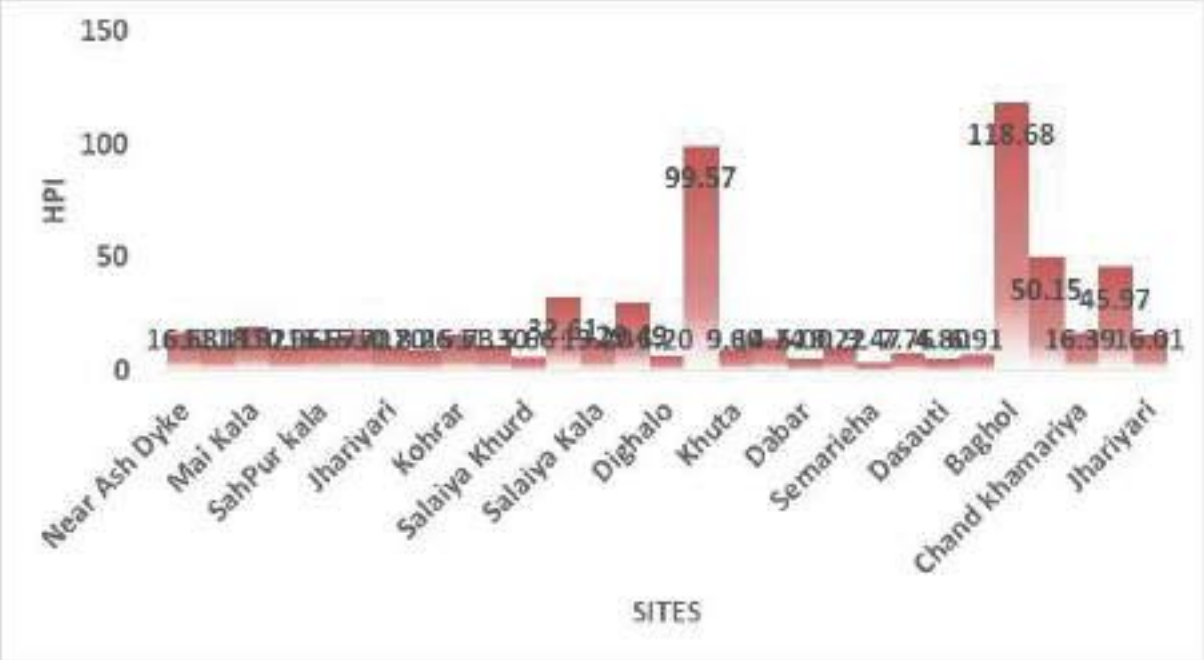
Table 9.1. Calculated HPI for various water sampling sites.

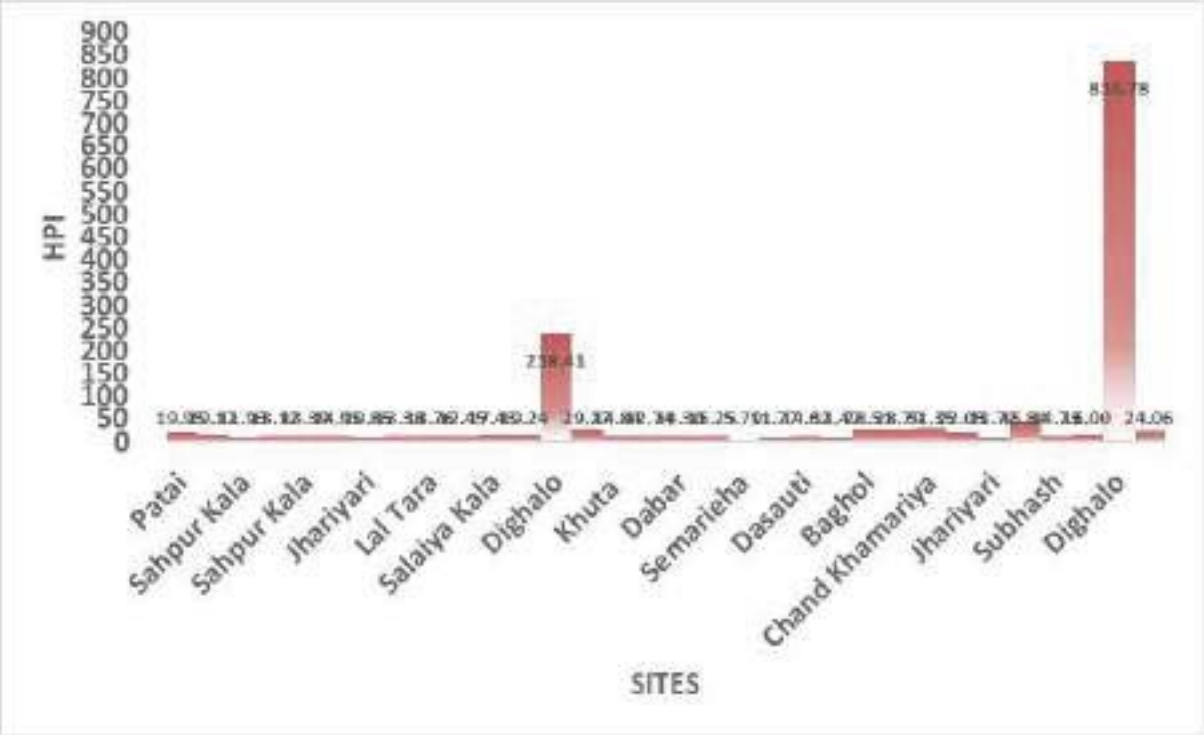
Sl. No.	Post monsoon (Dec 21)		Pre-Monsoon (May 22)		Monsoon (Aug 22)	
	Village	HPI	Village	HPI	Village	HPI
1	Ash Dyke	16.68	Ash Dyke	43.47	Ash Dyke	20.90
2	Patai	11.11	Patai	19.95	Patai	0.74
3	Mai Kala	18.92	Mai kala	19.17	Mai kala	0.98
4	SahPur kala1	10.96	Sahpur Kala1	11.93	Sahpur Kala1	1.06
5	SahPur kala2	13.57	Sahpur Kala2	13.12	Sahpur Kala2	0.74
6	SahPur kala3	15.70	Sahpur Kala3	13.39	Sahpur Kala3	0.72
7	Jhariyari1	10.70	Jhariyari1	14.95	Kohrar	0.04
8	Jhariyari2	8.26	Jhariyari2	10.85	Lal Tara	0.27
9	Kohrar	15.73	Kohrar	13.38	Saliya Khurd	0.93
10	Lal Tara	11.30	Lal Tara	13.76	Salaiya Kala1	0.73
11	Salaiya Khurd	5.66	Saliya Khurd	12.45	Salaiya Kala2	33.13
12	Salaiya Kala1	32.61	Salaiya Kala	17.43	Piparao	0.97
13	Salaiya Kala2	13.20	Piparao	19.24	Dighalo1	1.12
14	Piparao	29.49	Dighalo1	238.41	Dighalo2	1.27
15	Dighalo1	6.20	Khuta 1	29.27	Khuta 1	0.88
16	Dighalo2	99.57	Khuta 2	14.84	Khuta 2	4.08
17	Khuta1	9.60	Kathauli	12.74	Kathauli	1.44
18	Khuta2	12.22	Dabar	14.30	Dabar	0.74

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19	Kathauli	14.24	Subhash	15.25	Subhash	3.38
20	Dabar1	5.00	Semarieha	5.79	Shamlipur	1.19
21	Dabar2	9.22	Koraon	11.77	Semarieha	0.61
22	Siyamlipur	15.90	Dasauti	14.62	Koraon	1.35
23	Semarieha	3.47	Itwakala	11.47	Dasauti	21.37
24	Koraon	7.76	Baghol	28.51	Itwakala	1.54
25	Dasauti	4.80	Saliya Khurd2	28.79	Baghol	57.80
26	Itwakala	6.91	Chand Khamariya	31.35	Saliya Khurd2	2.04
27	Baghol1	118.68	Pal Patti	22.05	Chand Khamariya	7.10
28	Baghol2	50.15	Jhariyari3	11.72	Pal Patti	1.12
29	Chand khamariya	16.39	Ash Dyke2	26.19	Jhariyari	6.07
30	Pal patti	45.97	Dabar Paudhsala	45.84	Ash Dyke2	2.47
31	Jhariyari	16.01	Subhash2	14.73	Dabar Paudhsala	0.22
32	Ash Dyke2	9.37	Ash Dyke3	15.96	Subhash2	0.94
33			Ash Dyke4	16.00	Ash Dyke3	2.93
34			Dighalo2	836.78	Jhadiyahi	1.68
35			Shambholri Nagar	24.06	Dighalo	369.83
36			Khamoriya	32.66	Shambri	1.99
37			Tons River	50.84	Khamoriya	1.57
38					Tons River	2.51
39					Lal Tara2	0.23
40					Pal Patti2	1.77

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150
100
50
0
HPI
99.57
118.68
50.15
45.97
16.39
16.01
Near Ash Dyke
Mai Kala
SahPur kala
Jhariyari
Kohrar
Salaiya Khurd
Salaiya Kala
Dighalo
Khuta
Dabar
Semarieha
Dasauti
Baghol
Chand khamariya
Jhariyari
SITES


900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
HPI
238.41
24.06
Patai
Sahpur Kala
Sahpur Kala
Jhariyari
Lal Tara
Salaiya Kala
Dighalo
Khuta
Dabar
Semarieha
Dasauti
Baghol
Chand Khamariya
Jhariyari
Subhash
Dighalo
SITES

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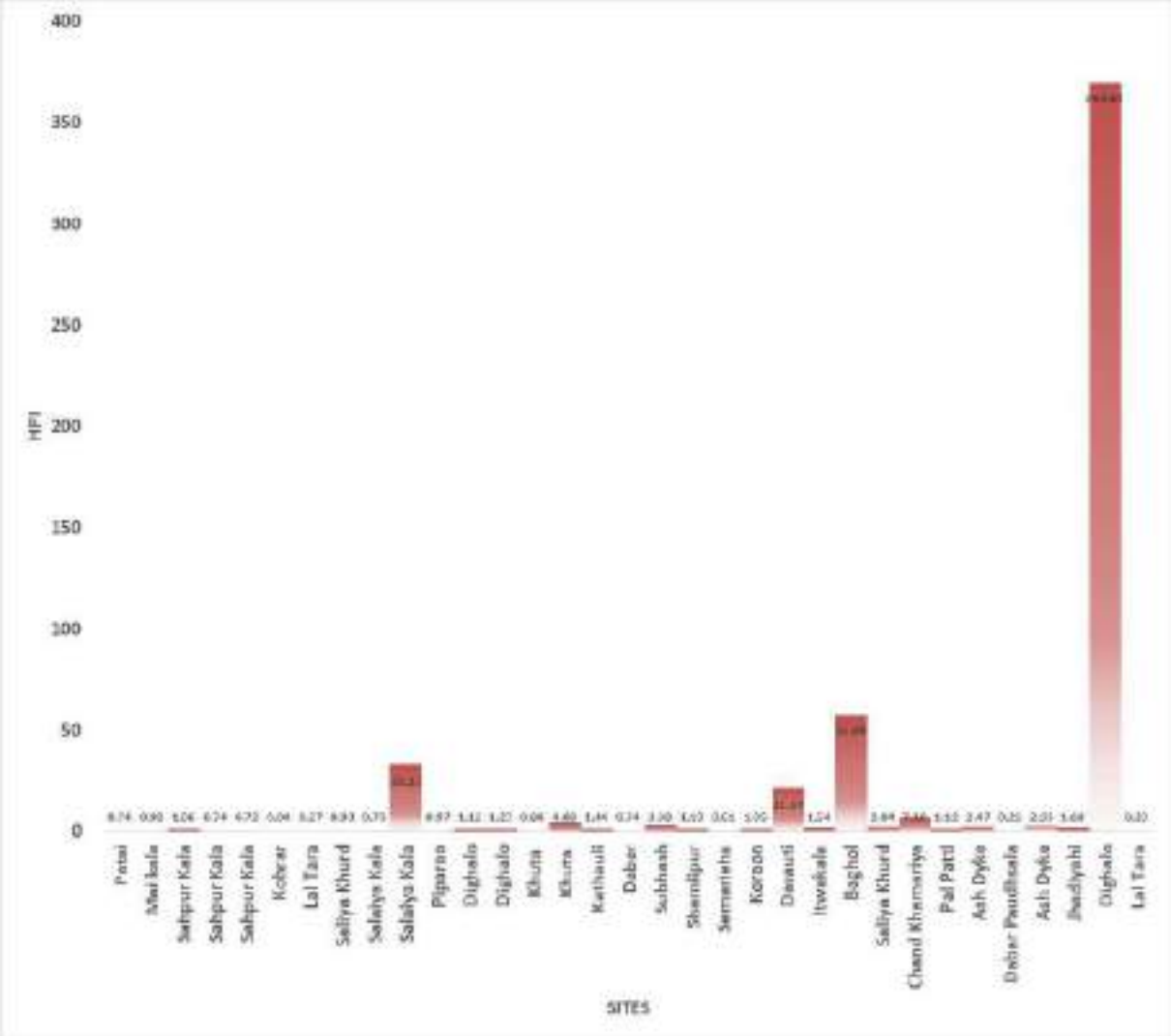


Figure 9.1. Heavy metal pollution index for various water sampling sites (post monsoon, Pre-monsoon and monsoon)

It is seen from Figure 10.1 that the HPI of groundwater for most of the sampling locations is low as compared with the critical pollution limit of 100. Among the groundwater samples, the HPI of hand pumps located at Baghol and Dighalo is more than 100 and require further monitoring while the least (0.72) HPI was found for Shahpur Kala 2.

It is obvious that higher the heavy metal pollution index value, greater the threat. Values of almost all samples are well within the critical limit of 100 values. This high values of HPI at these sites may be due to the high iron and lead contents in groundwater

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(beyond permissible limit). HPI is fully based on the results of the collected groundwater samples.

9.2 Influence of Effluents of MUNPL, MEJA project on the Characteristics of Sub-Surface Formations

The influence of MUNPL, MEJA effluents was analysed in multiple ways through soil sampling and water sampling from MUNPL, MEJA project area and a buffer zone of 25 km. Water samples were collected from the project area namely Hand Pump, pond etc. The pond does not indicate any signs of contamination due to MUNPL, MEJA. Some general physico-chemical parameters of the hand pump water are found beyond the BIS permissible limit. However, the heavy metal pollution index (HPI) of groundwater does not indicate any sign of contamination due to MUNPL, MEJA project. The water sample from the pond falls beyond the BIS permissible limits. Some samples has concerns related to water quality and needs proper management with respect to its quality. The surface soils are mainly sandy or silt loam type, which provide enough protection from surface contamination to leach down into the subsurface.

9.3 Recommendations regarding solutions for prevention and control of pollution – Suggested environmentally sound and sustainable management plan for handling of plant effluents

In general, the generation of large volume of water from the project area containing heavy metals may be an unavoidable situation because the industry needs large quantities of water to pump out for the project operations and thereby disposed-off all this water in a planned and safe manner. The MUNPL, MEJA is already having its properly managed system from pumping of water from the plant area up to the ash dyke. Moreover, MUNPL,

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MEJA has maintained the zero waste water disposal policy. MUNPL, MEJA is also having the sewage treatment plant for proper treatment of their domestic effluents.

The MUNPL, MEJA should continue to comply with the water conservation techniques like zero wastewater discharge, reuse of demineralised backwash water after proper treatment and implement rain water harvesting.

Remedial measures for the control of pollution, in future as well, are given below. Effluents should be managed properly by:

1. Complete lining of drains carrying effluents for disposal to prevent leaching of heavy metals and groundwater contamination.
2. Creating plantations and irrigate them.
3. Continuous monitoring of the groundwater conditions using piezometers.
4. Maximising recycling of the treated effluents in the plant.
5. Public awareness raising programmes are also important for the preventive measures.

9.4 Development of monitoring network

Network planning is the backbone of any monitoring system. In hydrology, monitoring of data is mostly site specific and proper representation of this data on spatial scale requires proper network planning. Therefore, going for any kind of instrumentation in any area or basin, planning for the establishment of network stations for instrumentation is of prime importance. From the study it has been found that Water level measurements from observation wells are the principal source of information about the hydrologic stresses acting on aquifers and how these stresses affect ground water recharge, storage, and discharge. Monioring of wells at Salaikalan and Maikalan are important and maximum water level fluctuations are observed.

In addition to monitoring surface water for Tons river and Ganga river, groundwater monitoring network is necessary for measurements of groundwater level and groundwater quality. The data monitored under this task are used to estimate the availability of groundwater storage, its variation with time both in quantity and quality. These networks can

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also be used for water sample collection for the isotopic analysis for identification of potential sources of recharge.

Groundwater with high salinity values are found in Subhash and Sauti; high fluoride concentrations are observed at Khuta and Lal Tara, Trace metals are found higher in Dighalo. These points should be monitored for water quality regularly 2 times a year, pre-monson and post monsoon seasons.

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10. Summary, Findings and Recommendations

10.1 Summary

(a) The Meja Urja Nigam Pvt. Ltd. (MUNPL, MEJA) a joint venture incorporated in 2008 between NTPC and UPRVUNL in District Prayagraj of Uttar Pradesh. The present capacity of TPP is 1320 MW (2×660 MW) and the same is under commercial operation. The plant is also connected to river Ganga at Bijora village, through a network of about 30 km pipeline, to transport water for industrial purposes. Meja Thermal Power Station is the first supercritical power plant (SCPP) of Uttar Pradesh. It uses 20 per cent less coal compared to them. It generates less carbon emissions. A supercritical coal plant is a coal-fired power plant with more modern designs. It differs from traditional coal power plants as the water running through it works as a supercritical fluid. This reduces the amount of heat transfer to the water which in normal cases is needed in a conventional coal plant. Therefore, less coal is used to heat the same amount of water.

(b) The core zone area is comprised of the 'Meja Project Area' measuring about 6400 ha (64 sq. km) that lies between the latitudes 25° 06' 45" to 25° 11' 33"N and longitudes 81° 52' 30" to 82° 00' 00"E, and the 'Buffer Zone' of 25 km from the Meja Project Area measuring about 19,5900 ha (1959 sq. km) that lies between the latitudes 24o 50' to 25o 25' N and longitudes 81o 40' to 82o 15' E. The extended buffer zone area all around the Meja Project Area has been taken for analysis to investigate the physiography of the surrounding area particularly to see the connectivity of the surface drainage pattern, settlements, water bodies, groundwater, etc. All these areas lie in the Survey of India Toposheet No. 63G16.

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(c) The study area is characterized by Active Flood Plains, Older Alluvial Plain and Rocky Surface (Denudational hills). The active flood plain is quite localized and confined only to the river system, whereas the older alluvial plain is characterized by depositional and erosional terraces found in patches along the active plain. The denudational hills found prominent in trans Yamuna area formed mainly of quartzite10 and the core area of the Meja power plant is situated on the denudational hills. The MUNPL, MEJA project area is occupying part of Ganga basin and another part of Tons Sub- basin. The seasonal rivers as well as tributaries are ephemeral and flow only in response to heavy precipitation.

(d) The district represents a complex geology with the formation belonging to Quaternary (Alluvium - Sand, silt, clay and Kankar, Laterite.) period covering major part in the northern side of the district overlying the Vindhyan formations (Sand stone and shale - Kaimur sandstone and Bijaigarh Shale) in the southern plateau. The oldest formations exposed are Bijaigarh Shale in the edge of the district around Hanumangunj in Koraon block. Further to the north the sandstone and quartzites, representing the uppermost part of the Kaimur series, are seen as isolated part of the district covering the blocks of Meja,,Manda, Koraon and Shankargarh, The Vindhyans forms the floor of the younger sediments in the Cis-Yamuna area. The Laterite normally overlies Vindhyans at certain places. It is reddish brown to chocolate in color, highly ferruginous, and perforated mass. Alluvium found in the whole of Trans-Ganga, Doab and Part of Trans - Yauna tract of Quaternary age. The alluvium detritus of Vindhyan is found at some places in the southern part of the Doab. In Trans - Yamuna tract, The Vindhyan detritus merges with the Yamuna sand and silt. The thickness of the alluvial sediments gradually increases in the north and maximum thickness is encountered within the flood plain area of river

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Ganga and Yamuna. Greater thickness is encountered within the Trans - Ganga area where it exceeds 300 meters followed by doab region where it is less than 250 meters and ultimately less than 50 meters in the Trans-Yamuna region. The alluvial sediments essentially composed sands of various grades, clay and silts within the unconsolidated granular mass assemblage of nodular concretions of Calcium Carbonate have been recorded at different depths (CGWB, 2019).

(e) Groundwater occurs in alluvium and in the weathered and joint sandstones in areas which are underlain by the hard rocks. Two broad hydrogeological units, namely, unconsolidated (Alluvium) and consolidated (hard rock) are the major components. The Alluvial formations occur in the Trans-Ganga and Doab region. Occurrence of consolidated formations is restricted primarily to Trans Yamuna tract. In the study area, the thickness of alluvium is more than 300 m with the discharge rates of 2000-3000 lpm.

(f) In the study area wells and tube wells are the main ground water abstraction structures. Ground water is being developed in the area by medium to deep tube wells, dug wells, dug-cum bored wells. Based on 3 exploratory wells data in the area CGWB observed yield at Pipraon village was about 770 lpm (good to excellent on groundwater prospective) whereas yield of 107 lpm encountered at Saliya Khurd village belongs to very poor prospective area.

(g) Analysis of long series daily rainfall data of 36 years (1985-2021) of the study area showed that annual rainfall varied from year to year ranging between 379. mm to 1300 mm with an average of 858 mm. About 921 mm (89.07 % of the annual rainfall) is received during the monsoon months, June through September. Probability analysis of the annual rainfall data carried out at various dependability levels showed that the

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quantity of rainfall at 20%, 50%, and 90% probability of exceedance is 370, 250, and 130 mm, respectively.

(h) The bore hole drilling data reveals that the lithology of the region is basically, Sandstone of various grade and composition. The water bearing zone in the area is comprises of fractured sandstone basically between 200-240, 260-280 ft bgl.

(i) Ambient groundwater and surface water from various locations of the buffer zone have been analysed based on the samples collected from the field. The sampling locations were widespread in and around the study area. In general, mostly the water quality parameters were found within the permissible limits and some exceeding the limits.

(j) In monsoon 2022, iron in 60% of the groundwater samples and 20% of surface water samples are found within the acceptable and permissible limits, respectively. There is no relaxation for the permissible limit. Zinc is found within the acceptable limits for all locations. For copper, 97% samples are found within acceptable limits and all samples are found within permissible limits.

(k) No impact of MUNPL, MEJA effluents is found on the surface and ground water regime because no effluents are discharged out by the MUNPL, MEJA and the effluents from the ash dyke also do not indicate any harmful parameter.

10.2 Findings

(i) The area shows large variations in the topography, with a slope range of 0 to 30.30 degrees

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(ii) The trend analysis carried out on the annual rainfall time series covering 36 years' period from 1985 to 2021 indicated the significant rising trend in the annual rainfall of the area.

(iii)The infiltration rate varies from 0.3 (Ladiyari) to 7 mm/hour (Basahih) in various parts of the study area indicating low infiltration rates.

(iv)In the drilling cuttings it was observed that secondary porosity was developed in vugs/veins resulting increased porosity and permeability, hence these sandstones are producing low to medium discharge.

(v) The resistivity (VES-01) data demarked the zones between 53.0 to 56.0m, 67.5 to 70.0m and 77.0 to 84.0m and 89 to 95m, are jointed/ fractured Sandstone showing the signature of water bearing zone in VES-01. Moreover, at VES-02 between 15 to 20m and 56 to 63m depth where the fractured/jointed sandstone layers are showing relatively low resistivity values close to water bearing zone and might be the good option to develop recharge borewell for rainwater harvesting purpose.

(vi)In the pump test, Thesis's Time-drawdown curve matching method show Transmissivity value of the piezometer around 0.40 m2/day, whereas, Theis's recovery method the Transmissivity of the aquifer is coming approx. to 0.37 m2/day. Indicating very low value of transmissivity and that can result to low yield.

(vii) Depth to water level ranges from 2.4 to 8.6 mbgl, during the survey period in September 2023. In Monsoon 2424, it was observed that water levels are higher which are going down by about 5-10 m down in the pre-monsoon period.

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(viii) pH and EC/TDS are found mostly within the permissible limits except TDS of few samples was found exceeding the permissible limit. Bicarbonates are found in low concentration, therefore, total hardness is also within the permissible limit.

(ix) In post monsoon 2021, Fluoride and Chloride are found within the acceptable limit at 66 and 93% of locations while all other samples including surface water samples are found within permissible limit at all the locations. Concentration of fluoride in 33% groundwater samples; sulphate and nitrate in 22 % groundwater samples are found beyond the permissible limit.

(x) For arsenic, all samples are found within the permissible limit (50 ppb) for all the sampling locations.

(xi) The influence of MUNPL, MEJA effluents was analysed in multiple ways through water sampling from MUNPL, MEJA project area and a buffer zone of 25 km. Water samples were collected from the project area namely Hand Pump, pond etc. The pond does not indicate any signs of contamination due to MUNPL, MEJA. Some general physico-chemical parameters of the hand pump water are found beyond the BIS permissible limit. However, the heavy metal pollution index (HPI) of groundwater does not indicate any sign of contamination due to MUNPL, MEJA project. The water sample from the pond falls beyond the BIS permissible limits. Some samples have concerns related to water quality and needs proper management with respect to its quality. The surface soils are mainly sandy or silt loam type, which provide enough protection from surface contamination to leach down into the subsurface.

(xii) The influence of MUNPL, MEJA on the surround areas was analysed in multiple ways through water sampling from MUNPL, MEJA project area and a buffer zone of 25 km.

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The values of various groundwater quality parameters are of geogenic nature and no impact of MUNPL, MEJA effluents has been observed on the surface and ground water quality of the study area. However, it is advised to review the groundwater quality status after every three years.

10.3 Recommendations

(i) Though the MUNPL, MEJA has already implemented many rainwater conservation measures, they may further continue to implement more conservation measures in future as well. It is also recommended to make maximum possible reuse of treated wastewater in the project area.

(ii) Remedial measures to protect the surface and ground water resource from contamination, in future, are as follows:

a) Complete lining of drain carrying effluents for disposal to prevent leaching of heavy metals and groundwater contamination.

b) Creating plantations and irrigate them.

c) Continuous monitoring of the groundwater conditions using piezometers.

d) Maximum recycle and reuse of the treated effluents in the plant.

e) Public awareness raising programmes are also important for the preventive measures.

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Annexure-I

Water Quality Results of Samples Collected from the MUNPL, MEJA project area and Surroundings during the Study Period

(a) Physico-Chemical and Major Ion Parameters (December, 2021)

Serial no.	Location	Source	pH	EC (µS/cm)	CO_3^{-2} (mg/L)	HCO_3^- (mg/L)	F^- (mg/L)	Cl^- (mg/L)	SO_4^{--} (mg/L)	NO_3^- (mg/L)	NO_2^- (mg/L)	Ca^{++} (mg/L)	Mg^{++} (mg/L)	Na^+ (mg/L)	K^+ (mg/L)
1	Ash Dyke	Ash Dyke	7.9	1100	0.0	54.9	0.94	115	54.9	230	n.a.	58.07	9.09	**82.77**	**9.89**
2	Patai	Patai	7.3	690	0.0	184.22	0.26	47	184.22	90	n.a.	64.39	7.39	**56.94**	**0.35**
3	Mai Kala	Mai kala	7.5	920	0.0	367.22	0.72	82	367.22	47	n.a.	30.67	8.78	**85.88**	**0.4**
4	SahPur kala	Sahpur Kala	7.6	950	0.0	564.86	0.35	45	564.86	1	3.68	20.73	8.74	**94.43**	**1.2**
5	SahPur kala	Sahpur Kala	7.7	1020	0.0	524.6	0.96	54	524.6	21	n.a.	29.52	9.68	**61.15**	**2.33**
6	SahPur kala	Sahpur Kala	7.7	970	0.0	520.94	0.41	55	520.94	16	n.a.	35.57	9.25	**63.90**	**4.16**
7	Jhariyari	Jhariyari	7.5	1140	0.0	601.46	0.45	66	601.46	12	n.a.	11.77	7.49	**277.30**	**1.39**
8	Jhariyari	Jhariyari	7.8	2200	0.0	677.1	0.55	211	677.1	59	n.a.	44.83	9.63	**31.52**	**1.49**
9	Kohrar	Kohrar	7.6	190	0.0	436.76	0.23	53	436.76	4	n.a.	37.14	8.43	**99.03**	**0.9**
10	Lal Tara	Lal Tara	7.7	1150	0.0	529.48	0.82	121	529.48	49	n.a.	36.79	8.98	**112.70**	**1.12**
11	Salaiya Khurd	Saliya Khurd	7.8	450	0.0	237.9	1.46	11	237.9	27	n.a.	48.90	7.51	**43.52**	**6.46**
12	Salaiya Kala	Salaiya Kala	7.2	340	0.0	198.86	1.61	10	198.86	5	n.a.	31.66	6.98	**25.56**	**1.87**
13	Salaiya Kala	Piparao	7.5	240	0.0	104.92	1.00	23	104.92	12	n.a.	20.34	4.71	**2.56**	**45.17**
14	Piparao	Dighalo	7.2	2500	0.0	639.28	1.78	242	639.28	170	n.a.	127.13	9.48	**87.35**	**334**
15	Dighalo	Khuta	7.4	570	0.0	329.4	1.28	33	329.4	8	n.a.	24.29	7.97	**57.91**	**3.1**
16	Dighalo	Khuta	7.3	1470	0.0	375.76	1.71	155	375.76	140	n.a.	109.51	9.04	**58.30**	**7.45**
17	Khuta	Kathauli	7.8	240	0.0	132.98	1.32	35	132.98	7	n.a.	51.87	7.48	**20.94**	**0.84**
18	Khuta	Dabar	7.9	1090	0.0	658.8	1.18	91	658.8	8	n.a.	16.95	8.92	**228.80**	**1.01**

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19	Kathauli	Subhash	7.8	1170	0.0	584.38	2.36	83	584.38	25	n.a.	14.40	10.24	**51.61**	**24.14**
20	Dabar	Semarieha	7.60	1180	0.0	734.44	1.94	44	734.44	12	n.a.	3.18	8.33	**346.10**	**2.82**
21	Dabar	Koraon	7.2	5800	0.0	1293.2	0.33	596	1293.2	560	n.a.	13.31	11.14	**840.60**	**315.9**
22	Siyamlipur	Dasauti	7.7	350	0.0	229.36	0.02	18	229.36	1	n.a.	52.63	7.48	**24.87**	**7.62**
23	Semarieha	Itwakala	7.8	1010	0.0	551.44	0.45	63	551.44	29	n.a.	24.17	8.83	**80.20**	**1.76**
24	Koraon	Baghol	7.5	1120	0.0	505.08	0.34	102	505.08	21	n.a.	40.43	9.61	**72.19**	**2.99**
25	Dasauti	Saliya Khurd	7.5	990	0.0	535.58	0.95	79	535.58	43	n.a.	22.33	8.89	**82.66**	**1.4**
26	Itwakala	Chand Khamariya	7.6	1320	0.0	616.1	1.00	134	616.1	16	n.a.	14.10	9.35	**146.30**	**2.56**
27	Baghol	Pal Patti	7.5	1490	0.0	728.34	0.80	133	728.34	80	n.a.	18.51	8.85	**296.70**	**2.7**
28	Baghol	Jhariyari	7.5	520	0.0	225.7	0.21	28	225.7	34	n.a.	43.77	7.48	**48.35**	**8.15**
29	Chand khamariya	Ash Dyke	7.6	1330	0.0	408.7	0.30	182	408.7	25	n.a.	61.71	8.96	**176.20**	**1.8**
30	Pal patti	Dabar Paudhsala	6.5	110	0.0	84.18	0.33	15	84.18	3	n.a.	8.46	2.33	**4.38**	**3.66**
31	Jhariyari	Subhash	7.1	5400	0.0	545.34	1.08	660	545.34	470	n.a.	61.14	11.30	**751.80**	**138.9**
32	Ash Dyke	Ash Dyke	7.4	140	0.0	54.9	0.09	30	54.9	7	n.a.	11.87	4.57	**6.68**	**1.31**

(b) Metal Ion Parameters

Serial no.	Location	Source	Fe (mg/L)	Zn (ppb)	Cu (ppb)	As (ppb)	Pb (ppb)	Cd (ppb)	Cr (ppb)	Ni (ppb)
1	Ash Dyke	Ash Dyke	3.03	10.98	4.47	9.06	0.37	0.37	0.12	4.47
2	Patai	Patai	4.03	1.23	0.54	2.55	0.47	0.47	0.06	0.54
3	Mai Kala	Mai kala	4.8	2.15	4.73	7.17	0.8	0.8	1.56	4.73
4	SahPur kala	Sahpur Kala	0.27	3.17	0.13	0.04	0.4	0.4	9.89	0.13
5	SahPur kala	Sahpur Kala	2.33	2.14	1.23	2.67	0.5	0.5	7.89	1.23
6	SahPur kala	Sahpur Kala	4.18	2.46	7.47	6.59	0.55	0.55	7.17	7.47
7	Jhariyari	Jhariyari	0.31	0.92	0	10.41	0.42	0.42	1.69	0

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8	Jhariyari	Jhariyari	0.08	1.12	0.4	1.1	0.32	0.32	1.67	0.4
9	Kohrar	Kohrar	0.5	2.76	0.47	4.61	0.53	0.53	1.61	0.47
10	Lal Tara	Lal Tara	0.48	1.51	0.96	5.63	0.44	0.44	0.94	0.96
11	Salaiya Khurd	Saliya Khurd	0.05	1.02	1.79	5.65	0.13	0.13	0.26	1.79
12	Salaiya Kala	Salaiya Kala	14.85	7.66	12.52	9.36	1.11	1.11	8.28	12.52
13	Salaiya Kala	Piparao	3.03	5.22	4.85	8.22	0.35	0.35	1.06	4.85
14	Piparao	Dighalo	0.55	2.65	2.5	10.89	1.27	1.27	1.69	2.5
15	Dighalo	Khuta	0.01	0.49	0.47	4.12	0.13	0.13	0.79	0.47
16	Dighalo	Khuta	0.03	7.09	3.36	9.05	4.52	4.52	0.64	3.36
17	Khuta	Kathauli	0.12	0.79	3.47	1.13	0.39	0.39	1.18	3.47
18	Khuta	Dabar	0.41	1.31	3.42	2.44	0.48	0.48	3.93	3.42
19	Kathauli	Subhash	0.56	0.9	1.09	9.44	0.5	0.5	0.17	1.09
20	Dabar	Semarieha	0.06	0.43	0.83	3.28	0.05	0.05	3.99	0.83
21	Dabar	Koraon	0.18	2.88	1.98	6.84	0.21	0.21	0.22	1.98
22	Siyamlipur	Dasauti	2.81	0.03	0.96	5.84	0.63	0.63	0.63	0.96
23	Semarieha	Itwakala	0.07	1.29	0.61	8.58	0.06	0.06	0.24	0.61
24	Koraon	Baghol	0.09	0.98	0.69	9.96	0.25	0.25	0.83	0.69
25	Dasauti	Saliya Khurd	0.07	0.12	0.33	6.57	0.15	0.15	0.87	0.33
26	Itwakala	Chand Khamariya	0.3	1.72	5.51	1.4	0.28	0.28	0.76	5.51
27	Baghol	Pal Patti	0.31	2.06	4.49	5.59	5.63	5.63	0.33	4.49
28	Baghol	Jhariyari	0.05	5.12	1.45	2.43	2.25	2.25	0.2	1.45
29	Chand khamariya	Ash Dyke	0.74	1.58	2.6	3.72	0.69	0.69	1.5	2.6
30	Pal patti	Dabar Paudhsala	0.38	7.73	2.26	9.74	1.96	1.96	0.67	2.26
31	Jhariyari	Subhash	2.04	3.08	6.78	0.65	0.61	0.61	1.48	6.78
32	Ash Dyke	Ash Dyke	0.06	1.26	5.01	8.26	0.16	0.16	0.04	5.01

//True Copy//

(a) Physico-Chemical and Major Ion Parameters (May, 2022)

Serial no.	Location	Source	pH	EC (µS/cm)	CO_3^{-2} (mg/L)	HCO_3^- (mg/L)	F^- (mg/L)	Cl^- (mg/L)	SO_4^{--} (mg/L)	NO_3^- (mg/L)	NO_2^- (mg/L)	Ca^{++} (mg/L)	Mg^{++} (mg/L)	Na^+ (mg/L)	K^+ (mg/L)
1	Ash Dyke	Pond	7.62	1390	0.0	48.80	16.31	174.49	48.80	574.57	n.a.	93.77	8.44	193.70	31.32
2	Patai	Handpump	7.50	830	0.0	90.28	4.72	138.20	90.28	257.50	n.a.	96.31	6.92	59.52	0.52
3	Mai kala	Handpump	7.47	1470	0.0	342.82	n.a.	299.47	342.82	141.72	n.a.	83.70	8.49	272.50	0.65
4	Sahpur Kala	Handpump	7.64	860	0.0	503.86	0.43	82.46	503.86	0.11	3.68	49.27	7.99	88.04	1.29
5	Sahpur Kala	Handpump	7.52	1030	0.0	563.64	0.54	84.19	563.64	110.34	n.a.	49.18	8.86	78.30	2.71
6	Sahpur Kala	Handpump	7.51	810	0.0	494.10	n.a.	43.29	494.10	36.78	n.a.	57.35	8.43	59.53	4.47
7	Jhariyari	Handpump	7.46	710	0.0	309.88	0.03	63.75	309.88	30.37	n.a.	80.77	7.23	54.55	1.99
8	Jhariyari	Well	7.43	1290	0.0	535.58	0.27	144.45	535.58		n.a.	67.21	8.06	258.30	1.51
9	Kohrar	Handpump	7.53	530	0.0	322.08	n.a.	14.51	322.08	6.99	n.a.	39.03	5.43	63.46	1.01
10	Lal Tara	Handpump	7.66	680	0.0	387.96	0.84	29.05	387.96	25.73	n.a.	69.87	7.86	68.28	1.19
11	Saliya Khurd	Well	7.43	610	0.0	392.84	0.17	20.09	392.84	23.80	n.a.	76.66	7.39	59.92	6.05
12	Salaiya Kala	Handpump	7.42	430	0.0	259.86	n.a.	5.29	259.86	3.95	n.a.	45.62	6.10	31.53	2.91
13	Piparao	Handpump	7.50	550	0.0	313.54	n.a.	24.16	313.54	7.65	n.a.	45.13	7.08	55.37	3.47
14	Dighalo	Handpump	7.41	990	0.0	274.50	0.20	106.60	274.50	146.48	n.a.	96.77	7.92	76.14	44.44
15	Khuta	Handpump	7.66	710	0.0	522.16	0.33	23.39	522.16	18.61	n.a.	37.45	8.63	25.19	7.51
16	Khuta	Handpump	7.54	320	0.0	173.24	0.10	18.25	173.24	3.78	n.a.	29.90	5.56	25.59	23.03
17	Kathauli	Handpump	7.75	1010	0.0	584.38	0.45	41.77	584.38	8.70	n.a.	40.70	8.07	217.90	2.62
18	Dabar	Handpump	7.89	1210	0.0	773.48	0.47	26.05	773.48	16.65	n.a.	30.11	7.77	354.90	2.84
19	Subhash	Handpump	7.46	4900	0.0	866.20	n.a.	678.75	866.20	515.71	n.a.	90.86	9.94	808.10	97.13
20	Semarieha	Well	7.63	1000	0.0	472.14	n.a.	75.14	472.14	21.07	n.a.	44.48	7.90	173.50	1.89
21	Koraon	Handpump	7.56	890	0.0	550.22	0.05	77.96	550.22	30.83	n.a.	98.53	8.47	55.32	2.78

//True Copy//

22	Dasauti	Well	7.59	960	0.0	372.10	n.a.	61.29	372.10	24.49	n.a.	65.99	8.35	79.71	0.69
23	Itwakala	Handpump	8.02	1360	0.0	567.30	0.77	183.10	567.30	17.86	n.a.	73.75	8.56	312.50	3.30
24	Baghol	Handpump	7.52	1200	0.0	445.30	0.83	80.81	445.30	49.97	n.a.	58.61	8.15	19.73	1.53
25	Saliya Khurd	Handpump	7.69	770	0.0	341.60	n.a.	51.07	341.60	49.47	n.a.	71.83	7.55	80.42	10.00
26	Chand Khamariya	Handpump	7.54	5400	0.0	575.84	n.a.	923.70	575.84	572.66	n.a.	142.80	10.24	73.62	136.00
27	Pal Patti	Handpump	7.28	1220	0.0	395.28	0.07	249.74	395.28	83.79	n.a.	113.43	8.30	175.50	2.02
28	Jhariyari	Handpump	7.67	840	0.0	390.40	0.26	48.41	390.40		n.a.	45.95	8.43	75.69	0.43
29	Ash Dyke	Pond	7.22	1600	0.0	92.72	2.45	336.80	92.72	627.21	n.a.	130.72	8.80	227.50	23.63
30	Dabar Paudhsala	Handpump	7.60	210	0.0	108.58	n.a.	42.06	108.58	72.70	n.a.	27.16	4.63	16.69	2.11
31	Subhash	Handpump	7.57	960	0.0	495.32	n.a.	46.99	495.32		n.a.	42.04	8.34	15.51	15.51
32	Ash Dyke	Pond	7.53	900	0.0	262.30	n.a.	96.95	262.30	109.56	n.a.	82.83	7.64	82.63	2.57
33	Ash Dyke	Well	7.54	1000	0.0	447.74	2.60	74.67	447.74	44.12	n.a.	80.84	7.65	74.96	0.60
34	Dighalo	Handpump	7.51	560	0.0	152.50	n.a.	62.88	152.50	54.29	n.a.	61.45	6.53	27.72	29.04
35	Shambholri Nagar	Handpump	7.05	420	0.0	122.00	n.a.	49.72	122.00	103.61	n.a.	67.46	7.04	41.79	2.75
36	Khamoriya	Pond	6.92	500	0.0	189.10	1.14	44.75	189.10	21.53	n.a.	13.89	4.30	83.39	18.08
37	Tons River	River	7.40	260	0.0	184.22	n.a.	33.93	184.22	14.68	n.a.	31.83	7.51	14.62	39.57

//True Copy//

(b) Metal Ion Parameters

Serial no.	Location	Source	Fe (mg/L)	Zn (ppb)	Cu (ppb)	As (ppb)	Pb (ppb)	Cd (ppb)	Cr (ppb)	Ni (ppb)
1	Ash Dyke	Pond	0.5	19.62	5.28	14.08	1.39	1.39	3.68	5.28
2	Patai	Handpump	3.29	1.95	0.12	0.17	0.91	0.91	ND	0.12
3	Mai kala	Handpump	4.56	0.77	ND	8.14	0.86	0.86	0.11	ND
4	Sahpur Kala	Handpump	0.7	1.68	4.56	5.41	0.48	0.48	7.72	4.56
5	Sahpur Kala	Handpump	ND	3.87	ND	ND	0.54	0.54	ND	ND
6	Sahpur Kala	Handpump	0.24	ND	6.78	1.23	0.63	0.63	0.29	6.78
7	Jhariyari	Handpump	0.63	3.03	ND	ND	0.64	0.64	0.77	ND
8	Jhariyari	Well	ND	0.62	ND	3.58	0.49	0.49	ND	ND
9	Kohrar	Handpump	0.91	2.05	4.55	ND	0.59	0.59	0.35	4.55
10	Lal Tara	Handpump	0.62	2.91	1.9	ND	0.58	0.58	ND	1.9
11	Saliya Khurd	Well	0.31	1.56	1.51	24.45	0.46	0.46	ND	1.51
12	Salaiya Kala	Handpump	0.16	2.03	0.24	5.61	0.76	0.76	ND	0.24
13	Piparao	Handpump	0.12	5.66	3.01	3.65	0.74	0.74	ND	3.01
14	Dighalo	Handpump	0.18	31.71	1.21	10.07	10.6	10.6	ND	1.21
15	Khuta	Handpump	0.93	3.18	11.84	0.85	1.23	1.23	1.52	11.84
16	Khuta	Handpump	0.38	0.68	12.01	3.16	0.61	0.61	1.15	12.01
17	Kathauli	Handpump	ND	0.93	ND	2.8	0.58	0.58	ND	ND
18	Dabar	Handpump	0.21	0.93	8.13	ND	0.65	0.65	3.57	8.13
19	Subhash	Handpump	ND	3.19	ND	14.4	0.54	0.54	0.38	ND
20	Semarieha	Well	ND	0.4	ND	1.79	0.26	0.26	ND	ND
21	Koraon	Handpump	ND	0.45	ND	15.84	0.47	0.47	0.32	ND

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22	Dasauti	Well	ND	1.86	ND	ND	0.66	0.66	ND	ND
23	Itwakala	Handpump	ND	2.81	ND	1.8	0.48	0.48	ND	ND
24	Baghol	Handpump	ND	2.06	ND	15.79	1.25	1.25	ND	ND
25	Saliya Khurd	Handpump	ND	4.28	ND	ND	1.29	1.29	0.16	ND
26	Chand Khamariya	Handpump	ND	10.38	ND	11.26	1.2	1.2	ND	ND
27	Pal Patti	Handpump	0.75	14.42	17.37	8.07	0.67	0.67	1.1	17.37
28	Jhariyari	Handpump	ND	1.51	ND	4.91	0.51	0.51	ND	ND
29	Ash Dyke	Pond	2.18	10.07	3.72	19.56	0.63	0.63	0.95	3.72
30	Dabar Paudhsala	Handpump	0.09	3.97	2.59	ND	1.35	1.35	ND	2.59
31	Subhash	Handpump	0.11	0.98	2.91	ND	0.67	0.67	3.31	2.91
32	Ash Dyke	Pond	1.13	4.94	5.4	2.81	0.41	0.41	1.01	5.4
33	Ash Dyke	Well	0.96	2.8	18.25	2.95	0.59	0.59	0.28	18.25
34	Dighalo	Handpump	3.19	11.3	18.35	13.03	40.01	40.01	3.72	18.35
35	Shambholri Nagar	Handpump	0.12	15.8	5.25	4.11	0.67	0.67	2.34	5.25
36	Khamoriya	Pond	0.71	3.69	17.29	5.23	1.08	1.08	3.35	17.29
37	Tons River	River	0.01	1.1	4.1	5.65	2.39	2.39	ND	4.1

//True Copy//

(a) Physico-Chemical and Major Ion Parameters (August, 2022)

Serial no.	Location	Source	pH	EC (µS/cm)	CO_3^{-2} (mg/L)	HCO_3^- (mg/L)	F^- (mg/L)	Cl^- (mg/L)	SO_4^{--} (mg/L)	NO_3^- (mg/L)	NO_2^- (mg/L)	Ca^{++} (mg/L)	Mg^{++} (mg/L)	Na^+ (mg/L)	K^+ (mg/L)
1	Ash Dyke	Pond	6.95	1350	0.0	96.38	12.98	156.772	96.38	594.214	n.a.	93.77	8.44	193.70	31.32
2	Patai	Handpump	6.80	860	0.0	169.58	0.509	91.317	169.58	258.95	n.a.	96.31	6.92	59.52	0.52
3	Mai kala	Handpump	7.20	1310	0.0	418.46	0.068	225.659	418.46	116.286	n.a.	83.70	8.49	272.50	0.65
4	Sahpur Kala	Handpump	7.10	860	0.0	479.46	0.322	77.842	479.46	11.329	3.68	49.27	7.99	88.04	1.29
5	Sahpur Kala	Handpump	7.60	980	0.0	495.32	0.002	9.124	495.32	8.742	n.a.	49.18	8.86	78.30	2.71
6	Sahpur Kala	Handpump	6.98	1060	0.0	541.68	0.286	42.033	541.68	19.24	n.a.	57.35	8.43	59.53	4.47
7	Kohrar	Handpump	7.20	490	0.0	353.80	0.092	52.801	353.80	18.014	n.a.	80.77	7.23	54.55	1.99
8	Lal Tara	well	7.20	1080	0.0	462.38	0.030	10.542	462.38	5.817	n.a.	67.21	8.06	258.30	1.51
9	Saliya Khurd	Well	7.30	640	0.0	285.48	0.85	66.587	285.48	108.878	n.a.	39.03	5.43	63.46	1.01
10	Salaiya Kala	Handpump	6.80	110	0.0	39.04	0.114	44.287	39.04	72.082	n.a.	69.87	7.86	68.28	1.19
11	Salaiya Kala	Handpump	6.65	80	0.0	130.54	0.055	3.182	130.54	7.333	n.a.	76.66	7.39	59.92	6.05
12	Piparao	Handpump	7.40	550	0.0	683.20	0.760	59.3778	683.20	19.07	n.a.	45.62	6.10	31.53	2.91
13	Dighalo	Handpump	7.20	1140	0.0	335.50	0	96.415	335.50	124.56	n.a.	45.13	7.08	55.37	3.47
14	Dighalo	Handpump	7.10	860	0.0	334.28	0	71.655	334.28	79.323	n.a.	96.77	7.92	76.14	44.44
15	Khuta	Handpump	7.20	1270	0.0	557.54	1.868	146.231	557.54	37.702	n.a.	37.45	8.63	25.19	7.51
16	Khuta	Handpump	8.10	210	0.0	185.44	0.378	11.085	185.44	9.152	n.a.	29.90	5.56	25.59	23.03
17	Kathauli	Handpump	6.98	590	0.0	378.20	0	30.542	378.20	8.136	n.a.	40.70	8.07	217.90	2.62
18	Dabar	Handpump	7.10	1190	0.0	835.70	0.028	22.624	835.70	18.041	n.a.	30.11	7.77	354.90	2.84
19	Subhash	Handpump	6.97	4500	0.0	978.44	0.48	283.31	978.44	277.58	n.a.	90.86	9.94	808.10	97.13
20	Shamlipur	Handpump	8.00	170	0.0	141.52	0.016	26.661	141.52	26.527	n.a.	44.48	7.90	173.50	1.89
21	Semarieha	well	7.80	970	0.0	459.94	0.371	74.363	459.94	30.046	n.a.	98.53	8.47	55.32	2.78

//True Copy//

22	Koraon	Handpump	7.60	700	0.0	500.20	0	25.614	500.20	14.628	n.a.	65.99	8.35	79.71	0.69
23	Dasauti	well	7.20	3000	0.0	509.96	0.55	518.52	509.96	339.8	n.a.	73.75	8.56	312.50	3.30
24	Itwakala	Handpump	7.50	1450	0.0	425.78	0.061	184.042	425.78	43.436	n.a.	58.61	8.15	19.73	1.53
25	Baghol	Handpump	7.25	1290	0.0	557.54	0.063	102.751	557.54	106.502	n.a.	71.83	7.55	80.42	10.00
26	Saliya Khurd	Handpump	6.99	460	0.0	114.68	0.116	32.683	114.68	42.413	n.a.	142.80	10.24	73.62	136.00
27	Chand Khamariya	Handpump	7.60	1900	0.0	488.00	0	287.574	488.00	381.573	n.a.	113.43	8.30	175.50	2.02
28	Pal Patti	Handpump	7.50	1220	0.0	528.26	0.099	246.969	528.26	45.415	n.a.	45.95	8.43	75.69	0.43
29	Jhariyari	Handpump	6.68	840	0.0	170.80	0.047	18.22	170.80	4.418	n.a.	130.72	8.80	227.50	23.63
30	Ash Dyke	Pond	8.20	1500	0.0	111.02	0.833	225.802	111.02	550.26	n.a.	27.16	4.63	16.69	2.11
31	Dabar Paudhsala	Handpump	6.92	140	0.0	95.16	0.177	17.406	95.16	36.464	n.a.	42.04	8.34	15.51	15.51
32	Subhash	Handpump	7.47	950	0.0	584.38	0.185	42.699	584.38	28.175	n.a.	82.83	7.64	82.63	2.57
33	Ash Dyke	Pond	7.70	470	0.0	187.88	0.035	31.438	187.88	49.538	n.a.	80.84	7.65	74.96	0.60
34	Jhadiyahi	Handpump	7.40	340	0.0	201.30	0.356	18.859	201.30	38.381	n.a.	61.45	6.53	27.72	29.04
35	Dighalo	Handpump	6.95	740	0.0	233.02	0.228	107.603	233.02	63.604	n.a.	67.46	7.04	41.79	2.75
36	Shambri	Handpump	6.80	310	0.0	107.36	0.064	14.924	107.36	48.179	n.a.	13.89	4.30	83.39	18.08
37	Khamoriya	pond	8.20	160	0.0	114.68	0.009	14.727	114.68	4.817	n.a.	31.83	7.51	14.62	39.57
38	Tons River	river	8.00	250	0.0	150.06	0.135	10.88	150.06	32.446	n.a.				
39	Lal Tara	Hand pump	7.70	900	0.0	425.78	2.099	63.896	425.78	34.681	n.a.				
40	Pal Patti	Hand pump	7.75	860	0.0	446.52	0.018	98.979	446.52	17.52	n.a.				

//True Copy//

(b) Metal Ion Parameters

Serial no.	Location	Source	Fe (mg/L)	Zn (ppb)	Cu (ppb)	As (ppb)	Pb (ppb)	Cd (ppb)	Cr (ppb)	Ni (ppb)
1	Ash Dyke	Pond	0.32	22.55	7.14	9.32	ND	ND	ND	7.14
2	Patai	Handpump	1.14	ND	ND	8.67	ND	ND	ND	ND
3	Mai kala	Handpump	3.38	ND	ND	9.37	ND	ND	ND	ND
4	Sahpur Kala	Handpump	0.29	ND	ND	6.97	ND	ND	6.03	ND
5	Sahpur Kala	Handpump	0.08	ND	ND	ND	ND	ND	5.02	ND
6	Sahpur Kala	Handpump	0.82	ND	4.57	8.48	ND	ND	ND	4.57
7	Kohrar	Handpump	0.93	ND	ND	ND	ND	ND	ND	ND
8	Lal Tara	well	0.32	ND	2.42	ND	ND	ND	ND	2.42
9	Saliya Khurd	Well	0.05	ND	ND	8.73	ND	ND	ND	ND
10	Salaiya Kala	Handpump	0.07	ND	ND	6.01	ND	ND	ND	ND
11	Salaiya Kala	Handpump	6.49	5.07	9.22	9.67	ND	ND	ND	9.22
12	Piparao	Handpump	ND	ND	ND	12.86	ND	ND	ND	ND
13	Dighalo	Handpump	0.02	ND	3.77	12.71	ND	ND	ND	3.77
14	Dighalo	Handpump	0.1	ND	6.91	14.6	ND	ND	ND	6.91
15	Khuta	Handpump	0.88	ND	2	8.39	ND	ND	ND	2
16	Khuta	Handpump	1.21	ND	3.96	12.57	ND	ND	ND	3.96
17	Kathauli	Handpump	0.09	ND	ND	8.44	ND	ND	ND	ND
18	Dabar	Handpump	0.39	ND	1.69	8.79	ND	ND	ND	1.69
19	Subhash	Handpump	ND	3.35	ND	11.19	ND	ND	ND	ND
20	Shamlipur	Handpump	0.11	ND	1.47	9.72	ND	ND	ND	1.47
21	Semarieha	well	ND	ND	ND	6.14	ND	ND	ND	ND

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22	Koraon	Handpump	0.34	ND	1.32	12.46	ND	ND	ND	1.32
23	Dasauti	well	ND	44.33	1.46	6.71	ND	ND	ND	1.46
24	Itwakala	Handpump	0.42	ND	3.07	11.14	ND	ND	ND	3.07
25	Baghol	Handpump	0.36	ND	6.21	72.1	2.34	2.34	ND	6.21
26	Saliya Khurd	Handpump	0.06	ND	4.07	25.29	ND	ND	ND	4.07
27	Chand Khamariya	Handpump	ND	5.26	ND	50.75	ND	ND	ND	ND
28	Pal Patti	Handpump	ND	ND	ND	14.74	ND	ND	ND	ND
29	Jhariyari	Handpump	6.69	10.44	1.96	8.94	ND	ND	ND	1.96
30	Ash Dyke	Pond	0.18	ND	ND	18.59	ND	ND	ND	ND
31	Dabar Paudhsala	Handpump	0.19	ND	ND	ND	ND	ND	ND	ND
32	Subhash	Handpump	0.16	ND	1.23	11.24	ND	ND	ND	1.23
33	Ash Dyke	Pond	0.53	ND	ND	13.66	ND	ND	ND	ND
34	Jhadiyahi	Handpump	0.13	ND	ND	11.36	ND	ND	ND	ND
35	Dighalo	Handpump	3.83	2.88	2.2	ND	17.8	17.8	ND	2.2
36	Shambri	Handpump	0.07	3.81	ND	ND	ND	ND	ND	ND
37	Khamoriya	pond	0.19	ND	1.42	13.31	ND	ND	ND	1.42

//True Copy//

Drilling Logs:

Location	Depth (ft)	Lithology	
Near Shiv Baba Temple/ Ash Dyke (Meja) 25.120573/81.932327	0-20	Whitish brown laminated Sandstone (Arenite), 90% Quartz, with5% feldspar and traces of mafic minerals, Sub rounded to rounded grains showing grains to grain contact filled with silicic matrix intruded with pottasic alteration , with 8-10% porosity.	
	20-40	Very fine grained light brownish Sandstone (Arenite) composed of 95% quartz, 3-4% Feldspar and <1% mafic minerals. Showing alternatic lamination, Sub rounded to rounded Qtz. Grains cemented with silicic material, hard and compact.	
	40-60	Arkosic Sandstone light pinkish in colour, composed 80% Qtz, 10-15% Feldspar and 2-3 % mafic minerals, showing >10% porosity , bounded by silicic matrix, occasionally feldspar altered to Clay (Kaolinite)	
	60-80	Light Pink compact arkosic siltstone consisting 85% qtz, 15-18% feldspar and 2-5% mafic minerals, rounded to well rounded, well sorted grains with low porosity, feldspar altered to clay (Kaolinite)	
	80-100	Light Pink compact arkosic siltstone consisting 85% qtz, 12-15% feldspar and 5-8% mafic minerals, rounded to well rounded, well sorted grains with low porosity, feldspar altered to clay (Kaolinite)	
	100-120	Lithic arenite (sandstone) contains 80% Quartz, 10 feldspar and 10% lithic fragments, greyish in colour due to feldspar alteration into clay, showing low porosity.	
	120-140	Greyish soft lithic arenite (sandstone) contains 80% Quartz, 10 feldspar and 10% lithic fragments, greyish in colour due to feldspar alteration into clay, showing low porosity.	
	140-160	Yellowish to light brown very fine grained calcareous sandstone, composed of 90% quartz, 2-3 %lithic fragments, <1% mica, cemented with calcareous matrix, sub rounded to rounded grains showing <10% porosity.	
	160-180	Light yellowish friable (soft) clayey sandstone, fine to very fine grained, composed of 80-85% quartz, 10-12% feldspar and 2-3 % mafic minerals bounded with calcareous clay.	
	180-200	Brownish, medium to coarse grained Sandstone with >25% porosity, composed of 90% Quartz, 10% feldspar, bounded by calcareous matrix, secondary porosity observed due to removal of binding material resulting increase in porosity and permeability.	
	200-220	Light brown, med. to fine grained sandstone, composed of sand to silt size particles, compact bounded by calcareous matrix, showing low porosity.	
	220- 240	Greyish to milkish white Sandstone, composed of fine to very fine grained sandstone, composed of 80% Qtz, 10-12% feldspar and 2-5% mafic minerals, bounded by calcareous matrices, secondary porosity developed in vugs resulting increased porosity and permeability.	

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ANNEXURE-18 MoP OM dt 10th January 2023 has exempted from linking and use of Naini STP Sewage Treated Water by Meja Thermal Power Plant

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ANNEXURE - VI

No. 11/24/2022-Th.II
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg,
New Delhi, dated 10th January, 2023

OFFICE MEMORANDUM

Subject: Minutes of Meeting chaired by Secretary (Power) on 28.12.2022 at 11:00 AM in Shram Shakti Bhawan, Ministry of Power in Hybrid mode on use of STP water in Thermal Power Plants -reg

The undersigned is directed to forward herewith Minutes of Meeting held under the Chairmanship of Secretary, Ministry of Power on 28.12.2022 at 11:00 AM to discuss the use of Sewage Treated Water by Thermal Power Plants for information and further necessary action.

10/1/23

(J.Misra)
Under Secretary to Govt. of India
Tele: 23063746

To,

1. Chairperson, CEA [chair@nic.in]
2. CMD, NTPC[cmd@ntpc.co.in]
3. DG, NMCG[dg@nmcg.nic.in]
4. Principal Secretary (Energy), Govt. of Haryana [powersecy-hp@nic.in]
5. Principal Secretary (Energy), Govt. of UP [psenergyup@gmail.com]
6. Principal Secretary (Energy), Govt. of Jharkhand [psec.energy@gmail.com]
7. Principal Secretary (Energy), Delhi [pcpower@nic.in]
8. Principal Secretary (Energy), Bihar [energy@bihar.gov.in]
9. Principal Secretary (Energy), West Bengal [powersecy@wb.gov.in]
10. Principal Secretary (Energy), Govt. of Chhatisgarh [secy-energy.cg@gov.in]
11. Principal Secretary (Water Resources), Govt. of Haryana [fciwrd@gmail.com]
12. Principal Secretary (Water Resources), Govt. of UP [psecup.irrig@nic.in]

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13. Principal Secretary (Water Resources), Govt. of Jharkhand [sec_wrd_jhr@nic.in]
14. Principal Secretary (Water Resources), Delhi [ceodelhi.djb@nic.in]
15. Principal Secretary (Water Resources), Bihar [wrd-bih@bih.nic.in]
16. Principal Secretary (Water Resources), West Bengal [psecy.wridd-wb@gov.in]
17. Principal Secretary (Water Resources), Govt. of Chhatisgarh [secy-wrd.cg@gov.in]
18. CMD, IPGCL (For Pragati CCGP and Pragati-III CCGP), Delhi [mukeshipj@yahoo.co.in]
19. CMD, HPGCL, Haryana[md@hpgcl.org.in]
20. CMD, THDC [cmd@thdc.co.in]
21. CMD, UPRUVNL, UP [cmd@upruvnl.org]
22. CMD, NUPPL, UP (For Ghatampur TPP)[cmd@nlc.india.in, ceo.nuppl@nlcindia.in]
23. CMD, CESC, West Bengal [bhaskar.ganguly@rpsg.in]
24. CMD, Aparva-CLP, Haryana (For Mahatma Gandhi TPS) [jaya.sharma@clpindia.in]
25. CMD, RVUNL, Rajasthan (For Kota TPS) [mzktps@rediffmail.com]
26. Chairman, DVC, Kolkata (For Bokaro B TPS) [chairman@dvc.gov.in]
27. CMD, WBPDCL, West Bengal (For Sagardighi, Bandel, Kolaghat and Southern Repl. TPS)[s.maity@wbpdcl.co.in]
28. CMD, Reliance Power (For Rosa TPS, UP) [jatinder.uppal@relianceada.com]
29. CMD, Adhunik Power (For Mahadev Prasad TPS), Jharkhand [subhashjetly@gmail.com]
30. CMD, SJVNL (For Buxar TPP, Bihar) [sectt.cmd@sjvn.nic.in]
31. Tata Power JV (For Prayagraj Bara, TPS), UP[brajesh.singh@tatapower.com]
32. MD, Uttar Pradesh Jal Nigam [mdupjn@yahoo.co.in]
33. JMD, Uttar Pradesh Jal Nigam [jmdnagarupjn@gmail.com]
34. PS, Namami Gange & Rural Water Supply, Department, UP [psrd.up@gmail.com]
35. ED, Namami Gange and Rural Water Supply, Department, UP [ed.swsmup@rediffmail.com]
36. MD, BUIDCO, Bihar [mdbuidco@gmail.com]
37. MD, JUIDCO [juidcolmited@gmail.com]
38. PD (Technical), JUIDCO [pdt.juidco@gmail.com]
39. CEO, KMDA [ceokmda@gmail.com]
40. Chief Engineer, PHED, Haryana [elcphed@phedharyana.gov.in]

Copy to:

Sr. PPS to Secretary (Power)/ PS to JS (Thermal)/ DS (DVC/Th.)

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Minutes of Meeting chaired by Secretary (Power) on 28.12.2022 at 11:00 AM in Shram Shakti Bhawan, Ministry of Power in Hybrid mode on use of STP water in Thermal Power Plants

List of participants is **annexed**.

2. Secretary (Power) welcomed the participants. At the outset, Secretary (Power) mentioned that as per National Tariff Policy, all Thermal Power Plants were mandated to use STP water if located within 50 KM radius of STP. Any exemption could be considered only on the basis of technical constraint or exorbitantly high cost making tariff unsustainable. He further emphasized that Clean Ganga is a National Mission and Thermal Power Plants should actively play their part in making river Ganga cleaner. He also briefed that the Hon'ble Prime Minister shall be reviewing the progress on the matter on 30th December 2022.

3. Sewage Treatment Plant (STP) and Thermal Power Station (TPS)-wise discussions were held as follows:

i) **Name of TPS**: Barh TPS St-II (NTPC Ltd)

Name of STP: Barh STP

Status and Recommendation:

It was informed that STP was being renovated by BUIDCO to increase the capacity from present 4MLD to 8 MLD (Cap 11MLD after 15 years) to meet NGT guidelines. BUIDCO prepared and submitted the DPR to link STP and TPP to NTPC. NTPC had some observations on DPR w.r.t. Opex.

Secretary (P) directed NTPC to use the available water from STP. Further, it was directed that senior officials of NTPC must visit BUIDCO and **finalize the DPR and sign MoU by 15th Jan 2023.** NTPC can then make payment to BUIDCO to initiate construction activities for the 4 km linkage between STP and TPP. **Targeted work completion date is 1st April 2025.**

BUIDCO mentioned that there were two more STPs within 50 km at Mokama and Bakhtiyarpur which could also be linked with Barh. Secretary(P) directed to examine their feasibility separately.

ii) **Name of TPS: Prayagraj Bara TPS (Tata Power-JV)**

Name of STP: Naini STP

Status and Recommendation:

It was informed that PFR prepared by UP Jal Nigam was sent to Genco and pending for approval of Genco. Secretary (P) advised Genco to approve the PFR by 1st week of Jan 23 and then Discom to give consent by end of Jan 23.

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Construction activities to start by Apr '23 and usage of STP water to start by Apr '25.

iii) **Name of TPS**: Meja TPS (NTPC-Jv)

Name of STP: Naini STP

Status and Recommendation:

- It emerged that available water from Naini STP would be used in Bara TPS which is located closer to STP than Meja. Further, Meja TPS is located across the river from STP whereas, Bara and STP are in same side of the river. Taking into consideration these facts, it was recommended that **Meja TPS may be exempted from linking with the STP.**

iv) **Name of TPS:** DCR Yamunanagar TPS (HPGCL)

Name of STP: Parwalo & Badi Majra STPs

Status and Recommendation:

- It was informed that GoHR has mandated all TPSs in Haryana to use STP water and asked PHED to supply STP water at TPS door step.
- PHED informed that DPR preparation is under progress and is expected by June '23.
- It was clarified that prior approval of SERC is not required.
- **Work completion of linking STPs with TPS at Yamuna Nagar by December 2025.**

v) **Name of TPS:** Panipat TPS

Name of STP: Panipat STP

- Secretary (P) advised PHED to examine feasibility in Panipat TPS as the unit residual time was less than 10yrs.

vi) **Name of TPS:** CLP Jhajjar- Aprava TPS

Name of STP: Chakri Dadri STP

- It was observed that approximate available STP water was very less (3.5 MLD against requirement of 100 MLD). Therefore, it was recommended that **CLP-Jhajjar may be exempted from linking with the STP.**

vii) **Name of TPS:** Indira Gandhi- NTPC JV Jhajjar TPS

Name of STP: Kosli STP

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- It was informed that water availability is only 3.5% of requirement. Therefore **NTPC Jhajjar may be exempted from linking with the STP.**

- **Secretary (P) further directed Thermal div. to write a letter to CERC, informing that no permission was required to be given by CERC to TPSs for tariff revision on account of costs borne by TPS for STP linkage as this was already mandated in Tariff Policy.**

viii) **Name of TPS:** Panki TPS (UPRVUNL)

Name of STP: Bingawan STP

Status and Recommendation:

- STP is operational and TTP is expected to be available by March 2023.
- COD for the TPS is expected in July,2023. **Therefore, use of STP water is expected by July 2023.**

ix) **Name of TPS**: Korba TPS (NTPC Ltd)

Name of STP: Korba STP

Status and Recommendation:

- Commissioner, Korba informed that the DPR was approved and has been sent for State Govt approval. MoU with NTPC is expected to be signed within 1st week of Jan 2023, work order issue by Aug'23 and **expected completion of work by 1st April 2025.**

x) **Name of TPS**: Ghatampur TPP (NUPPL)

Name of STP: Bingawan STP

Status and Recommendation:

- Due to river crossing, **Ghatampur TPP may be exempted from linking with STP.**

xi) **Name of TPS**: Kahalgaon TPS (NTPC Ltd)

Name of STP: Bhagalpur STP

Status and Recommendation:

- It was informed that existing STP was being dismantled and new STP would be constructed. NTPC mentioned that as per estimates, tariff may rise by 20.20 paise/Kwh as land acquisition would be involved. Further, highway/Rail/city crossings are involved.

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- **Secretary (P) opined that decision on this may be taken after PFR is available in April 2023.**

xii) **Name of TPS**: Khurja TPS (THDC Ltd)

Name of STP: Bulandshahar STP

Status and Recommendation:

- 20 MLD available from STP (Cap: 40MLD)
- **Secretary (P) instructed Khurja TPS to sign MoU and make payment to UP Jal Board for DPR preparation by 7th Jan 2023.**
- **DPR is to be prepared by March 2023 and project completion by 1st July 2025.**

xiii) **Name of TPS**: Harduaganj TPS (UPRVUNL)
Name of STP: Aligarh STP

Status and Recommendation:

- UP Jal Nigam informed that the 1st STP of 40 MLD will be completed by March 2023. Approval for 2nd STP is with NMCG
- Secretary (P) advised NMCG to fast-track the 2nd STP approval. The revised DPR by Jal Nigam may include both the STPs and TTPs to be implemented in a phased manner. **Target date for completion is June 2025.**

xiv) **Name of TPS**: Budge-Budge TPS (CESC)
Name of STP: Maheshthala STP

Status and Recommendation:

- KMDA informed that route from STP to TPS is very congested due to lines from other utilities.
- 2 units have completed 25 years.
- Due to path congestion and huge RoW issue, it was recommended that **Budge-Budge TPS may be exempted from linking with the STP.**

xv) **Name of TPS**: Kota TPS (RVUNL)

Name of STP: Sajjdhera STP

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Status and Recommendation:

- As the TPS is on the other side of the river, **therefore Kota TPS may be exempted from linking with the STP.**

xvi) Name of TPS: Dadri TPS (NTPC)

Name of STP: NOIDA STP

Status and Recommendation:

- It was informed that laying pipeline would disproportionately increase cost as one river crossing, 2 Highway crossings, Rail crossing and densely populated area would be involved. Cost increase is expected to be 30 P/Kwh. Considering all factors, it was recommended that **Dadri TPS may be exempted from linking with the STP.**

xvii) Name of TPS: Bokaro B TPS (DVC)

Name of STP: BOKARO STP

Status and Recommendation:

- It was informed that linking with nearest STP involves hilly terrain of 56KM which also includes crossing Damodar river. As a result, cost increase would be 27p/Kwh.

- It was recommended that **Bokaro TPS may be exempted from linking with the STP.**

xviii) Name of TPS: Rosa TPS (Reliance Power)

Name of STP: Shahjahanpur STP

Status and Recommendation:

- UP Jal Nigam shared that the STP was under construction and is expected to be operational by March 2023.
- Secretary (P) advised that **PFR may be submitted by 31st March 2023 to TPS by Jal Nigam.**

xix) Name of TPS: Mahadev Prasad TPS (Adhunik Power)

Name of STP: Adityapur STP

Status and Recommendation:

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STP is located at 20 km distance from the TPS and expected to be ready by June 2024.
Secretary (P) advised JUIDCO to undertake feasibility study and share it with TPS by March '23.

xx) Name of TPS: Sagardighi TPS (WBPDCL)

Name of STP: Berhampore STP

Status and Recommendation:

- As the TPS is on the other side of the river, **therefore Sagardighi TPS may be exempted from linking with the STP.**

xxi) Name of TPS: Bandel TPS (WBPDCL)

Name of STP: Bhatpara STP

As the units are more than 30 years old, it was recommended to exempt Bandel TPS.

xxii) Name of TPS: Kolaghat TPS (WBPDCL)

Name of STP: Howrah STP

WBPDCL informed that units are more than 30 years old. Further, river crossing is involved. Considering the above, it was recommended to exempt Kolaghat TPS.

xxiii) Name of TPS: Southern Repl TPS (CESC)

Name of STP: Garden Reach STP

As units are more than 30 years old, it was recommended to exempt this TPS.

4. Further, UP Jal Nigam submitted that Jawaharpur TPS (UPRVUNL) and Unchachar TPS (NTPC) have been approached by them for linkage from Etah STP and Raibareilly STP respectively. TPSs have not reverted. Secretary (P) advised NMCG to take note and co-ordinate with the agencies. He further advised that NMCG may consider taking into account all the STPs which are operational or under construction in Ganga basin, irrespective of who is funding it so that all infomation is available at a single place which could be used to map TPSs within 50 KM and share the information with MoP for further action.

Meeting ended with the Vote of Thanks to Chair.

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Annexure

List of Participants

1. Shri Alok Kumar, Secretary (Power), MoP.....In chair
2. Shri Piyush Singh, Joint Secretary (Thermal), MoP
3. Shri Suman Majumdar, Deputy Secretary, MoP
4. Shri Ghanshyam Prasad, Chairperson, CEA
5. Shri Praveen Gupta, Member (Thermal), CEA
6. Shri U K Bhattacharya, Director (Projects), NTPC
7. Shri Madhava Kumar R, Economic and Financial Advisor, NMCG
8. Sh. Mohammed Shayin, MD, HPGCL, Haryana
9. Shri Kumar Sharad, CGM, THDC
10. Shri P Guruprasad,MD, UPRUVNL
11. Shri Santosh C S, CEO, NUPPL
12. Shri Avijit Hazra, CESC
13. Shri Prabhakar Pandey, Commissioner, Korba
14. Shri Rajan Tiwari, Aprava-CLP
15. Shri Virendra Singh, RVUNL, Rajasthan
16. Shri R N Singh, Chairman, DVC, Kolkata
17. Shri Sourav Nayak, WBPDCL
18. Shri Rakesh Kumar Bansal, Director (Electrical), SJVNL
19. Shri Sanjay Bhargava, Tata Power
20. Shri Anil Kumar, MD, Uttar Pradesh Jal Nigam
21. Shri Pankaj Ranjan Jha, Uttar Pradesh Jal Nigam
22. Shri Dharmendra Singh, MD, BUIDCO, Bihar
23. Shri Alok Kumar Mandal, DGM, JUIDCO
24. Shri Prantik Ray, CE (Gas Sector), KMDA
25. Shri Rakesh Kumar,Chief Engineer, PHED, Haryana
26. Shri J C Thakur, Engineer In Chief, WRD, Bihar
27. Shri Ashok Kumar Khewaria, EE, UP Jal Nigam

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ANNEXURE-19 PH MoM and MUNPL Action Plan for PH MoM 26.04.2024

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Action plan to resolve the issues raised during Public Hearing of proposed Stage -II, (Activities under Public Hearing and Written Demands given by Gram Pradhans & Individuals – CD)

SL. NO.	PROPOSED WORKS TO ADDRESS THE ISSUES RAISED	Total Estimated Cost (Rs. Lakh)	ESTIMATED TIME
1	Installation of 10 hand pump, 05 solar high mast light, 15 solar streetlights, and construction of public road in village Gadewara (400 m)	125	01-02 Year
2	Repair of roads (500 mtr.), drains and water tank in (New Basti), construction of public roads (3000 mtr.), construction of drain for drainage near Triveni Road (500 mtr.), construction of 01 playground for children, providing hand pumps (08) and reboring (03) etc. in village Salaiya Kala and mobile health clinic (for all villages including Salaiya Kala)	715	02 -05 Year
3	Renovation of primary school, construction of public roads (1200 mtr.), installations of hand pumps (15), solar high mast lights (05), solar streetlights (30) and construction of bathing ghat, solar powered mini water scheme(05), cattle shed (02) etc. in Village Mai Kala	400	02 -05 Year
4	Construction of interlocking road (1500 mtr.), mini solar water scheme (07), hand pumps (20), solar streetlights (32), beautification of market, development of playground, interlocking in cowshed (gaushala), construction of paved drains (2000 mtr.) etc. in village Kohdar	490	02 -05 Year
5	Renovation of primary school, construction of interlocking road (2000 mtr.), mini solar water scheme (03), hand pumps (20), solar streetlights (40) etc. in village Salaiya Khurd	300	02 -04 Year
6	Construction of inter-locking road (2000 mtr.), hand pumps (10), solar streetlights (40), repair of overhead water tank and renovation of primary school etc. in village Jhariyahi	200	02 -04 Year
7	Construction of inter-locking road (2000 mtr.), hand pump (20) , solar streetlights (35), and renovation of primary school etc. in village Isota	200	02 -04 Year
8	Construction of interlocking road and drain (1000 mtr.), mini solar water scheme (02), hand pump (10), community toilet, Anganwadi Centre, solar streetlights (30) and renovation of primary school etc. in village Bijaura	200	02 -04 Year

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9	**Other Miscellaneous Work:** Women Empowerment through skill development and Job oriented skill development trainings to youth such as CIPET, CRISP, CIDC and other implementation partners	325	01 -05 Year
Total (A)		**2955**	
CD Works in Amilya Kala (STG-II) **(B)**		500.00	
Total A+B		**3455.00**	

Note: i. Final measurement for CD works village wise shall be done after discussion with the stakeholders and Need Assessment Survey (NAS), which is under progress.
ii. Community Development (CD) works shall be executed only after the allotment of Govt. Land for infrastructural projects in the nearby villages.

MUNPL

Table-2

(CSR / CD - Capital nature)

S.No.	Proposed works to address the issues raised during Public Hearing and written demands given by Gram Pradhan's & individual's	Estimated Cost (In Lakhs Rs)	Estimated Time
1	**Infrastructure development** - construction of roads in project affected villages, Pahari Mahadev Community development, solar high mast light, solar street light, beautification of market, interlocking in Gaushala, Anganwadi center expansion etc. construction work	800.00	01-05 years
2	**Sanitation** – construction/repair of drains, toilets and related infrastructure etc.	400.00	01-05 years
3	**Water** - repair of water tanks and expansion of drinking water facilities etc. construction work	400.00	01-05 years
4	**Health** - Development of health infrastructure, conducting medical camps etc. functions	300.00	01-05 years
5	**Education** - renovation of school, playground, smart class, distribution of furniture etc. and renovation of infrastructure	325.00	01-05 years
6	**Skill Development and employment oriented training** - to enhance employability.	325.00	01-05 years
	TOTAL	**2550 .00**	

अनिल कुमार / Anil Kumar

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Works proposed under CSR/CER, Meja Stage-II

Proposed work under CSR/CER under Major Stage-II

(Activities under CSR – Recurring)

Table-3

S.No.	Proposed recurring works under CSR/CER	RE 2024 -25 Estimated Cost (In Lakhs)	BE 2025 -26 Estimated Cost (In Lakhs Rs)	Remarks
1	Education infrastructure, improvement in the level of education etc.	85.00	90.00	every year
2	Medical - Mobile Medical Units, Health Camps etc.	9.00	10.00	every year
3	Water infrastructure, expansion of drinking water facilities etc.	50.00	50.00	every year
4	Infrastructure development	90.00	100.00	every year
5	Sports And Cultural Development	5.00	5.00	every year
6	Skill development and job oriented training - to enhance employability	150.00	135.00	every year
7	Support and other facilities to the disabled	3.00	5.00	every year
8	Need Assessment Survey/Social Impact Assessment Survey	7.50	0.00	every year
9	Other public development activities	63.50	58.00	every year
	TOTAL	**463.00**	**453.00**	

अनिल कुमार / Anil Kumar

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Point wise details of information sought in relation to Public Hearing Dated 24/06/2024

Written Representations

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
The following problems should be resolved					
1	**Santosh Kumar, Sanjay Kumar Yadav and others (Salaiya Kalan)**	PAP cards should be given to the displaced people.	1.1 PAP Card will be provided to the land oustees by MUNPL-MEJA.	-	Around 01 year from the beginning of Stage 2 construction activities.
		Displaced people should be given permanent jobs	1.2 Meja Thermal Power Plant has been set up on the basis of state-of-the-art technology, hence employment opportunities in this project are very limited. In the past years, there has been a lot of change in the manpower requirement in the power generation industry and the requirement of executives and non-executives/workers has become very limited. Optimum utilization of manpower has become very important to maintain the long term financial capability and viability of the plant. The construction of 03 units proposed in the project will also be set up on the basis of super critical technology, hence there will be very limited employment opportunities in the project. However, efforts will be made to address employment issues as follows (1) Efforts will be made to provide unskilled employment to claimants from the project affected families as far as		

Anil Kumar

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
			possible in the contract agencies involved in construction and operation of MUNPL. (2) Skilled and semi-skilled categories in the construction and operation related agencies associated with MUNPL will be given priority as per their qualification and requirement.		
		The cases filed against the displaced people during the agitation should be withdrawn	1.3 Matters relating to action against displaced persons are related to law and order which falls within the jurisdiction of the State Government.	-	-
		A drain should be constructed for the drainage of water of the displaced people living near Triveni Road	1.4 Based on need based analysis report and consultation with stakeholders, **construction of drains in public interest** will be done under community development work.	10 Lakh	Around 01 year from the beginning of Stage 2 construction activities.
		Free electricity facility should be provided to displaced people	1.5 MUNPL only generates electricity, as per rules, the work of electricity distribution is the responsibility of the State Government. Electricity distribution is beyond the scope of MUNPL.	-	-
		NTPC Meja should provide education facility to displaced children	1.6 St. Joseph School located in NTPC Meja Township is available for providing education to the children of nearby residents/displaced persons, in which school fees are charged at concessional rates for the children of displaced persons as per rules.	-	-
		Hospitals should be built for the health care of displaced people	1.7 The Township Hospital of the project provides OPD, IPD, Pathology, and X-Ray	-	-

अनिल कुमार / Anil Kumar
मेजा ऊर्जा निगम (प्रा) लि, प्रयागराज
MEJA URJA NIGAM (P) Ltd. Prayagraj

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MUNPL

Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		and free facilities should be provided to the displaced people	services, 24X7 emergency services to the displaced people at concessional rates. Apart from this, from time to time, rural medical camps (with medicine distribution), specialty camps (anemia identification, NCD screening, etc.), health awareness camps (common diseases, prevention of anemia, etc.), free TB testing (National TB Control Program), breast cancer awareness and screening, anemia identification and iron distribution camps, menstrual hygiene awareness and sanitary kit distribution are organized in the nearby villages. Also, cataract surgery camps are organized at Super specialty Hospital Prayagraj. Apart from the above, Meja Urja Nigam is also going to install mobile health vans under community responsibility.		
		A playground should be constructed for the children to play	1.8 **Playgrounds** can be constructed in public interest through need based analysis report and interaction with stakeholders.	40 Lakh	Around 02 year from the beginning of Stage 2 construction activities.
		water tank needs to be repaired	1.9 Whatever community development work is done by Meja Urja Nigam, it is transferred to the Gram Sabha as per the rehabilitation and resettlement policy of NTPC, after which the entire responsibility of maintenance and repair lies with the concerned Gram Sabha. However, in public interest, some important repairs of the infrastructure built by Meja Urja Nigam will be done once again on the basis of need.	10 Lakh	Around 01 year from the beginning of Stage 2 construction activities.

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		Drains and roads should be repaired	1.10 Whatever community development work is done by MUNPL-MEJA, it is transferred to the Gram Sabha as per the Rehabilitation And Resettlement Policy of NTPC, after which the entire responsibility of maintenance and repair lies with the concerned Gram Sabha. However, in public interest, some important repairs of the infrastructure built by MUNPL-MEJA, will be done once again on the basis of need.	10 Lakh	Around 01 year from the beginning of Stage 2 construction activities.
		A boundary wall should be constructed around the Rakhad pond. Every day stray birds are falling into it and losing their lives.	1.11 Ash Pond is a restricted area where ash utilization and Dyke raising works are carried out from time to time, hence it is not possible to construct a boundary wall. However, the concerned contracting agencies have posted their guards to prevent the movement of stray animals.	-	-
		Ash flying from the pond is making the surrounding lands unfertile. Arrangements should be made.	1.12 Meja Urja Nigam is very sensitive and serious about dust flying and every possible option is worked upon to stop it such as: (1) Water ponding of Ash Pond. (2) Water is sprinkled in Ash Pond through sprinkler system. (3) Apart from this, water is also sprinkled on the roads through water tankers. Therefore, the impact of Ash Pond on the environment is minimal and there is no possibility of air, water, soil pollution and cultivable land of the concerned villages being affected due to this.	-	-
		NTPC's small tenders should be given to displaced people	1.13 The committees established by the displaced persons are given contract work as	-	-

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
			per the Rehabilitation And Resettlement Rules applicable in NTPC. Some works such as grass cutting, water sprinkling, deployment of tractors/tankers, etc. have been specifically identified to be executed through the committees established by displaced persons and are being done. Also, MUNPL-MEJA, encourages the formation of committees from time to time so that displaced persons can get maximum benefits. Apart from this, to provide regular income to PAP, MUNPL-MEJA has also allotted 05 shops in the township under Rehabilitation and Resettlement Rules and 43 jeeps have been deployed through PAP under contract.		
2	**Shri Siddheshwar Nath Pahari Mahadev Service Institute , Meja (Gadewara, Bhatauti, Mamoli) Prayagraj**	Our Seva Samiti is continuously serving Pahadi Mahadev. Sir, the boundary of Pahadi Mahadev starts from Mamoli entrance gate and its length is around 800 meters. I would like that Pahadi Mahadev is one of your displaced places. The work should be done soon. •Street lights from Mamoli entrance to Pahari Mahadev premises •An entrance to the premises of Pahari Mahadev •A havan kund in Pragad •4- Pieces High Mask	Based on the need analysis report and interaction with stakeholders, public welfare infrastructure like **entrance gate, havan kund and high mast light** will be constructed under community development work.	75 Lakh	Within 02 years from the beginning of Stage 2 construction activities.

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MEJA URJA NIGAM (P) Ltd., Prayagraj

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		• Provision of living accommodation for 50 Jogi Shiva devotees who stay in the temple premises for 24 hours • Sunder Kand should be recited by NTPC Meja at Pahari Mahadev once a month			
3	**Vardhaman Seva Samiti, Secretary Ashwani Jain, Advocate**	Vardhman Seva Samiti NGO Kohdar is doing social work since last many years. Join this committee and make them partners in social work. Please help.	Community development work is done in the respective villages as per the suggestions given in the meeting of Village Development Advisory Committee (VDAC). The concerned NGOs can give their suggestions to the Village Development Advisory Committee.	-	-
4	**Brijesh Singh S/O Rajbali Singh Virendra Singh S/O Samarjit Singh Pankaj Singh S/O Ramsundar Singh Resident of Village Mai Khurd, Meja Prayagraj**	**Regarding the recruitment of other men in place of P.A.P. at Tons Pump.** We, the applicants Brijesh Singh and Virendra Singh etc., on receiving the new tender, the contractor has removed the P.A.P. and has appointed an outsider and has fired us whereas we are the poor people affected by the project and have become unemployed. Hence, we humbly request the gentleman to please give us the affected people jobs again. We will be forever grateful to you.	The applicants were appointed by the contracting agency. The contractor has the right to keep or remove workers as per the requirement. But the contractors have been instructed to give priority to the land-displaced people in the contract work as per their eligibility, qualification and requirement.	-	-
5	**Ram Khelawan S/O Ambika Prasad**	**Subject: Regarding construction work of public road.**	**Public roads** will be constructed in public interest based on need-based analysis report and consultation with stakeholders.	300 Lakh	Around 02 years from the

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
	Brijesh Pandey **Vikash Kumar Yadav** **Lalita Prasad Yadav** **Ram sajivan** **Ambika Prasad** **Bhola Nath** **Vidyakant** **Resident Salaiya Khurd**	People face a big problem in commuting from Gram Panchayat Salaiya Kalan to Dasauti main road. Small children face problems in studying. Vijay Degree College and Vijay Intercollege are located in Salaiya Kalan. Children face a lot of difficulty in commuting, so a public road should be made soon, the distance is about 1-2 kilometers.			beginning of Stage 2 construction activities.
6	**Head of Village Jhadiahi Meja Prayagraj**	**MoU for expansion of Stage-II of MUNPL-MEJA, Project** I and my Gram Sabha give our consent for the expansion of Stage-II and I have no objection to it.	**Village head Jhadiyahi Meja Prayagraj has given his consent for the expansion of Stage-II.**	-	-
7	**Mohan Lal Shukla S/O Vishwanath Prasad Shukla**	**Subject: Pollution related** gate no. 03 of NTPC Meja. It is requested that along with providing electricity, water, irrigation, roads, schools, hospitals and employment facilities, pollution should be controlled immediately so that crop damage can be prevented and people can live their full lives.	7.1 Electricity- As per answer of No. 1.5 7.2 Based on the need analysis report and consultation with the stakeholders, solar small drinking water and public road will be constructed in public interest. 7.3 As per rules, the work of irrigation is the responsibility of the State Government. This subject is beyond the scope of MUNPL-MEJA. 7.4 School- As per answer of number 1.6 7.5 Hospital- As per answer to No. 1.7 7.6 Employment- As per answer to no. 1.2 7.7 Control of Pollution- As per reply to Sr. No. 1.12. Additionally, Electrostatic Precipitators (ESPs) have been installed. PM emission is	70 Lakh	Around 03 years from the beginning of Stage 2 construction activities.

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
			maintained within 30 mg/Nm^3. Installation and commissioning work of FGD has been completed, it will be run regularly from October 2024 as against the cut-off date December 2026 as per Gazette Notification GSR 628(E) dated 5th December 2022 of MOEF&CC. Low NOx Burners have been installed and are in use. Specific water consumption for FY 23-24 is 2.56 (Std. 3.0 m^3/KWhr). All wastewater is treated and recycled for reuse. 4 Ambient Air Monitoring Stations and 01 Waste Water Quality Station have been installed. Online data is sent to Pollution Control Board. During normal operation of the plant all parameters are as per standards.		
8	**Gram Panchayat Gadevra Anil Kumar Shukla**	The village adjacent to your energy corporation is Gadewara, which is a very backward village where your kind attention is required. • 10 nos. hand pump • 6 pieces high mask • 15 nos. street lights • 400 meter interlocking to connect tribal and Harijan settlements	Based on need-based analysis report and interaction with stakeholders, hand pumps, high mast lights, street lights and public roads will be constructed in public interest.	50 Lakh	Around 03 years from the beginning of Stage 2 construction activities.
9	**Village head – Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	The details of hand pump re-boring and new hand pumps in the displaced families of Gram Panchayat Salaiya Kalan (New Colony) are as follows new hand pump	Based on need based analysis report and discussion with stakeholders, hand pumps and hand pump re-boring will be done in public interest.	30 Lakh	Around 03 years from the beginning of Stage 2 construction activities.

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		• Hand pump work in front of Lal Bahadur Yadav's house • Hand pump work in front of Ram Babu Yadav's house • Hand pump work in front of Ram Shiromani Yadav's house • Hand pump work in front of Balgovind Yadav's house. • Hand pump work in front of Indrajit Yadav's house • Hand pump work in front of Nand Kumar Yadav's house • Hand pump work in front of Moolchand Yadav's house • Hand pump work in front of Gore Lal Yadav's house **hand pump reboring** • Mauji Lal Yadav • Uma Shankar Yadav • Munshi Lal Yadav			
10	**Village head– Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	Repair work of roads and drains is very necessary for displaced families of village Salaiya Kalan (new colony). • Road repair work • Repair work of drains • Solar panel and repair work in water corporation tank	Whatever community development work is done by MUNPL-MEJA, it is transferred to the Gram Sabha as per the NTPC policy, after which the entire responsibility of maintenance and repair lies with the concerned Gram Sabha. However, in public interest, some important repairs of the infrastructure built by MUNPL-MEJA will be done once again on the basis of need.	50 Lakh	Around 02 years from the beginning of Stage 2 construction activities.
11	**Village head- Devi Shankar Yadav**	It is very important to beautify Kotiya (Shankar Ji's temple) and construct a boundary wall in Village Panchayat Salaiya Kala	Based on the need-based analysis report and discussions with stakeholders, the temple will be beautified and the boundary wall will be constructed in public interest.	15 Lakh	Around 02 years from the beginning of

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
	Address-Salaiya Kalan Meja Prayagraj	(New Colony). This is a public temple. Fairs and festivals are always celebrated here, so it is very important to renovate this temple.			Stage 2 construction activities.
12	**Village head- Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	Meja Urja Nigam Pvt. Ltd. The expansion of Stage II will provide sufficient electricity to the country, state and village. For this, Gram Sabha Salaiya Kalan is agreeing to the expansion of Stage II.	**Village head Salaiya Kalan Meja Prayagraj has given his consent for the expansion of Stage-II.**	-	-
13	**Village head- Devi Shankar Yadav Address-Salaiya Kalan Meja Prayagraj**	The individual demand letter of the displaced family of Gram Panchayat Salaiya Kalan (New Colony) is as follows. • Establishment of Community Health Centre (Hospital) • Establishment of Girls Inter College • Employment to persons undergoing ITI (training) • One job per house for each displaced family • Security Guard Jobs • For farmers' compensation dues	13.1 Presently, health facilities are being provided through Project Hospital as per answer to No. 1.7. Apart from this, 01 Health ATM has also been donated to PHC-Meja by MUNPL-MEJA under community responsibility. -Community Health Center (CHC) can be constructed after talking to the district administration and stakeholders. But the district administration and the concerned Gram Sabha will have full responsibility for the maintenance and operation of the CHC. 13.2 Girls Inter College can be constructed after preparing a need based analysis report and after discussing with the district administration and stakeholders. But the district administration and the concerned Gram Sabha will have full responsibility for the maintenance and operation of the school. 13.3 Employment- As per answer to no. 1.2 13.4 Security guards are engaged by the security agency empaneled with Directorate General of Resettlement (DGR) as per the	100 Lakh	Around 03 years from the beginning of Stage 2 construction activities.

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			qualification, eligibility of the person and as per DGR guidelines. Accordingly, at present 8 persons from project affected villages are employed by the security agency. 13.5 MUNPL-MEJA, has deposited the outstanding compensation of the farmers in the office of Special Land Acquisition Officer (SLAO), Prayagraj. Contact the said office regarding compensation.		
14	**Village head-Sunita Singh Village Panchayat Maikala**	MoU for expansion of Stage-II of MUNPL-MEJA, Project	**Village head Maikala Meja Prayagraj has given his consent for the expansion of Stage-II.**	-	-
15	**Village head-Sunita Singh Village Panchayat Maikala**	1. Lift canal pump through which the fields of farmers of Mai Kala, Mai Khurd, Patal Dandi, Isota, Shahpur Kala, Kohdar Ghat can be irrigated. 2. A permanent bathing ghat should be constructed on Mai Kala and Mai Khurd Tons river. 3. 1200 m interlocking road and drain work in Gram Panchayat Mai Kala. 4. 15 hand pumps should be installed in the Gram Panchayat Mai Kala. 5. 30 solar lights should be installed in the Gram Panchayat Mai Kala. 6. Tiles and infrastructure should be provided in Panchayat Bhawan	15.1 Irrigation- As per answer to No. 6.3 15.2 Based on the need based analysis report and interaction with stakeholders, the possibility of bathing ghats on Mai Kala and Mai Khurd Tons river will be explored in consultation with Uttar Pradesh Irrigation Department in public interest. If feasible, it will be implemented through Irrigation Department. 15.3-15.14,15.16 Based on need analysis report and through dialogue with stakeholders, road construction, construction **of Panchayat** Bhawan, hand pump, solar light, renovation of primary school, Gaushala boundary wall, small drinking water scheme, solar high mast light, distribution of blankets and mosquito nets, and plantation of trees and distribution of fruit trees will be done in public interest. 15.15 Employment- As per answer to no. 1.2	330 Lakh	Around 04 years from the beginning of Stage 2 construction activities.

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		and primary schools in Gram Panchayat Mai Kala. 7. A big gate and straw boundary wall should be built in the cowshed in Gram Panchayat Mai Kala. 8. 08 tanks should be installed under small drinking water scheme in village Panchayat Mai Kala. 9. 05 Solar Hogh Mast should be installed in Gram Panchayat Mai Kala. 10. High Mast and solar pump should be installed in the cowshed in village panchayat Mai Kala. 11. 02 charhi sheds should be made in the cowshed in the Gram Panchayat Mai Kala. 12. Trees should be planted along the road in Mai Kala village panchayat till Jhadiyahi. 13. Blankets and mosquito nets should be distributed in the Gram Panchayat Mai Kala. 14. A community hall should be constructed in the Gram Panchayat Mai Kala. 15. 25% of the workers in the project should be from the project affected villages. 16. Fruit trees should be given to farmers in the Gram Panchayat.			

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
16	**Dashrath Nishad Head of Village Village Panchayat Bijaura**	With the installation of 03 units of power plant, my village will develop even more, with which I completely agree and I give my full consent to your project and my Gram Panchayat completely agrees with it.	**Village head Bijaura Meja Prayagraj has given his consent for the expansion of Stage-II.**	-	-
17	**Neeta Nishad Head of Village Gram Panchayat Isauta**	Public welfare works such as provision of drinking water, roads for transportation and interlocking roads, etc. have been arranged in my village. My village will benefit more from the expansion of Stage 02. Hence, I give my consent for the expansion of Meja Urja Nigam Private Limited Stage 02.	**The Village Head, Gram Panchayat Isota, Meja Prayagraj has given his consent for the expansion of Stage-II.**		
18	**Suresh Kumar Head of Village Gram Panchayat Salaiya Khurd**	Meja Urja Nigam Kohdar has proved to be very useful for us, through it not only the whole country is getting electricity, but the people of the area are also being given employment and prosperity has also been achieved through CSR welfare works like road construction, education, drinking water. After this Meja Urja Nigam project is especially important for us, in this context, looking at the demand of electricity in the country, . the supply of electricity will increase further with the construction of a new unit, along with this, the	**Village head Salaiya Khurd Meja Prayagraj has given his consent for the expansion of Stage-II.**	-	-

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		construction of the project will open up new opportunities for development along with increase in employment contract work in our area. Therefore, it is very important to expand MUNPL-MEJA, Limited Stage 02 so that there can be further development in our area, for this I and our Gram Sabha give their consent for the expansion of Stage 02.			
19	**Ramesh Kumar Head of Village Gram Panchayat Kohdar**	With the advent of Project Stage 02, the supply of electricity will increase and there will also be benefits of village development, employment etc. Therefore, Kohdar Gram Sabha gives its consent for the expansion of MUNPL-MEJA, Stage 02 and my villagers also agree.	**Village head Kohdar Meja Prayagraj has given his consent for the expansion of Stage-II.**	-	-
20	**Ramesh Kumar Head of Village Gram Panchayat Kohdar**	Gram Panchayat Kohdar is your project affected Gram Panchayat which is a very backward area, therefore it is very important to get the development work done. 1. 1500 m of paver blocks have to be installed. 2. 05 pieces of small drinking water scheme tanks should be installed. 3. 2000 m paved drain	Point 20.1-20.6 and 20.8-20.10 are based on Need Based Analysis report and discussion with stakeholders, interlocking road, solar small drinking water scheme, hand pump, beautification of market, playground, interlocking and solar lights will be constructed in cowshed in public interest. 20.7 Community hall at Kohdar Bazar has been constructed by MUNPL under Stage-I community development works. Which can also be used as a mass marriage hall.	340 Lakh	Around 04 years from the beginning of Stage 2 construction activities.

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		4. 20 nos. hand pumps 5. Beautification of Kohdar Bazar 6. To fully develop Kohdar playground 7. Mass marriage hall in Kohdar bazaar 8. Interlocking in Gaushala 9. 20 Pieces Solar Lights 10. Provision of pure drinking water in Kohdar market 02 pieces			
21	**Vandana Soni Area Panchayat Member Ward No. (52) Kohdar Meja**	The village of the applicant is connected to a river, stream and hilly area. There is a need of solar lights in it. The applicant is in urgent need of 12 solar lights. Therefore Sir, it is my humble request and request that you kindly provide solar light to the applicant so that by making the facility provided by you accessible to people they can lead a happy life and it will be a great favour from you.	Solar lights will be installed in public interest by preparing need based analysis report and discussion with stakeholders.	30 Lakh	Around 01 year from the beginning of Stage 2 construction activities.
22	**All the applicants Salaiya Kala (New Colony) Meja, Prayagraj**	letter addressed to the MP 1. The land and house of the applicants were acquired. They were assured that drinking water would be arranged but after	22.1 Arrangement of water tank- As per answer of no. 1.9 22.2 Drainage arrangement- As per answer of no. 1.4	50 Lakh	Around 01 year from the beginning of Stage 2

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Serial Number	Name/Address	Reference/Subject	MUNPL's Reply / Commitment	Approx. Amount (CD Works) Lakh	Timeline
		constructing a tank, the matter was closed and they have to crave for every drop of water. 2. Some people have been settled between the canal and the road, and some between the south and north of the canal. Rainwater enters the houses. There is no drainage system, although NTPC had promised to build it. 3. The hand pumps provided by NTPC are given by the Pradhan himself near his house or to his favourites. We displaced people are left deprived. Some people have to fetch water from a distance of 200-300 metres, such as Bal Govind, Indrajit, Ram Kailash, Lal Bahadur, Ram Janam, Ram Babu etc. 4. Some people were given ITI by NTPC and after taking exam and training they were kept in the company. After four years they were thrown out. When the boys went to Honorable Kunwar Sahib they were kept on Rs. 13000/- per month whereas earlier they were paid Rs. 18000/-. 5. Some boys are not being given jobs even after getting them through ITI and apprenticeship, while the land and house have been acquired. They themselves	22.3 The work of installing hand pumps is done as per the decision taken in the meeting of the Village Development Advisory Committee. 22.4 All contract labour employed in the project are paid wages as notified by the Government of Uttar Pradesh according to their skill category and work. 22.5 Employment- As per answer to number 1.2 22.6 Point no. 6 is not related to MUNPL. 22.7 School - as per answer to number 1.6 and Hospital - as per answer to number 1.7 22.8 All contract workers employed in the project are paid wages as notified by the Government of Uttar Pradesh according to their skill category and work. 22.9 As per reply to case no. 1.3 22.10 Toilets have been constructed in all the houses built for displaced persons in the rehabilitation colony. For other displaced persons, community toilets can be constructed in the second phase of the project by preparing a need-based analysis report and talking to stakeholders. 22.11 MUNPL only produces electricity, as per rules, the work of electricity distribution is the responsibility of the state government. Electricity distribution is beyond the scope of MUNPL. Apart from the above, about 10 hand pumps and solar powered drinking water		construction activities.

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		get it distributed among their family members, their favourites and the people of Purva. 6. In plot number 237 in which we have been settled, 5 bighas of land belonging to the village society remains. The Pradhan has given this land to Uma Shankar son of Sharda Din and Munna Nishad son of Sukhai after taking money. These people do farming on it and have also built houses after occupying it. The remaining displaced people do not even have place for their animals and barns. 7. At the time of displacement, assurances were given to build a school and hospital in the village but nothing was done. Even the red cards of the displaced people have not been made yet. 8. In the name of job, they are making people do hard duty of 8 hours in this scorching sun on the basis of daily wages of Rs. 300/-. 9. The contractors used to come to us to get our work done without giving us compensation. We used to go to the spot to present our case for compensation and housing. In order to suppress the peaceful demands, dozens of fake cases have been registered	scheme have also been installed for drinking water. 22.12 Total ash dyke area requirement as per MOEF standards is 372 hectares (0.1 hectare per MW, total 3720 MW for both phases). *Ash dyke area presently acquired for Stage-I = 302 ha* *Total ash dyke area requirement for Stage-I & II = 412 Hectare* *The requirement of additional land of 40 hectares (412-372 hectares) is due to the following reasons :* The ash dyke area acquired for Stage-I is hilly and extremely sloping, resulting in less usable land. Prayagraj is a religious city and the entry of heavy vehicles is completely closed for about 120 days in a year, which affects the movement of ash balkar. The movement of ash ballar is also affected during Ardh Kumbh, Maha Kumbh and Kavad Yatra. Thus, 40 hectares of additional land is required for ash dyke to run the power plant without interruption throughout the year.		

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		against most of the people under harsh sections, while neither any fighting nor any vandalism took place. Therefore, the fake cases should be withdrawn. 10. All displaced people were asked to be given a toilet each, but it was not given to everyone. 11. Three of the displaced people, Dayashankar, Ram Ganesh and Devnath settled in Laltara. Ramkumar settled in his farm near the canal in the village itself. Electricity, water and transformer facilities have not been provided to these people till date. 12. The land of Salaiya Kala is being re-acquired for the pond (ash). This will have adverse effects on health, animal grazing, wild animals and the nearby agricultural land. The land will become barren and the fruit trees will not bear fruits. There is still land left to build ten ponds in the land acquired by NTPC, so the acquisition should not be done again.			

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Point wise details of information sought in relation to Public Hearing Dated 24/06/2024

Oral demands by speakers

Sl.No	Name/Smt./ Shri/Address.	Comments, Questions/ Objections and Suggestions from citizens/ members/ villagers	Response and comments from MUNPL MEJA Project Proponent	CD Works Approx. Amount (In Lakh Rs.)	Timeline
23	**Sanjay Kumar Yadav son of Shri Basant Yadav, Salaiya Kala, Meja Prayagraj**	PAP cards should be given to the displaced. Permanent jobs should be given to the displaced. The cases filed during the agitation should be withdrawn. Near Triveni Road Drains should be constructed for the drainage of water for the displaced people. Free electricity should be provided to the displaced children. NTPC Meja should provide facilities for studying to the displaced children. A hospital should be constructed for the health care of the displaced people and free facilities should be provided. A ground should be arranged for the children to play. The water tank should be repaired. The repair work of drains and roads should be done. Fencing should be done all	23.1 PAP Card- As per answer to Sl. No. 1.1 23.2 Employment- As per answer to no. 1.2 23.3 As per reply to case no. 1.3 23.4 Based on the need analysis report and consultation with the stakeholders, the drain will be constructed in public interest under community development work. 23.5 Electricity - As per answer to serial no. 1.5 23.6 As per answer of school no. 1.6 23.7 Hospital- As per answer of No. 1.7 23.8 Playground - As per answer to no. 1.8 23.9 Repair of water tank and drain - As per answer of no. 1.9 & 1.10 23.10 Fencing around ash dam-As per answer to serial no. 1.11 23.11 Ash Management- As per answer to No. 1.12 23.12 As per reply to Small Contract Work No. 1.13 for displaced people	50 Lakh	Around 02 year from the beginning of Stage 2 construction activities.

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		around the ash pond so that stray cattle do not fall into it and lose their lives. The ash flying from the pond is making the surrounding lands infertile. Proper arrangement should be made for it. Small tenders should be given to the displaced people.			
24	**Ashwani Jain, son of Shri Ramu Jain, Village- Kodhar**	Regarding the power project proposed by him, the view was expressed that there is a huge problem of flying ash from the power plant. There is only greenery inside the plant and the conditions outside are like a desert. Fruit trees should be planted. Through the project, street lights should be installed on one side till Kohdhar and on the other side till Lalitara Bazaar. Fly ash should be disposed of properly and water should be sprinkled to control road dust. There are hundreds of schools and busy markets from Kohdar to Rampur. In such a situation, the movement of vehicles carrying fly ash should be	24.1 Ash Management- As per answer to No. 7.7 24.2 Trees inside the plant have been planted under the notification issued from time to time by the Ministry of Environment, Forest and Climate Change, Government of India, and trees outside the plant have been planted with the help of the Forest Department. MUNPL-MEJA has planted about 374000 trees have been planted inside and outside the plant. MUNPL-MEJA will plant fruit trees with the help of Gram Sabha and Forest Department as per the availability of land. 24.3 Street lights have been installed by MUNPL-MEJA, on its land for lighting and security, which are maintained by MUNPL. Street lights can be installed in public interest at any other place by MUNPL after preparing a need-based analysis report and talking to stakeholders, but the entire responsibility of power supply, maintenance and operation of street lights lies with the department related to the district administration and the concerned Gram Sabha. 24.8 The ash from the plant is mainly used for cement production and road/ national highway construction. In future, fly ash will also be used for production of ash bricks and its transportation	30 Lakh	Around 01-02 year from the beginning of Stage 2 construction activities.

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		restricted from 10:00 am to 10:00 pm. This creates the problem of traffic jam. Kohdar town should be beautified. Roads should be constructed as per the need. People's representatives should be included in the Gram Vikas Advisory Committee formed by NTPC. If work is done as per the suggestions given through the committee, it will help a lot in the development of the area.	will be done through rail. For various uses of ash, transportation of ash is necessary which is done by tarpaulin covered or closed container vehicles (bulkers). Water is regularly sprinkled on the haulage road by tankers so that there is no inconvenience in traffic. The timing of arrival and departure of vehicles carrying fly ash is decided by the administration. 24.6 Based on the need based analysis report and discussion with the stakeholders, beautification of Kohdar and construction of roads will be done in public interest. 24.7 Village Development Advisory Committee (VDAC)- As per answer to serial no. 3.0		
25	**Mr. Vimlesh Mishra, President, Labor Union, Village-Salaiya Kala, Meja Prayagraj**	The temperature of the area has increased due to the installation of the plant. People of the area should have access to electricity 24 hours a day. There is a problem of unemployment. Local people should be given employment. The problem of dust persists due to the movement of open vehicles from Kohdhar to Naini and water is not sprinkled. Instead of giving employment to local people, people from other states are being given employment. Which is wrong. The check	25.1 Electricity - As per answer to serial no. 1.5 25.2 Employment- As per answer to no. 1.2 25.3 Ash Management- As per answer to no. 24.5 25.4 In the current project, about 230 PAPs and about 2000 local people have been given employment through contract. Employment opportunities in Meja Thermal Power Project will be very limited. But even at the time of construction of the proposed 03 units, PAPs and local people will be given priority in temporary employment through the contractor as per eligibility, qualification and requirement. 25.5 Based on the need analysis report and consultation with the stakeholders, the check dam constructed in village Isota and the surrounding roads will be repaired in public interest. 25.6 Irrigation- As per answer to No. 7.3	36 Lakh	Around 02 year from the beginning of Stage 2 construction activities.

अनिल कुमार / Anil Kumar

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		dam built in village Isota should be repaired and the surrounding roads should also be repaired. Lift canal facility should be provided for irrigation in the surrounding villages. He said that if the issue raised by me is not paid attention to by Meja Urja Nigam, then we will be forced to protest.			
26	**Mr. Anil Shukla, Village-Gadewara Pradhan, Meja Prayagraj**	In Shri Siddheshwar Nath Pahadi Mahadev Mandir, street lights should be installed from the entrance to the temple, the main gate should be constructed and the Pahadi Mahadev Mandir should be developed and arrangements for livelihood should be made for the Shiva devotees residing in the temple.	As per answer to serial no. 2.0	-	Around 02 year from the beginning of Stage 2 construction activities.
27	**Shri Shailesh son of Shri Rajkumar, Village-Salaiya Kala**	A water tank was constructed by Meja Urja Nigam which collapsed within a month and is not being repaired again. Being a hilly area, there is a water problem, this should be resolved immediately. As an alternative arrangement for water supply, water should be provided through tankers and the water tank should be repaired. Employment has not been	27.1 Repair of water tank as per answer to no. 1.9 27.2 Based on the need analysis report and discussion with the stakeholders, solar small drinking water scheme and hand pumps will be installed in public interest. 27.3 Employment of local people: As per answer to Sr. No. 1.2. Employment of Security Guards: Security guards are engaged by security agency empanelled with Directorate General of Resettlement (DGR) as per qualification, eligibility of the person and as per DGR guidelines. Accordingly, at present 8 persons	-	Around 02 year from the beginning of Stage 2 construction activities.

अनिल कुमार / Anil Kumar
MEJA URJA NIGAM (P) Ltd, Prayagraj

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		provided to local people in the plant. Even the job of a guard has not been given to the local people in the plant. Is.	from project affected villages are employed by the security agency.		

अनिल कुमार / Anil Kumar

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उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड
UTTAR PRADESH POLLUTION CONTROL BOARD

संदर्भ सं/ Ref. No H13497 /Tech-2/NOC-5516/Public Hearing/24

पंजीकृत
दिनांक/ Date 3-7-24

सेवा में,

निदेशक IA-II,
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,
इन्दिरा पर्यावरण भवन, तृतीय तल, वायु विंग, जोरबाग रोड,
अलीगंज, नई दिल्ली–110003 ।

विषयः– **Expansion of Meja Coal Based Thermal Power Project from 1320 MW (2x660) to 3720 MW (with 3x800 MW – Stage II) at Village Kohdar, Mai Khurd & Patai Dandi, Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited** द्वारा प्रेषित प्रस्तावित परियोजना की दिनांक 24.06.2024 को आहुत लोक सुनवाई की कार्यवृत्त के संबंध में।

महोदय,

कृपया उपरोक्त विषयक का संदर्भ लेने का कष्ट करे । उक्त के संबंध में Expansion of Meja Coal Based Thermal Power Project from 1320 MW (2x660) to 3720 MW (with 3x800 MW – Stage II) at Village Kohdar, Mai Khurd & Patai Dandi, Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited द्वारा प्रेषित प्रस्तावित परियोजना हेतु पर्यावरणीय स्वीकृत के लिए लोक सुनवाई के संबंध में दिनांक 01.04.2024 को पर्यावरण अधिप्रभाव रिपोर्ट/प्रस्ताव प्राप्त हुआ था।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार द्वारा जारी अधिसूचना संख्या–एस0ओ0–1533, दिनांक 14.09.2006 यथासंशोधित एस0ओ0–3067(ई) दिनांक 01.12.2009 के प्राविधानों के अनुसार पर्यावरणीय क्लीयरेंस हेतु अपर जिलाधिकारी (प्रशासन), प्रयागराज की अध्यक्षता में दिनांक 24.06.2024 को सम्पन्न लोक सुनवाई का कार्यवृत्त एवं अन्य प्रपत्र, लोक सुनवाई की सी0डी0 सहित संलग्न कर अग्रिम आवश्यक कार्यवाही हेतु प्रेषित किया जा रहा है ।

संलग्नकः–उपरोक्तानुसार ।

भवदीय,

(संजीव कुमार सिंह)
सदस्य सचिव

प्रतिलिपिः– श्री कमलेश सोनी, मुख्य कार्यकारी अधिकारी, मेजा थर्मल पॉवर प्रोजेक्ट, पो. कोड़हार, तहसील मेजा, जनपद प्रयागराज को सूचनार्थ प्रेषित ।

सदस्य सचिव

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ई–मेल : info@uppcb.in
वेबसाइट : www.uppcb.com

T.C.-12 V, Vibhuti Khand, Gomti Nagar,
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दूरभाष / Ph. : 0532-2569727

क्षेत्रीय कार्यालय उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड

आवास विकास परिषद कालोनी, सेक्टर-10, योजना संख्या-3, झूँसी, प्रयागराज - 221506

Email-roprayagraj@uppcb.in

संदर्भ सं. [illegible] दिनांक 27/06/2024

सेवा में,

मुख्य पर्यावरण अधिकारी (वृत्त-2),
उ0प्र0 प्रदूषण नियंत्रण बोर्ड,
लखनऊ।

विषयः **मेसर्स मेजा उर्जा निगम प्रा0लि0, ग्राम-कोड़हार, तहसील-मेजा, जनपद-प्रयागराज द्वारा ग्राम-कोड़हार, मई खुर्द एवं पताई डांडी में विद्युत उत्पादन क्षमता के विस्तारीकरण योजना के अन्तर्गत मेजा थर्मल पावर परियोजना चरण-II 3×800 MW (Project from 1320 MW (2×660) to 3720 MW (with 3×800 MW- Stage II) के लिए पर्यावरणीय स्वीकृति (Environment Clearance) हेतु दिनॉक 24.06.2024 को सलैया कला सामुदायिक केन्द्र, ग्राम-सलैया कला, तहसील मेजा, प्रयागराज, उ0प्र0 में आयोजित की गयी लोक सुनवाई की कार्यवृत्ति प्रेषित करने के संबंध में।**

महोदय,

कृपया उपरोक्त विषयक बोर्ड मुख्यालय के पत्रांक एच 08908/ सी-2/एन0ओ0सी0- 5376/पब्लिक हियरिंग/24, दिनॉक 03.04.2024 का संदर्भ ग्रहण करने का कष्ट करें। उक्त के सम्बन्ध में आपको अवगत कराना है कि मेसर्स मेजा उर्जा निगम प्रा0लि0, ग्राम-कोड़हार, तहसील-मेजा, जनपद-प्रयागराज द्वारा ग्राम-कोड़हार, मई खुर्द एवं पताई डांडी में विद्युत उत्पादन क्षमता के विस्तारीकरण योजना के अन्तर्गत मेजा थर्मल पावर परियोजना चरण-II 3×800 MW (Project from 1320 MW (2×660) to 3720 MW (with 3×800 MW- Stage II) के लिए पर्यावरणीय स्वीकृति (Environment Clearance) लोक सुनवाई दिनांक 24.06.2024 को जिलाधिकारी महोदय द्वारा नामित अपर जिलाधिकारी (प्रशासन), प्रयागराज की अध्यक्षता में सलैया कला सामुदायिक केन्द्र, ग्राम-सलैया कला, तहसील मेजा, प्रयागराज, उ0प्र0 में सम्पन्न हुई। लोक सुनवाई की कार्यवृत्ति, दैनिक समाचार पत्रों में प्रकाशित विज्ञप्ति की छायाप्रतियाँ, लोक सुनवाई के दौरान उपस्थित अधिकारी/जन-समुदाय की उपस्थिति का विवरण, लोक सुनवाई के दौरान प्राप्त आपत्तियों/सुझावों की प्रतियां, लोक सुनवाई के कार्यवाही की विडियोग्राफी (पेनड्राईव में) पत्र के साथ 02 प्रतियों में संलग्न कर आपके अवलोकनार्थ एवं अग्रिम आवश्यक कार्यवाही हेतु सादर प्रेषित है।

संलग्नकः उपरोक्तानुसार।

भवदीय,

(डॉ एस0सी0 शुक्ला) 27/6/24
क्षेत्रीय अधिकारी

प्रतिलिपिः-सदस्य सचिव महोदय, उ0 प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ को सूचनार्थ सादर प्रेषित।

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मेसर्स मेजा उर्जा निगम प्रा0लि0, ग्राम–कोड़हार, तहसील–मेजा, जनपद–प्रयागराज द्वारा ग्राम–कोड़हार, मई खुर्द एवं पताई डांडी में विद्युत उत्पादन क्षमता के विस्तारीकरण योजना के अन्तर्गत मेजा थर्मल पावर परियोजना चरण–II 3×800 MW (Project from 1320 MW (2×660) to 3720 MW (with 3×800 MW- Stage II) के लिए पर्यावरणीय स्वीकृति (Environment Clearance) हेतु दिनॉक 24.06.2024 को सलैया कला सामुदायिक केन्द्र, ग्राम–सलैया कला, तहसील मेजा, प्रयागराज, उ0प्र0 में आयोजित की गयी लोक सुनवाई की कार्यवृत्तः–

सदस्य सचिव, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ के पत्रांक एच 08908/सी–2/एन0ओ0सी0–5376/पब्लिक हियरिंग/24, दिनॉक 03.04.2024 **(संलग्नक–1)** के अनुपालन में मेसर्स मेजा उर्जा निगम प्रा0लि0, ग्राम–कोहड़ार, तहसील–मेजा, जनपद प्रयागराज द्वारा ग्राम–कोड़हार, मईखुर्द एवं पताई डांडी में उत्पादन क्षमता के विस्तारीकरण योजना के अन्तर्गत मेजा थर्मल पावर परियोजना चरण–II 3×800 MW (Project from 1320 MW (2×660) to 3720 MW (with 3×800 MW- Stage II) के लिए पर्यावरणीय स्वीकृति **(Environment Clearance)** हेतु दिनॉक 24.06.2024 को सलैया कला सामुदायिक केन्द्र, सलैया कला, तहसील मेजा, जनपद–प्रयागराज, उ0प्र0 में लोक सुनवाई आयोजित की गयी।

उक्त प्रस्तावित परियोजना के संबंध में लोक सुनवाई जिलाधिकारी, प्रयागराज द्वारा नामित श्रीमती पूजा मिश्रा, अपर जिलाधिकारी (प्रशासन), प्रयागराज की अध्यक्षता में आयोजित किया गया तथा संचालन डॉ0 एस0सी0 शुक्ला, क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, प्रयागराज द्वारा किया गया। उक्त के अतिरिक्त लोक सुनवाई में मुख्य रूप से कोरॉव विधानसभा से मा0 विधायक श्री राजमणि कोल, श्री अविजीत चटर्जी, सी.जी.एम, मेसर्स मेजा उर्जा निगम प्रा0लि0, श्री सौरभ कुमार पाठक, वरिष्ठ प्रबन्धक, मेसर्स मेजा उर्जा निगम प्रा0लि0, मेसर्स ई.क्यू. एम.एस. ग्लोबल प्रा0लि0, दिल्ली, के श्री रत्नेश कोटियाल, इन्वायरन्मेंटल कन्सल्टेंट एवं अन्य जनसामान्य ने प्रतिभाग किया। लोक सुनवाई की उपस्थिति का विवरण **संलग्नक–2** के रूप में संलग्न है।

लोक सुनवाई पर प्रकाश डालते हुए उ0प्र0 प्रदूषण नियंत्रण बोर्ड, प्रयागराज के क्षेत्रीय अधिकारी, डॉ शुक्ला ने अध्यक्ष महोदय एवं अन्य उपस्थित नागरिकों का स्वागत किया। तत्पश्चात् उन्होने प्रस्तावित परियोजना पर प्रकाश डालते हुए कहा कि पर्यावरण एवं वन मंत्रालय, भारत सरकार, नई दिल्ली की अधिसूचना सं0 एस0ओ0–1533 (ई), दिनांक 14.09.2006 यथा संशोधित एस0ओ0–3067 (ई) दिनॉक 01.12.2009 के प्राविधानों के अन्तर्गत प्रास्तावित परियोजना के प्रस्ताव हेतु पर्यावरणीय स्वीकृति प्राप्त किया जाना अनिवार्य है। उक्त प्रस्ताव हेतु पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के फाईल नं0 13012/03/2008–आई ए II (टी), दिनॉक 14.12.2023 द्वारा प्रस्तावित परियोजना को टर्म्स आफ रिफरेन्स (TOR) जारी किया गया है। पर्यावरण एवं वन मंत्रालय, भारत सरकार द्वारा जारी अधिसूचना में दिये गये प्राविधानों के अनुसार लोक सुनवाई हेतु जन साधारण से आपत्तियां/सुझाव आमंत्रित किये जाने हेतु समाचार पत्र में विज्ञापन प्रकाशन की तिथि से 30 दिन का समय देते हुए आमंत्रित किये जाने का प्राविधान निर्धारित है। उक्त के क्रम में उ0प्र0 प्रदूषण नियंत्रण बोर्ड द्वारा दिनांक 22.05.2024

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को हिन्दी दैनिक समाचार पत्र "अमर उजाला" एवं राष्ट्रीय समाचार पत्र "हिन्दुस्तान टाइम्स" (अंग्रेजी) में आम जन–सामान्य से आपत्तियॉ/सुझॉव अमंत्रित किये जाने हेतु विज्ञापन प्रकाशित कराया गया था (संलग्नक–3)। उक्त अवधि में विज्ञापन में दिये गये सम्बंधित विभागों यथा कार्यालय जिलाधिकारी प्रयागराज, उपायुक्त उद्योग, जिला उद्योग एवं उद्यम प्रोत्साहन केन्द्र प्रयागराज, कार्यालय जिला पंचायत, जिला खनिज विभाग, क्षेत्रीय कार्यालय मध्य क्षेत्र, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, लखनऊ, क्षेत्रीय कार्यालय, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, प्रयागराज एवं उ0प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ में कोई आपत्तियां/सुझाव प्राप्त नहीं हुआ था। लोक सुनवाई के दौरान श्री संजय कुमार यादव व अन्य निवासीगण ग्राम–सलैया कला, श्री सिद्धेश्वर नाथ पहाड़ी महादेव सेवा संस्थान, मेजा, प्रयागराज, वर्धमान सेवा समिति के सचिव श्री अश्विनी जैन, श्री ब्रजेश सिंह व अन्य, निवासीगण ग्राम–मईखुर्द मेजा, श्री राम खेलावन पाण्डेय व अन्य, ग्राम–सलैया खुर्द, श्री राजेश कुमार निषाद, ग्राम प्रधान, झड़ियाही, श्री मोहन लाल शुक्ल, गेट नं0 3, श्री अनिल कुमार शुक्ल, ग्राम प्रधान, गढ़ेवरा, श्री डी0एस0 यादव, ग्राम प्रधान, सलैया कला, श्रीमती सुनीता सिंह, प्रधान, ग्राम पंचायत मईकला, श्री दशरथ निषाद, प्रधान, ग्राम पंचायत–बिजौरा, श्रीमती नीता निषाद, प्रधान, ग्राम पंचायत–इसौटा, श्री सुरेश कुमार, ग्राम प्रधान, ग्राम पंचायत–सलैया खुर्द, श्री रमेश कुमार, प्रधान ग्राम पंचायत कोहड़ार, श्रीमती वन्दना सोनी, क्षेत्र पंचायत संदस्य, कोहड़ार, श्री रामजस गौड, ग्राम कोहडार, श्री हरिहर प्रसाद, ग्राम किहुनीकला पोस्ट–पवारी, कोरांव, श्री अरविन्द यादव व अन्य, निवासीगढ ग्राम–सलैया कला, मेजा, प्रयागराज द्वारा प्रत्यावेदन प्राप्त हुआ है, जो संलग्नक–3 के रूप में संलग्न है। तत्पश्चात् क्षेत्रीय अधिकारी, प्रयागराज द्वारा मेसर्स मेजा उर्जा निगम प्रा0लि0 के वरिष्ठ प्रबन्धक श्री सौरभ कुमार पाठक को परियोजना के सम्बंध में प्रस्तुतीकरण किये जाने हेतु आमंत्रित किया गया।

मेसर्स मेजा उर्जा निगम प्रा0लि0 के वरिष्ठ प्रबन्धक श्री सौरभ कुमार पाठक द्वारा बताया गया कि द्वितीय चरण की क्षमता में 2×660MW से बढ़ाकर 3×800MW (1320 मेगावाट से 3720 मेगावाट) किया जाना प्रस्तावित है। वर्ष 2022 की गर्मी के शुरूआत में पूरे देश में बिजली की कमी महसूस की गयी थी। इससे निपटने के लिए विद्युत मंत्रालय, भारत सरकार द्वारा वर्ष 2030 तक विद्युत की बढ़ती हुई मांग को ध्यान में रखते हुए थर्मल पावर उत्पादन की क्षमता बढ़ाने के प्रयास किये जा रहे हैं। एन.टी.पी.सी. द्वारा प्रस्तावित मेजा स्टेज–II 2400 मेगावाट (3X800MW) की यूनिट का चयन इसी दिशा में उठाया जाने वाला एक कदम है। स्टेज–II की इकाई का निर्माण शीघ्र प्रारम्भ होना प्रस्तावित है। इस प्रोजेक्ट से उत्पन्न बिजली की आपूर्ति उत्तर प्रदेश एवं उत्तराखण्ड में की जायेगी। यह परियोजना अल्ट्रा सुपर क्रिटीकल टेक्नोलाजी तथा नवीनतम एयर कूल्ड कन्डेन्सर टैक्नोलाजी पर आधारित होगी। जिसमें जल की आवश्यकता लगभग 40 प्रतिशत ही होती है, जो तकनीकी रूप से अधिक उन्नत एवं पर्यावरण हितैषी होगी।

द्वितीय चरण की इकाईयों की स्थापना वर्तमान परिसर में ही की जाएगी। यह विदित हो कि मेजा स्टेज 2 के लिए अतिरिक्त भूमि के लिए मात्र 114 हेक्टेयर की भूमि अधिग्रहण का प्रस्ताव है।

श्री पाठक ने आगे बताया कि पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार द्वारा जारी टी.ओ.आर. के अनुसार पर्यावरणीय आंकलन अध्ययन, मंत्रालय द्वारा अनुमोदित

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मेसर्स ई.क्यू.एम.एस. ग्लोबल प्रा0लि0, नोएडा द्वारा किया गया है। जिससे परियोजना से होने वाले प्रभावों के बारे में स्वतंत्र और निष्पक्ष राय मिल सके। इसके परियोजना के दस किलोमीटर की परिधि के क्षेत्र में अध्ययन कर पर्याप्त आंकड़े इकट्ठा किये गये है। इस अध्ययन की रिपोर्ट उ0प्र0 प्रदूषण नियंत्रण बोर्ड को प्रस्तुत की गयी है। इस अध्ययन के रिपोर्ट से यह निष्कर्ष निकला है कि इस परियोजना के निर्माण तथा प्रचालन से क्षेत्र का पर्यावरण संतुलन निर्धारित सीमा में बना रहेगा।

मेजा स्टेशन पर्यावरण हितैषी परियोजना है तथा इस परियोजना द्वारा पर्यावरण की संतुलन सीमा बरकरार रखने के लिए विभिन्न निम्नवत् उपाय प्रस्तावित है:-

- चिमनी से निकलने वाले धुंआ को नियंत्रित करने के लिए उच्च दक्षता वाले ई.एस.पी. स्थापित किये जायेंगे जो कि चिमनी से निकलने वाले धंए में कणों की मात्रा को 30 माइक्रो ग्राम प्रति नार्मल घन मीटर से अंदर नियंत्रित रहेगा।
- संयंत्र में पर्यावरण संरक्षण हेतु एफ.जी.डी., एफ्ल्यूएंट ट्रीटमेंट प्लाट, डी.ई.डी.एस. तथा अन्य आवश्यक संयंत्र स्थापित किए जाएंगे।
- समुचित क्षेत्रफल में हरित पट्टिका का विकास किया जाएगा।
- वर्षा जल संचयन की स्थापना की जायेगी।

उपरोक्त पर्यावरणीय सुरक्षा उपायों के कार्यान्वयन के लिए रू0 2902.06 करोड़ का प्राविधान किया गया है।

वर्तमान पर्यावरणीय गुणवत्ता आंकलन अध्ययन एवं प्रोजेक्ट में प्रस्तावित पर्यावरणीय उपायों के विस्तृत विश्लेषण से यह निष्कर्ष निकाला जा सकता है कि यह प्रोजेक्ट पर्यावरण की दृष्टि से उपयुक्त है। इसके अतिरिक्त विद्युत परियोजना से स्थानीय जनता के जीवन स्तर में उन्नति, आधारभूत सुविधा में वृद्धि आदि सकारात्मक प्रभाव भी होंगे।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार द्वारा अनुमोदित इन्वायरन्मेंटल कन्सल्टेंट, मेसर्स ई.क्यू.एम.एस. ग्लोबल प्रा0लि0, नोएडा श्री रत्नेश कोटियाल परियोजना के संबंध में प्रस्तुतीकरण हेतु आमंत्रित किया गया।

मेसर्स ई.क्यू.एम.एस. ग्लोबल प्रा0लि0, नोएडा के इन्वायरन्मेंटल कन्सल्टेंट श्री रत्नेश कोटियाल द्वारा परियोजना के संबंध में निम्नवत् विस्तृत प्रकाश डाला गया:-

- मेजा उर्जा निगम प्राईवेट लिमिटेड-एनटीपीसी लिमिटेड और उत्तर प्रदेश राज्य विद्युत उत्पादन निगम के मध्य 50:50 भागीदारी का एक संयुक्त उद्यम है, जिसका पंजीकरण वर्ष 2008 में हुआ था। कंपनी मेजा थर्मल पावर स्टेशन 2×660 मेगावाट कोयला आधारित थर्मल पावर प्लांट की स्वामी हैं।
- विद्युत संयंत्र प्रयागराज जिले की मेजा तहसील में स्थित है। विद्यत संयंत्र की दोनों इकाईयां चालू की चुकी है। संयंत्र द्वारा उत्पादित विद्युत मुख्य रूप से उत्तर प्रदेश के साथ-साथ उत्तराखण्ड राज्य में आपूर्ति की जाती है।
- एमयूएनपीएल मेजा थर्मल पावर प्रोजेक्ट के मौजूदा परिसर में 3×800 मेगावाट की नई इकाईयों की स्थापना के द्वारा परियोजना के विस्तारीकरण करने की योजना बना रहा है।

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➢ विद्युत संयंत्र के लिए पानी गंगा नदी से लिया जाना प्रस्तावित है। पंप हाउस निजौरा गांव में स्थित है। विद्युत संयंत्र के लिए कोयले की आपूर्ति नार्दन कोलफील्ड लिमिटेड और सेंट्रल कोलफील्ड लिमिटेड से होने की संभावना है। 21.02.2023 और 19.09.2023 को आयोजित अपनी बैठक में एसएसपी ने कोयला लिंकेज को मंजूरी दे दी है।

प्रस्तावित परियोजना की मुख्य विशेषताएं निम्नवत् है–

क्रम संख्या	विशेषताएं	विवरण
1	क्षमता/विन्यास	3x800 मेगावाट
2	तकनीकी	अल्ट्रा सुपर-क्रिटिकलप्रौद्योगिकी
3	निर्यात विद्युत	50 मेगावाट (मौजूदा यूनिट से प्राप्त किया जाएगा)
4	कोयले का स्रोत	एसएलसी (एलटी) ने 21.02.2023 और 19.09.2023 को आयोजित अपनी बैठक में कोयला लिंकेज की मंजूरी दे दी है। हालाँकि, कोयला आवंटन की प्रथा के अनुसार, कोयला ब्लॉक का आवंटन अभी किया जाना बाकी है। संभावित कोयला स्रोत बीसीसीएल/एनसीएल/सीसीएलहैं।
5	कोयले की आवश्यकता	9.94 एमएमटीपीए
6	परिवहनका साधन	
7	नमी (%)	13-14
8	सल्फर तत्व	0.3 से 0.5%
9	औसत सकल कैलोरी मान (किलोकैलोरी प्रति किग्रा)	3900 किलो कैलोरी/किग्रा
10	स्थापित बॉयलर की क्षमता	2580 टीपीएच
11	कोयले में राख की मात्रा	40%
12	कुल राख उत्पादन	3.78 एमएमटीपीए
13	फ्लाई ऐश	3.024 एमएमटीपीए
14	बॉटम ऐश	0.756 एमएमटीपीए
15	ईएसपी दक्षता	99.90%
16	चिमनी	220 मीटर ऊंचाई की एक ट्विन फ्लू चिमनी और 150 मीटर की एक सिंगल फ्लू चिमनी
17	जल की आवश्यकता	आवश्यकता: 30 क्यूसेक उपलब्ध: चरण-I से 5 क्यूसेक व्यवस्था की जानी है: 25 क्यूसेक
18	जल स्रोत	गंगा नदी (29 किमी, पाइपलाइन)
19	भूमि की आवश्यकता	मेजा चरण-II का विस्तार मौजूदा परिसर के भीतर किया जाएगा, तथापि, ऐश डाइक और रेलवे साइडिंग के लिए अतिरिक्त 114 हेक्टेयर (62 हेक्टेयर सरकारी भूमि और 52 हेक्टेयर निजी भूमि) भूमि का अधिग्रहण किया जाना प्रस्तावित है)
20	परियोजना की लागत	मेजा चरण-II का विस्तार मौजूदा परिसर के भीतर किया जाएगा, तथापि, ऐश डाइक और रेलवे साइडिंग के लिए अतिरिक्त 114 हेक्टेयर (62 हेक्टेयर सरकारी

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		भूमि और 52 हेक्टेयर निजी भूमि. भूमि का अधिग्रहण किया जाना प्रस्तावित है)

इन्वायरन्मेन्टल कन्सलटेंट द्वारा बताया गया कि 10 किमी0 त्रिज्यक दूरी के अंदर कोई पर्यावरण संवेदनशीलता स्थित नहीं है। प्रस्तावित स्थल से लगभग 23.24 किमी0 की दूरी पर गंगा नदी एवं 0.95 किमी0 की दूरी पर टोंस नदी स्थित है। प्रस्तावित स्थल से 10 किमी0 के अंदर कोई वन्यजीव अभ्यारण्य/राष्ट्रीय उद्यान/बायोस्फीयर रिजर्व स्थित नहीं है।

परियोजना स्थल के आसपास 10 स्थलों यथा मेजा टीपीपी मुख्य प्रवेश द्वार, सलैया कला ऐश पाण्ड के समीप, गांव पताई डांडी, रिटैया, मेजा, सोनबर्सी, गदेवा, पिपरांव, कोड़हर, भेड़ेवाड़ा से परिवेशीय वायु गुणवत्ता का अध्ययन किया गया तथा सभी स्थलों पर परिवेशीय वायु गुणता निर्धारित मानकों के अनुरूप पायी गयी। इसी प्रकार 10 स्थलों से परिवेशीय ध्वनि स्तर का अनुश्रवण किया गया तथा सभी स्थलों पर परिवेशीय ध्वनि का स्तर निर्धारित मानकों के अनुरूप पायी गयी। पर्यावरण अध्ययन के दौरान 12 स्थलों से भूगर्भ जल के नमूनों का एकत्रण कर जल गुणवत्ता की जॉच की गयी। जॉचोंपरांत भूगर्भ जल की गुणता निर्धारित मानकों के अनुरूप पायी गयी। अध्ययन के दौरान 6 स्थलों से सतही जल स्रोत से नमूनों का एकत्रण कर विश्लेषण किया गया। विश्लेषणोंपरांत सतही जल की गुणता केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा निर्धारित मानक के अनुसार श्रेणी–सी के अन्तर्गत पायी गयी। अध्ययन के दौरान 10 स्थलों से मृदा के नमूनों का जॉच किया गया। जॉचोंपरांत पाया गया कि मिट्टी में आर्गेनिक कार्बन मध्यम से उच्च स्थिति में है। मिट्टी कम से मध्यम उपजाऊ है।

वायु गुणवत्ता की स्थिति निम्नवत् बतायी गयी है:–

- प्रस्तावित परियोजना में कोयला हैंडलिंग संयंत्र को धूल निष्कर्षण और धूल दमन प्रणाली जैसे नियंत्रण उपायों के साथ उचित रूप से संचालित किया जाएगा।
- राख निपटान की एच.सी.एस.डी. प्रणाली अपनाई जाएगी।
- कोयला रेलवे लाईन के माध्यम से प्राप्त किया जाएगा। ठोस अपशिष्ट (राख) को पाईप लाईन के माध्यम से घोल के रूप में ऐश डाईक क्षेत्रों में भेजा जायेगा, इसलिए परिवहन से बहुत कम मात्रा में धूल उत्सर्जन की परिकल्पना की गयी है।
- धूल उत्सर्जन को कम करने के लिए आंतरिक सड़कों को डामरीकृत किया जाना है।
- धूल उत्पन्न करने वाले क्षेत्रों में नियमित रूप से पानी का छिड़काव किया जाएगा।
- पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय की दिनॉक 28.06.2028 की अधिसूचना के अनुसार, व्यापक उत्सर्जन को सुविधाजनक बनाने के लिए लम्बा स्टैक बनाया जायेगा। एक ट्विन फ्लू चिमनी (220 मी0 ऊँचाई) और एक सिंगल फ्लू चिमनी (150मी0 ऊँचाई) स्थापित की जाएगी।
- पी.एम. उत्सर्जन को नियंत्रित करने के लिए उच्च दक्षता वाले ई.एस.पी. स्थापित किये जाएगे।
- भाप जनरेटर से निकलने वाले NOx उत्सर्जन को कम NOx बर्नर/प्रणाली और दहन स्टेजिंग द्वारा नियंत्रित किया जाएगा।

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- SO2 उत्सर्जन को नियंत्रित करने के लिए ई.एस.पी. के पीछे वेट लाईमस्टोन आधारित फ्लू गैस डिसल्फ्राईजेशन (FGD) स्थापित किया जाएगा।
- स्टैक के लिए ऑनलाइन अपारदर्शिता मीटर के साथ-साथ फ्लू गैस प्रवाह दर और तापमान माप की सुविधा भी उपलब्ध कराई जाएगी।

जल संसाधनों की स्थिति निम्नवत् बतायी गयी है:-

- इस परियोजना के लिए जल आवश्यकता लगभग 3000 मीटर क्यूब प्रति घंटा होगी
- मेजा स्टेज 2 अपनी सम्पूर्ण जल आवश्यकता गंगा नदी से प्राप्त करेगी।
- प्रस्तावित परियोजना से कोई अपशिष्ट नहीं जनित होगा इसलिए आसपास की जल निकाय की जल गुणवत्ता पर प्रभाव नगण्य होगा।
- संयंत्र के संचालन के दौरान भू जल का उपयोग करने का प्रस्ताव नहीं है, इसलिए संयंत्र के संचालन के दौरान भू जल की उपलब्धता पर कोई प्रभाव नहीं पड़ेगा।

पर्यावरण प्रबन्धन योजना की स्थिति:-

- संयंत्र को जीरो लिक्विड डिस्चार्ज (जेड.एल.डी.) के लिए डिजाइन किया गया है। कोयला धूल दमन प्रणाली, एफ.जी.डी. प्रणाली और राख हैण्डलिंग प्लांट के लिए सी.डब्ल्यू. सिस्टम ब्लोडाउन का उपयोग किया जायेगा। अतिरिक्त सी.डब्ल्यू.ब्लोडाउन, यदि कोई हो, तो सेंट्रल मानिटरिंग बेसिन में बहा दिया जायेगा। ब्लो डाउन (यदि आवश्यकता हो) तो भी सेंट्रल मानिटरिंग बेसिन में लाया जाएगा।
- कोयला हैण्डलिंग प्लाण्ट के कचरे से कोयले के कणों को हटाने के लिए एक कोयला निपटान सम्प प्रदान किया जायेगा। निस्तारित जल को उपयोग के लिए कोयल धूल दमन प्रणाली में वापस पम्प किया जायेगा। अतिरिक्त वर्षा जल (बारिश की ध्यान में रखते हुए) को प्राप्त करने और उसका उपचार करने के लिए, क्लेरीफायर फीडपम्प (2×50%), रिएक्टर क्लेरीफायर (2×50%), बेल्ट फिल्टर प्रेस (2×50%), क्लेरीफाइड वाटर ट्रांसफर पम्प (2×50%), और आवश्यक रासायनिक भण्डारण और डोजिंग प्रणाली भी प्रदान की जाएगी।
- विभिन्न क्षेत्रों से जल के अपशिष्ट नालों को अलग से एक सम्प में भेजा जाएगा। सम्प से, अपशिष्ट जल को उपचार के लिए लैमेला क्लेरीफायर/ट्यूब सेटलर तक पंप किया जायेगा। उपचारित जल को सम्भावित पुनः उपयोग के लिए जल टैंक में वापस भेजा जाएगा।
- केवल निर्धारित मानकों के अनुरूप उपचारित अपशिष्टों को ही संयंत्र के भीतर पुनः परिसंचारित और पुनः उपयोग किया जाएगा।
- ऐसी व्यवस्था की जायेगी कि संयंत्र का अपशिष्ट और वर्षा का जल आपस में मिश्रित न हो।
- निर्धारित मानकों के अनुरूप सीवेज ट्रीटमेंट प्लांट से उपचारित सीवेज का उपयोग वृक्षारोपण या अन्य उद्देश्यों के लिए किया जाएगा।

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ध्वनि गुणवत्ता की स्थिति:–

- ध्वनि शोर के स्तर को 85 डीबी (ए) से नीचे नियंत्रित करने के लिए जहाँ भी आवश्यक हो, एकॉउस्टिक एन्क्लोजर उपलब्ध कराए जाएंगे।
- जहाँ भी तकनीकी रूप से अपेक्षित ध्वनि स्तर को पूरा करना संभव न हो, वहां कार्मिकों को सुरक्षा प्रदान की जाएगी।
- जहाँ भी संभव हो, उपलब्ध स्थानों पर वृक्षारोपण करने से ध्वनि के स्तर को कम करने में और मदद मिलेगी।
- संयंत्र क्षेत्र में कार्य करने वाले श्रमिकों की सुरक्षा के लिए, इयर–मफ/इयर प्लग/मास्क के रूप में पर्याप्त सुरक्षात्मक उपाय प्रदान किये जाएंगे, जो प्रतिकूल प्रभावों को न्यूनतम/समाप्त कर देंगे। परियोजना परिसर में विकसित हरित पट्टी भी विकसित की जाएगी।

अपशिष्ट प्रबन्धन

- फ्लाई ऐश एवं बॉटम ऐश को अलग–अलग हैडिंल किया जाता है। फ्लाई ऐश को पाजिटिव न्यूमेटिक सिस्टम द्वारा साईलो तक लाया जाता है तत्पश्चात् ऐश बल्कर्स द्वारा यूजर्स तक पहुँचाया जाता हैं।
- ऐश पाण्ड का कुल क्षेत्रफल 110 हेक्टेयर प्रस्तावित किया गया है।
- ड्राई फ्लाई ऐश एवं बाटम ऐश का उपयोग पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना के अनुसार किया जाएगा।
- ऑयली वेस्ट को टी.एस.डी.एफ. के माध्यम से निस्तारित कराया जाएगा।
- हैजार्डस वेस्ट का निस्तारण हैजार्डस वेस्ट मैनेजमेंट रूल्स, 2016 एवं सामान्य सालिड वेस्ट का निस्तारण सालिड वेस्ट मैनेजमेंट रूल्स, 2016 में दिये गये प्राविधानों के अनुसार तथा निष्प्रयोज्य बैटरी को पंजीकृत रिसाईकिलर्स के माध्यम से कराया जाएगा।

पारिस्थितिक पर्यावरण

- जल आपूर्ति पाईप लाईन के इनटेक प्वांइट पर स्क्रीन स्थापित की जाएगी। स्क्रीन बड़े जलीय जीव जन्तुओं को प्रवेश पाईप लाईन में प्रवेश करने से रोकने में मदद मिलेगी।
- अनुसूची 1 प्रजातियों के संरक्षण के लिए योजना तैयार की गयी है, जिसमें रू0 50 लाख का बजट निर्धारित किया गया है।
- वेस्ट वाटर को शुद्धिकृत करने के उपरांत पुनः प्रयोग में लाया जाएगा। घरेलू मलजल को एसटीपी के माध्यम से शुद्धिकृत किया जाएगा।
- परिवेशीय ध्वनि स्तर के नियंत्रण हेतु एकॉस्टिक इन्क्लोजर की व्यवस्था की जाएगी तथा परियोजना स्थल के चारों तरफ समुचित क्षेत्रफल में हरित पट्टिका विकसित की जाएगी।

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प्रदूषण नियंत्रण संयंत्र

- वायु प्रदूषण नियंत्रण व्यवस्था के रूप में इलेक्ट्रो स्टैटिक प्रेसीपिटेटर (ई.एस.पी.), एफ.जी.डी. एवं एन0ओ0एक्स नियंत्रक यंत्र स्थापित किये जाएगे, जिसका साप्ताहिक, मासिक, त्रैमासिक एवं वार्षिक आधार पर जाँच की जाएगी।
- 02 अदद ड्राई फाग डस्ट सप्रेशन पम्प एवं 02 एयर कम्प्रेशर स्थापित किये जायेगे।
- 02 अदद डस्ट सप्रेशन वैगन ट्रिपलर, 02 अदद डस्ट सप्रेशन ट्रैक हापर पम्प, 02 अदद स्प्रिकलर पम्प एवं 02 अदद पैडल फीडर पम्प स्थापित किया जाएगा।
- परियोजना में प्रिवेटिंग सिस्टम को अपनाया जाएगा।

हरित पट्टिका विकास योजना

- परियोजना में हरित क्षेत्र विकसित किया गया है। कार्यरत इकाई में 343750 पौधे रोपित किये गये हैं। उक्त के अतिरिक्त मियावाकी पद्धति पर भी 3000 पौधे रोपित किये गये हैं।
- प्रस्तावित परियोजना में अतिरिक्त 20 हेक्टेयर भूमि पर हरित पट्टिका का विकास किया जाएगा तथा प्रति हेक्टेयर में लगभग 2000 पौधे रोपित किये जाएगे।
- प्रस्तावित विस्तार के अन्तर्गत 400.5 हेक्टेयर भूमि प्लांट परिसर से बाहर हरित पट्टिका के विकास हेतु चिन्हित किया जाएगा।
- वृक्षारोपण के लिए अवकमित वन, ग्राम पंचायत की भूमि, नगर पंचायत की भूमि, सड़कों के किनारे, स्कूलों/कालेजों के समीप, जलाशयों के समीप चिन्हित किया जाएगा। परियोजना के विस्तार के अन्तर्गत 420.5 हेक्टेयर भूमि क्षेत्र में लगभग 842000 पौधे रोपित किये जाएगे, जिससे 40 प्रतिशत हरित क्षेत्र रखा जा सके।

वर्षा जल संचयन योजना

- वर्तमान में 02 अदद वर्षा जल संचयन पिट एवं 02 स्थलों पर रेन वाटर रिचार्जिंग सिस्टम स्थापित किया गया है। साथ ही कई तालाबों का जीर्णोद्धार किया गया है।
- एनआईएच रूड़की द्वारा वर्षा जल संचयन हेतु अध्ययन प्रगति पर है तथा उनके दिये गये सिफारिश के अनुसार वर्षा जल संचयन हेतु समुचित व्यवस्था स्थापित की जाएगी।

सामुदायिक विकास कियाकलाप

- 348 मीटर रोड ग्राम कोहड़ार में, 780 मी0 इसौटा माइनर बिटुमिनस रोड, 655 मी0 रोड ग्राम मईकला, 330 मी0 ग्राम मईखुर्द एवं 330 मी0 इण्टर लाकिंग रोड का निर्माण ग्राम बिजौरा में कराया गया है।
- ग्राम कोहड़ार एवं मई कला के गौसालाओं में चैन फेंसिंग का कार्य, सोलर हाई मास्ट का कार्य, झड़ियाही नई बस्ती में सीसी रोड का फेसलिफ्टिंग कार्य प्रगति पर है।

सौर उर्जा संचालित जल योजना

- 18 अदद सौर उर्जा संचालित जल योजना 08 गांवों में स्थापित किए गये हैं तथा 94 सोलर लाईटें मई खुर्द, बिजौरा, सलैया खुर्द, कोहड़ार, झरियाही, इसौटा, सलैया कला, कोरांव क्षेत्र आदि में स्थापित किये गये हैं।

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हैण्ड पम्प/वाटर कूलर एवं अन्य कल्याणकारी गतिविधियाँ

- मई खुर्द, सलैया खुर्द, कोहड़ार, बिजौरा, आदि स्थलों में हैण्ड पम्प/वाटर कूलर की सुविधा प्रदान करायी गयी है।
- सिपेट संस्था के माध्यम से 25 युवाओं को प्लास्टिक प्रोसेसिंग का प्रशिक्षण तथा 100 प्रतिशत प्लेसमेंट कराया गया है।
- 500 अदद डेस्क बेंच का वितरण, 1500 अदद कम्बल वितरण, 1950 छात्र-छात्राओं को स्टेशनरी किट एवं अन्य चिकित्सा एवं स्मार्ट क्लास की सुविधा मुहैया करायी गयी है।
- परियोजना से प्रभावित परिवारों एवं स्थानीय लोगों को रोजगार प्रदान करने की दिशा में 5 दुकानों का आवंटन, 43 वाहन किराए पर लेना, ठेकेदारों के माध्यम से कार्य लिए जाने एवं 250 लोगों को कौशल विकास हेतु प्रशिक्षण प्रदान किया गया है।

प्रस्तावित सी.ई.आर. गतिविधियाँ

- प्रस्तावित परियोजना के अन्तर्गत 5 वर्षों में विभिन्न कार्यक्रमों को क्रियान्वित किया जाएगा जिसके अन्तर्गत सामुदायिक केन्द्र भवन, चाहर दीवारी, मार्केट शेड, श्मशान घाट, सड़के, नाली, शौचालय, पेयजल सुविधा में वृद्धि, तालाबों का जीर्णोद्धार, स्वास्थ्य सेवायें, विभिन्न स्कूलों में प्रयोगशाला, स्मार्ट क्लास, फर्नीचर आदि का निर्माण/नवीनीकरण तथा रोजगार क्षमता बढ़ाने हेतु कौशल विकास प्रशिक्षण दिये जाने का प्राविधान किया गया है। प्रतिवर्ष रू0 4.0 करोड़ का बजट प्राविधानित किया गया है।

परियोजना से लाभ

- प्रस्तावित विस्तार परियोजना से उत्तर प्रदेश के साथ-साथ भारत में सिंचाई, घरेलू एवं कामर्शियल प्रयोजनों हेतु बढ़ती विद्युत की माँग को पूरा करने में मदद मिलेगी।
- प्रस्तावित परियोजना (3×800मेगावाट) के परिणामस्वरूप बुनियादी ढाचे में सुधार के साथ-साथ क्षेत्र में सामाजिक संरचना का उत्थान होगा।
- प्रस्तावित परियोजना के निर्माण एवं संचालन के दौरान कुशल, अर्ध कुशल एवं अकुशल कार्मिकों की आवश्यकता होगी, जिनकी पूर्ति ठेकेदारों के माध्यम से करायी जाएगी इससे अप्रत्यक्ष रोजगार के अवगत उपलब्ध होंगे।
- परियोजना के निर्माण के दौरान विभिन्न एजेंसियों से लगभग 4986 मैन पावर तथा संचालन अवधि के दौरान लगभग 5040 मैन पावर की आवश्यकता होंगी।
- निर्माण एवं संचालन स्टेज के दौरान एनटीपीसी स्थायी कार्मिकों की अनुमानित संख्या 60 एवं 210 होगी। उक्त संख्या में परियोजना के दौरान भिन्नता हो सकती है
- परियोजना में आवश्यकता आधारित विश्लेषण के आधार पर सीईआर/सीएसआर गतिविधि को प्रारम्भ करने हेतु रू0 20.0 करोड़ का अस्थाई बजट निर्धारित किया गया है, जो पाँच वर्षों के लिए किया गया है। उक्त राशि को आसपास के गांव में कृषि आधारित आजीविका, महिला सशक्तिकरण, स्वास्थ्य, सामुदायिक कल्याण जैसी विभिन्न गतिविधियों में व्यय किया जाएगा।

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- सीईआर/सीएसआर बजट के कार्यान्वयन से सामाजिक–आर्थिक स्थिति, रोजगार, शिक्षा, स्वास्थ्य देखभाल एवं सड़क व अन्य सुविधाओं जैसे भौतिक अवसंरचनाओं में सुधार के कारण जीवन स्तर में सुधार होगा।
- पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय के गाईड लाईन्स के अनुसार प्रति हेक्टयर लगभग 2000 पौधे लगाये जाएगे। प्रस्तावित विस्तार के अन्तर्गत 420.5 हेक्टेयर भूमि क्षेत्र में लगभग 842000 पेड़ लगाए जाएगे, जिससे 40 प्रतिशत हरित क्षेत्र बनाया जा सके।
- प्रस्तावित हरित पट्टी विकास कार्यक्रम के अन्तर्गत प्रस्तावित विस्तार में 842000 पौधों के विकास के लिए लगभग रू0 29.23 करोड़ बजट को निर्धारित किया गया है।

निष्कर्ष

प्रस्तावित विस्तार परियोजना भारतीय अर्थव्यवस्था में महत्वपूर्ण मूल्य जोड़ेगी। यह परियाजना न केवल विद्युत उत्पादन के मामले में हमारे देश को आत्मनिर्भर बनाने में मदद करेगी, बल्कि रोजगार सृजन, सामाजिक–आर्थिक बुनियादी ढांचे को बढ़ाने, राजस्व सृजन आदि के माध्यम से व्यापक आर्थिक विकास को भी बढ़ावा देगी।

इस प्रकार यह निष्कर्ष निकाला जा सकता है कि प्रदूषण नियंत्रण और शमन उपायों के सख्त कार्यान्वयन के साथ, उचित पर्यावरण प्रबन्धन प्रणाली सहित प्रस्तावित विस्तार परियोजना समाज के लिए लाभकारी होगी और विशेष रूप से राज्य और आमतौर पर देश के आर्थिक विकास में योगदान देगी।

लोक सुनवाई के दौरान उपस्थित जनों ने उक्त परियोजना से संबंधित निम्नलिखित आपत्तियों एवं सुझाव व्यक्त किये:–

प्रश्न सं0 1– श्री संजय कुमार यादव पुत्र श्री बसन्त यादव, ग्राम–सलैया कला, मेजा, प्रयागराज द्वारा प्रश्न किया गया कि विस्थापितों को पीएपी कार्ड दिया जाए। विस्थापितों को स्थायी नौकरी दी जाए। आंदोलन के समय जो मुकदमा लगाया गया, उसे हटाया जाए। त्रिवेणी रोड से लगे विस्थापितों के पानी निकासी के लिए नाली का निर्माण किया जाए। विस्थापितों को मुफ्त लाइट की सुविधा दी जाए। एन.टी.पी.सी. मेजा द्वारा विस्थापित बच्चों को पढ़ने की सुविधा दी जाए। विस्थापित लोगों के स्वास्थ्य संबंधी देखरेख के लिए हास्पिटल का निर्माण किया जाए तथा मुफ्त सुविधाएं दी जाए, बच्चों के खेलने के लिए मैदान की व्यवस्था की जानी चाहिए। पानी की टंकी का मरम्मत कराया जाना चाहिए। नाले–नालियों तथा सड़कों की मरम्मत का कार्य कराया जाना चाहिए। राख के तालाब के चारों तरफ फेंसिंग का कार्य किया जाना चाहिए, जिसमें आवारा मवेशी गिरकर अपनी जान न दे। तालाब से राख उड़कर आसपास की जमीनों को अनुपजाऊ बना रही है, उसकी समुचित व्यवस्था की जानी चाहिए। लघु टेंडरों को विस्थापितों को दिया जाए।

उत्तर– उक्त प्रश्नों के परिप्रेक्ष्य में मैसर्स मेजा ऊर्जा निगम प्रा0लि0 के वरिष्ठ प्रबन्धक (मानव संसाधन विभाग) द्वारा बताया गया कि सामुदायिक विकास का कार्य, आवश्यकता आधारित विश्लेषण रिपोर्ट के आधार पर परियोजना के द्वितीय चरण में किया जायेगा। स्थायी नौकरी के विकल्प के बारे में अवगत कराया गया कि परियोजना में स्थायी नौकरी के विकल्प बहुत कम है, परन्तु संविदा में रखे जाने वाले कर्मचारियों की भर्ती में पीएपी एवं स्थानीय लोगों को उनकी पात्रता एवं योग्यता के आधार पर वरीयता दी जाएगी। उक्त के अतिरिक्त मेजा उर्जा निगम द्वारा आंदोलनकारियों पर कोई मुकदमा हमारे

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संज्ञान में नहीं है, यदि कोई मुकदमा किया गया हो तो उसे संस्था के संज्ञान में में लाया जाय ताकि उस पर समुचित कार्यवाही/निदान कराया जा सके। जन स्वास्थ्य संबंधी समस्याओं के संबंध में बताया गया कि परियोजना के टाउनशिप हास्पिटल में उपलब्ध सुविधाओं पर विस्थापितों को 80 प्रतिशत की छूट प्रदान की जाती है। राख के निस्तारण के संबंध में मैसर्स मेजा ऊर्जा निगम प्रा0लि0 से वरिष्ठ प्रबन्धक, पर्यावरण प्रबन्धन द्वारा अवगत कराया गया कि राख का प्रबन्धन एवं उपयोग पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार द्वारा जारी अधिसूचना दिनॉक 31.12.2021 एवं 30.12.2022 के अनुसार किया जा रहा है। राख का परिवहन तारपौलीन से ढके हुए वाहनों के माध्यम से कराया जा रहा है। हौलेज रोड पर संबंधित परिवहन एजेंसी द्वारा वाटर टैंकर के माध्यम से पानी का छिड़काव नियमित रूप से किया जाता है, जिससे धूल उत्सर्जन की समस्या न हो। निकटवर्ती गांवों में पर्यावरण से संबंधित पैरामीटर्स के अनुश्रवण हेतु आई.आई.टी.आर.,लखनऊ से अनुबन्ध किया गया है तथा मॉनीटरिंग कार्य की जाती है। मॉनीटरिंग के अनुसार पैरामीटर्स का पालन किया जाता है। विगत कई वर्षों में वृहद स्तर पर पौधरोपण कराया गया है तथा पर्यावरण संरक्षण हेतु आगामी वर्षों में भी पौध रोपण कराने जाने की योजना है।

प्रश्न सं0 2– श्री अश्विनी जैन पुत्र श्री रामू जैन, ग्राम–कोड़हार द्वारा प्रस्तावित पावर प्रोजेक्ट परियोजना के संबंध में विचार व्यक्त किया गया कि पावर प्लाण्ट से उड़ने वाली राख की बहुत बड़ी समस्या है। प्लाण्ट के अंदर केवल हरियाली है तथा बाहर रेगिस्तान जैसी स्थिति है। फलदार वृक्ष को लगाना चाहिए। परियोजना द्वारा स्ट्रीट लाईट को एक तरफ कोहड़ार तक और दूसरी लालतारा बाजार तक लगाया जाए। कोहड़ार नगर का सुदृढ़ीकरण कराया जाए। फ्लाई ऐश का समुचित निस्तारण किया जाए तथा रोड डस्ट के नियंत्रण हेतु पानी का छिड़काव होना चाहिए। आवश्यकतानुसार सड़कों का निर्माण कराया जाए। कोहड़ार से रामपुर तक सैकड़ों विद्यालय एवं व्यस्त बाजार है। ऐसी स्थिति में फ्लाई ऐश ले जाने वाली गाडियों को सुबह 10:00 बजे से रात 10:00 बजे तक आवागमन सीमित किया जाना चाहिए इससे ट्रैफिक जाम की समस्या बनी रहती है। एन. टी.पी.सी. द्वारा बनायी गयी ग्राम विकास सलाहकार समिति में जन प्रतिनिधियों को जोड़ा जाना चाहिए। समिति के माध्यम से दिये गये सुझाव के अनुसार कार्य किया जाए तो क्षेत्र के विकास में अधिक मदद मिलेगी।

उत्तर– राख के निस्तारण के संबंध में मैसर्स मेजा ऊर्जा निगम प्रा0लि0 के वरिष्ठ प्रबन्धक (पर्यावरण प्रबन्धन समूह) द्वारा अवगत कराया गया कि राख का प्रबन्धन एवं उपयोग भारत सरकार के पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनॉक 31.12.2021 एवं 30.12.2022 के अनुसार किया जा रहा है। राख का परिवहन तारपौलीन से ढके हुए वाहनों द्वारा किया जा रहा है। हौलेज रोड पर संबंधित परिवहन एजेंसी द्वारा टैंकर के माध्यम से जल का छिड़काव नियमित रूप से किया जाता है। वृक्षारोपण के संबंध में अवगत कराया गया कि मेजा उर्जा निगम ने लगभग 3 लाख से अधिक संख्या में पौधरोपण प्लाण्ट की बाउड्रीवाल के बाहर कराया है। साथ ही मियावाकी पद्धति पर 30000 अदद पौधरोपण प्लाण्ट की बाउड्रीवाल के बाहर किया गया है, जिसमें फलदार वृक्ष भी सम्मिलित हैं।

वरिष्ठ प्रबन्धक (एच.आर.) ने बताया कि ग्राम विकास सलाहकार समिति में हमारी नीति के अनुसार सात प्रभावित गांवों के ग्राम प्रधान सदस्य के रूप में कार्य कर रहे हैं। उक्त समिति के अध्यक्ष मुख्य विकास अधिकारी, प्रयागराज हैं तथा इसके अतिरिक्त खंड विकास अधिकारी एवं खंड शिक्षा अधिकारी भी इसमें सदस्य हैं। ग्राम विकास सलाहकार

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समिति के द्वारा दिए गए सुझावों के अनुसार संबंधित ग्रामों में आवश्यकतानुसार सामुदायिक विकास के कार्य किए जाते हैं।

प्रश्न सं0 3– श्री विमलेश मिश्रा, अध्यक्ष मजदूर संघ, ग्राम–सलैया कला, मेजा ने कहा कि प्लाण्ट के स्थापित होने से क्षेत्र का तापमान बढ़ गया है। क्षेत्र के लोगों को 24 घंटे बिजली उपलब्ध होनी चाहिए। बेरोजगारी की समस्या है। स्थानीय लोगों को रोजगार दिया जाना चाहिए। कोहड़ार से नैनी तक खुली गाड़ियों के आवागमन से धूल की समस्या बनी रहती है तथा पानी का छिड़काव नहीं किया जाता है। स्थानीय लोगों को रोजगार न देकर बाहरी राज्य के लोगों को रोजगार दिया जा रहा है। जो गलत है। ग्राम इसौटा में निर्मित चेकडैम का मरम्मत करायी जाए तथा आसपास के सड़कों की भी मरम्मत की जानी चाहिए। आसपास के गांवों में सिंचाई हेतु लिफ्ट कैनाल की सुविधा मुहैया करायी जाए। उन्होंने कहा कि मेजा उर्जा निगम द्वारा यदि मेरे द्वारा उठाए गए मुद्दों पर यदि ध्यान नहीं दिया गया तो हम आज जनता के साथ 24 घंटे खड़ा रहूँगा।

उत्तरः– मेजा ऊर्जा निगम प्रा0लि0 द्वारा अब तक लगभग 373000 पौधरोपण कराया गया है, जिसमें मियावाकी पद्धति से 30000 पौधों को रोपित किया है, जिसमें फलदार वृक्ष भी शामिल किए गए हैं। मेजा ऊर्जा निगम पर्यावरण संरक्षण के लिए प्रतिबद्ध है, जिसके अन्तर्गत प्रतिवर्ष पौधरोपण किया जाता है। तापमान में बढ़ोत्तरी एक वैश्विक परिघटना है जिसके लिए भारतवर्ष सहित विभिन्न देश प्रयासरत् हैं। क्षेत्र के लोगों को 24 घंटे बिजली उपलब्ध कराने के संबंध में मेजा ऊर्जा निगम द्वारा बताया गया कि मेजा ऊर्जा निगम विद्युत उत्पादन का कार्य किया जाता है, नियमानुसार विद्युत वितरण का कार्य राज्य सरकार का होता है। विद्युत वितरण मेजा ऊर्जा निगम के कार्यक्षेत्र के अन्तर्गत नहीं आता है, अपितु संस्थान द्वारा आसपास के गांव के सार्वजनिक स्थलों पर सौर उर्जा संचालित स्ट्रीट लाईटों एवं सोलर हाई मास्ट लगाया गया है और आगे भी आवश्यकतानुसार लगाया जाता रहेगा। स्थानीय लोगों को रोजगार दिए जाने के संबंध में बताया गया कि वर्तमान परियोजना में लगभग 230 पीएपी तथा लगभग 2000 स्थानीय लोग संविदा पर कार्य कर रहें हैं। आने वाले दिनों में परियोजना की नवनिर्मित तीन इकाईयों के निर्माण के समय पीएपी एवं स्थानीय लोगों को उनकी पात्रता एवं योग्यता के अनुसार संविदा पर नौकरी में वरीयता दी जाएगी। मेजा ऊर्जा निगम द्वारा जो भी सामुदायिक विकास के कार्य किये जाते हैं, उन्हें मेजा ऊर्जा निगम की पुनर्वास एवं पुनर्स्थापन नीति के अनुसार संबंधित ग्राम सभा को हस्तांतरित कर दिया जाता है। उसके पश्चात् उसके रखरखाव की सम्पूर्ण जिम्मेदारी संबंधित ग्राम सभा की होती है। स्टेज–II में सामुदायिक विकास का कार्य आवश्यकता आधारित विश्लेषण रिपोर्ट के आधार पर किया जाएगा।

प्रश्न सं0 4– श्री अनिल शुक्ला, ग्राम–गड़ेवरा प्रधान, मेजा द्वारा मांग किया गया कि श्री सिद्धेश्वर नाथ पहाड़ी महादेव मंदिर में प्रवेश द्वार से मंदिर तक स्ट्रीट लाईट लगायी जाए, मुख्य द्वार का निर्माण किए जाने एवं पहाड़ी महादेव मंदिर के विकास किया जाए तथा मंदिर मे रहने वाले शिवभक्तों के लिए जीवन यापन की व्यवस्था की जाए।

उत्तरः– वरिष्ठ प्रबन्धक, मानव संसाधन विभाग द्वारा अवगत कराया गया कि सामुदायिक विकास का कार्य, आवश्यकता आधारित विश्लेषण रिपोर्ट के आधार पर परियोजना के द्वितीय चरण में किया जायेगा।

प्रश्न सं0 5– श्री शैलेष पुत्र श्री राजकुमार, ग्राम–सलैया कला द्वारा बताया गया कि मेजा उर्जा निगम द्वारा पानी की टंकी का निर्माण किया गया था जो एक महीने में ही ध्वस्त हो गई तथा इसकी पुनः मरम्मत नहीं करायी जा रही है। पहाड़ी क्षेत्र होने के कारण पानी की समस्या रहती है, इसका तत्काल निराकरण किया जाना चाहिए। पानी की आपूर्ति हेतु वैकल्पिक व्यवस्था के रूप में टैंकर के माध्यम से पानी मुहैया कराया जाए तथा पानी की

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टंकी की मरम्मत किया जाए। प्लाण्ट में स्थानीय लोगों को रोजगार उपलब्ध नहीं कराया गया है। गार्ड की भी नौकरी प्लाण्ट में स्थानीय लोगों को नहीं दी गयी है।

उत्तर– वरिष्ठ प्रबन्धक, मानव संसाधन विभाग द्वारा अवगत कराया गया कि मेजा ऊर्जा निगम द्वारा सामुदायिक विकास के कार्य किये जाते हैं, उन्हें मेजा ऊर्जा निगम की पुनर्वास एवं पुनर्स्थापन नीति के अनुसार संबंधित ग्राम सभा को हस्तांतरित कर दिया जाता है।

लोक सुनवाई के अंत में अपने अध्यक्षीय सम्बोधन में श्रीमती पूजा मिश्रा, अपर जिलाधिकारी (प्रशासन) प्रयागराज ने कहा कि उपस्थित जन समूह को परियोजना के बारे विस्तृत जारी दे दी गयी है। आगे कहा कि जो भी समस्या एवं सुझाव प्राप्त हुए है, उनका एन.टी.पी.सी. के उच्च पदाधिकारियों एवं माननीय विधायक जी, विधान सभा, कोरांव, प्रयागराज के साथ विचार–विमर्श कर समाधान निकालने के पूरा प्रयास किया जाएगा। क्षेत्र के विकास में एन.टी.पी.सी. एवं स्थानीय नागरिकों का सहयोग अपेक्षित है। किसी भी परियोजना के लगने से उस क्षेत्र का विकास होता है तथा विकास हुआ भी है। यह लोक सुनवाई मुख्य रूप से परियोजना के पर्यावरणीय दृष्टिकोण से की जा रही है। परियोजना के कियान्वयन से पर्यावरण पर होने वाले नकारात्मक प्रभाव को कम करने के लिए योजना बनायी गयी है, जिससे भूगर्भ जल एवं प्रदूषण की समस्या न हो। प्रस्तुतीकरण के दौरान आम जनता द्वारा बतायी गयी अधिकांश समस्याओं के समुचित निदान हेतु उत्तर दे दिया गया है तथा परियोजना के कियान्वयन से पर्यावरण में होने वाले नकारात्मक प्रभाव को कम करने हेतु इकाई द्वारा समुचित प्रयास किया जाएगा। आम जनता द्वारा बतायी गयी समस्याओं को नोट कर लिया गया है तथा आम जनता एवं ग्राम प्रधानों के माध्यम से भी ज्ञापन प्राप्त हुआ है, जिसे अग्रेतर विचार हेतु संबंधित को प्रेषित कर दिया जाएगा।

अंत में धन्यवाद प्रस्ताव के साथ अध्यक्ष महोदय की अनुमति से लोक सुनवाई की कार्यवाही का समापन किया गया।

21/6/24

(डॉ0 एस.सी. शुक्ला)
क्षेत्रीय अधिकारी
उ0प्र0 प्रदूषण नियंत्रण बोर्ड,
प्रयागराज

21-6-24

(पूजा मिश्रा)
अपर जिलाधिकारी (प्रशासन)
प्रयागराज

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//विरण एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार द्वारा पर्यावरण (संरक्षण) अधिनियम 1986 के अन्तर्गत जारी अधिसूचना संख्या एस0ओ0–1533 दिनांक 14.09.2006 यथासंशोधित एस0 ओ0–3067 (ई) दिनांक 01.12.2009 के अन्तर्गत **Expansion of Meja Coal Based Thermal Power Project from 1320 MW (2×660) to 3720 MW (with 3×800 MW- Stage II) at Village Kohdar, Mai Khurd & Patai Dandi, Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited** परियोजना की लोक सुनवाई के दौरान प्रतिभागियों की उपस्थिति :–

स्थल–सलईयाकला, कम्यूनिटी सेंटर,
तहसील–मेजा, जनपद–प्रयागराज, उ0प्र0।
दिनांक 24.06.2024 समय: मध्यान्ह 12:00 बजे

क0सं0	नाम	पता	हस्ताक्षर
1.	पूजा मिश्रा	अपर जिलाधिकारी (प्रशासन), प्रयागराज	
2.	डॉ. एस. बी. शुक्ला क्षेत्रीय अधिकारी	उ0प्र0 प्रदूषण नियंत्रण बोर्ड प्रयागराज	
3.	कौशल कुमार, सहा. पर्या. अभियंता	उ0प्र0 प्रदूषण नियंत्रण बोर्ड प्रयागराज	
4.	Avijit Chatterjee CGM (Tech Services)	MUNPL, Meja	
5.	आनन्द प्रकाश अपर महाप्रबंधक (ई0 परियोजना)	MUNPL, Meja	
6.	ई. अजय कुमार AGM (IT)	MUNPL, Meja	
7.	[illegible]	MUNPL, Meja	
8.	D C Sharma	MUNPL Meja	
9.	Anil Kumar	MUNPL Meja	
10.	K.L. Manjo	CC. EOC	
11.	Nitish Gupta	Meja-NTPC	

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12.	Amit Arora	MUNPL, MEJA	
13.	Govind Bharti	MUNPL, Meja	
14.	Pankaj		
15.	R. Ranjan		
16.	Harilal Mishra		
17.			
18.			
19.	Awadhesh Kum		
20.	Harish chandra Tripathi		
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29.	Anup Tiwari		
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31.	Rakesh Kohjal	Rams Global Pvt Ltd Delhi consultant	
32.	Sanjeet Srivastava	RMS Global Consultant	
33.	G.K. Mishra	E RMS Delhi	
34.	A.N. Shukla	E & MS Delhi	
35.	Anjali Verma	CC-EOC, Noida	
36.	[illegible]	[illegible]	
37.	[illegible]	[illegible]	
38.	[illegible]	[illegible]	
39.	[illegible]	[illegible]	
40.	[illegible]	[illegible]	
41.	[illegible]	[illegible]	
42.	[illegible]	[illegible]	
43.	[illegible]	[illegible]	
44.	Bharat	[illegible]	Bharat
45.	Vikash Kushwaha	Mirzapur.	
46.	Santosh Kumar	Mamchi mirja	
47.	[illegible]	Near [illegible]	
48.	[illegible]	[illegible]	
49.	[illegible]	[illegible]	

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50.	[illegible]	[illegible]	
51.	Gayatree vishwakarma	Arrogyam Hospital	Gayatry
52.	Neha	Arrogyam Hospital	Neha
53.	Anubhuti Shukla	Vishwajyam Kendra	Anu
54.	[illegible]	[illegible]	[illegible]
55.	[illegible]	[illegible]	[illegible]
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क्षेत्रीय कार्यालय, उत्तर प्रदेश
प्रदूषण नियंत्रण बोर्ड फोन-0532-2569727
आवास विकास परिषद कालोनी, सेक्टर-10, योजना संख्या-3, झूँसी, प्रयागराज-221506

जन-सूचना

पर्यावरणीय स्वीकृति हेतु लोक सुनवाई के लिये आम सूचना

सर्व साधारण को सूचित किया जाता है कि तहसील-मेजा जनपद-प्रयागराज में निम्न् परियोजनाओं की पर्यावरणीय स्वीकृति की लोक सुनवाई हेतु परियोजना प्रस्तावकों द्वारा राज्य बोर्ड में आवेदन किया गया हैः-

क्र. सं.	परियोजना	लोक सुनवाई हेतु प्रस्तावित तिथि, समय एवं स्थल
1	2	3
1	Expansion of Meja Coal Based Thermal Power Project from 1320 MW (2x660) to 3720 MW (with 3x800 MW-Stage II) at Village Kohdar, Mai Khurd & Patai Dandi, Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited परियोजना	दिनांक 24.06.2024 को **मध्यान्ह 12.00** बजे। **स्थल-** सलईयाकला, कम्यूनिटी सेंटर, तहसील-मेजा, जनपद- प्रयागराज, उ0प्र0।
2	मेसर्स श्रीमती मोहिनी देवी पत्नी श्री शंकर दयाल सिंह के पक्ष में स्वीकृत गाटा नं0-584 (खण्ड नं0-8) ग्राम-पिपरावां, तहसील-मेजा, जनपद-प्रयागराज, उ0प्र0। **(क्षेत्रफल 3.2374 हे0) (80,000.00 घन मी0/वर्ष) (गिट्टी, पत्थर एवं बोल्डर खनिज परियोजना)**	दिनांक **02.07.2024** को **मध्यान्ह 12.00** बजे। **स्थल-** तहसील सभागार, मेजा जनपद- प्रयागराज, उ0प्र0।

प्रस्ताव पर पर्यावरण एवं वन मंत्रालय भारत सरकार की अधिसूचना संख्या-एस0ओ0 1533 दिनांक 14.09.2006 यथा संशोधित एस0ओ0-3067 (ई) दिनांक 01.12.2009 यथा संशोधित एस0ओ0-2269 (अ) दिनांक 01.07.2016 के अन्तर्गत लोक सुनवाई की जानी है। लोक सुनवाई की सूचना के लिए 30 दिन पूर्व नोटिस दिया जाना आवश्यक है, जिससे जनसाधारण से आपत्तियॉ/सुझाव इत्यादि आमंत्रित किये जा सके। उपरोक्त परियोजना के प्रस्ताव से संबंधित अभिलेख निम्नलिखित कार्यालयों में उपलब्ध हैः-

1- कार्यालय जिलाधिकारी, प्रयागराज।
2- उपायुक्त, उद्योग एवं उद्यम प्रोत्साहन केन्द्र, प्रयागराज।
3- कार्यालय जिला पंचायत, प्रयागराज।
4- जिला खनिज विभाग, प्रयागराज।
5- क्षेत्रीय कार्यालय, मध्य क्षेत्र वन एवं पर्यावरण मंत्रालय, भारत सरकार, पंचम तल, केन्द्रीय भवन, सेक्टर- एच, अलीगंज, लखनऊ।
6- क्षेत्रीय कार्यालय, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, झूँसी, प्रयागराज।
7- उ0प्र0 प्रदूषण नियंत्रण बोर्ड, पर्यावरण भवन, गोमती नगर, लखनऊ।

उक्त परियोजनाओं के पर्यावरणीय स्वीकृति के लिये जनपद प्रयागराज में तालिका के कॉलम 3 में अंकित तिथि, स्थल एवं समय पर लोक सुनवाई की कार्यवाही प्रस्तावित की गयी है। अतः उपरोक्त कार्यालयों में प्रकाशन की तिथि से 30 दिन के अंदर लिखित रूप से अथवा लोक सुनवाई के दौरान उपस्थित होकर अपनी आपत्तियॉ/सुझाव/ विचार प्रस्तुत कर सकते है।

संदर्भ सं0 G00185/लोक सुनवाई/2024 दिनांक 21.05.2024

क्षेत्रीय अधिकारी

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क्षेत्रीय कार्यालय, उत्तर प्रदेश
प्रदूषण नियंत्रण बोर्ड फोन-0532-2569727
आवास विकास परिषद कालोनी, सेक्टर-10, योजना संख्या-3, झूँसी, प्रयागराज-221506

जन-सूचना

पर्यावरणीय स्वीकृति हेतु लोक सुनवाई के लिये आम सूचना

सर्व साधारण को सूचित किया जाता है कि तहसील-मेजा जनपद-प्रयागराज में निम्न् परियोजनाओं की पर्यावरणीय स्वीकृति की लोक सुनवाई हेतु परियोजना प्रस्तावकों द्वारा राज्य बोर्ड में आवेदन किया गया है:-

क्र. सं.	परियोजना	लोक सुनवाई हेतु प्रस्तावित तिथि, समय एवं स्थल
1	2	3
1	Expansion of Meja Coal Based Thermal Power Project from 1320 MW (2x660) to 3720 MW (with 3x800 MW-Stage II) at Village Kohdar, Mai Khurd & Patai Dandi, Tehsil Meja, District Prayagraj, Uttar Pradesh by M/s Meja Urja Nigam Private Limited परियोजना	दिनांक **24.06.2024** को **मध्यान्ह 12.00** बजे। **स्थल**- सलईयाकला, कम्यूनिटी सेंटर, तहसील-मेजा, जनपद- प्रयागराज, उ0प्र0।
2	मेसर्स श्रीमती मोहिनी देवी पत्नी श्री शंकर दयाल सिंह के पक्ष में स्वीकृत गाटा नं0-584 (खण्ड नं0-8) ग्राम-पिपरावां, तहसील-मेजा, जनपद-प्रयागराज, उ0प्र0। **(क्षेत्रफल 3.2374 हे0) (80,000.00 घन मी0/वर्ष)** **(गिट्टी, पत्थर एवं बोल्डर खनिज परियोजना)**	दिनांक **02.07.2024** को **मध्यान्ह 12.00** बजे। **स्थल**- तहसील सभागार, मेजा जनपद- प्रयागराज, उ0प्र0।

प्रस्ताव पर पर्यावरण एवं वन मंत्रालय भारत सरकार की अधिसूचना संख्या-एस0ओ0 1533 दिनांक 14.09.2006 यथा संशोधित एस0ओ0-3067 (ई) दिनांक 01.12.2009 यथा संशोधित एस0ओ0-2269 (अ) दिनांक 01.07.2016 के अन्तर्गत लोक सुनवाई की जानी है। लोक सुनवाई की सूचना के लिए 30 दिन पूर्व नोटिस दिया जाना आवश्यक है, जिससे जनसाधारण से आपत्तियॉ/सुझाव इत्यादि आमंत्रित किये जा सके। उपरोक्त परियोजना के प्रस्ताव से संबंधित अभिलेख निम्नलिखित कार्यालयों में उपलब्ध है:-

1- कार्यालय जिलाधिकारी, प्रयागराज।
2- उपायुक्त, उद्योग एवं उद्यम प्रोत्साहन केन्द्र, प्रयागराज।
3- कार्यालय जिला पंचायत, प्रयागराज।
4- जिला खनिज विभाग, प्रयागराज।
5- क्षेत्रीय कार्यालय, मध्य क्षेत्र वन एवं पर्यावरण मंत्रालय, भारत सरकार, पंचम तल, केन्द्रीय भवन, सेक्टर- एच, अलीगंज, लखनऊ।
6- क्षेत्रीय कार्यालय, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, झूँसी, प्रयागराज।
7- उ0प्र0 प्रदूषण नियंत्रण बोर्ड, पर्यावरण भवन, गोमती नगर, लखनऊ।

उक्त परियोजनाओं के पर्यावरणीय स्वीकृति के लिये जनपद प्रयागराज में तालिका के कॉलम 3 में अंकित तिथि, स्थल एवं समय पर लोक सुनवाई की कार्यवाही प्रस्तावित की गयी है। अतः उपरोक्त कार्यालयों में प्रकाशन की तिथि से 30 दिन के अंदर लिखित रूप से अथवा लोक सुनवाई के दौरान उपस्थित होकर अपनी आपत्तियॉ/सुझाव/ विचार प्रस्तुत कर सकते हैं।

संदर्भ सं0 G00185/लोक सुनवाई/2024 दिनांक 21.05.2024

क्षेत्रीय अधिकारी

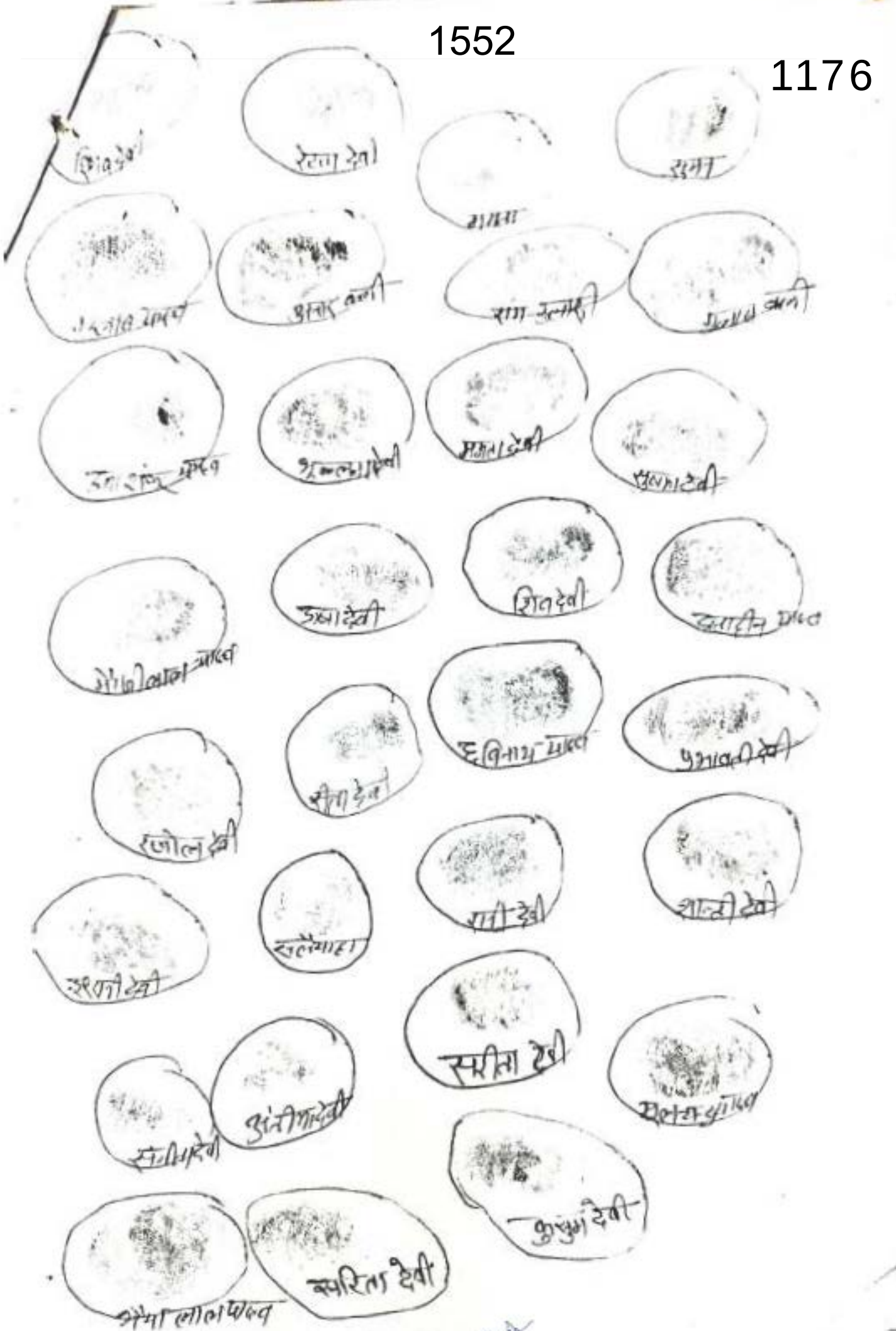
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रेखा देवी
सुमन
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सुनीता देवी
सुनीता देवी
सुनी

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श्री सिद्धेश्वर नाथ पहाड़ी महादेव सेवा संस्थान
मेजा (गहेवरा, मटौली, मनोली) प्रयागराज
(उ.प्र. सरकार द्वारा रजिस्टर्ड 2023)
संरक्षक - गंगा प्रसाद मिश्र - 7307515414
अध्यक्ष - निरानन्द उपाध्याय - 9838437160
मंत्री - अविन कुमार शुक्ल (पक्कर) - 8018075380
:-कार्यालय:-
पहाड़ी परिसर एवं मन्दिर मन्दिर
गहेवरा, कोरहार, मेजा - प्रयागराज

पत्रांक .....

दिनांक 26/6/24

सेवा में,

श्रीमान प्रधानाध्यापक
मेजा उच्चतर विद्यालय
मेजा प्रयागराज

महोदय,

अवगत कराना है कि हमारी संस्था द्वारा पहाड़ी महादेव में लगातार सेवा कार्य किये जा रहे हैं। महोदय मनोली प्रवेश द्वार से पहाड़ी महादेव की लंबी यात्रा होती है जिसमें लगभग हजार 800 मीटर है। मैं चाहता हूँ कि पहाड़ी महादेव आने वाले श्रद्धालुओं के विश्राम हेतु निम्नलिखित सुविधाओं में से एक हो। अतः कार्य करवाया जाना चाहिए।

1- मनोली प्रवेश द्वार से पहाड़ी महादेव के प्रांगण तक 5 स्ट्रीट लाइट
(2) पहाड़ी महादेव के प्रांगण में एक प्रवेश द्वार
(3) प्रांगण में एक हैण्ड पंप
(4) 4-नग हाई मास्क.
(5) 50 लोगों के विश्रामकों के जीवन यापन की व्यवस्था। जो सीढ़ियों पर रात्रि में रुके रहते हैं
(6) महीने में एक दिन पहाड़ी महादेव पर स्वच्छता हेतु मेजा हरित सुन्दरकाण्ड का पाठ कराया जाना

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वर्धमान सेवा समिति

अध्यक्ष:-
रामू जैन (सेवानिवृत प्रधानाध्यापक)

सचिव:-
अश्विनी जैन
(एडवोकेट)

पत्रांक. 03

दिनांक 24/6/2024

सेवा में,

महाप्रबंधक / ग्राम विकास अधिकारी (समिति
मेजा कचरी / जिला पंचायत - प्रेम नगर

महोदय जी,

(N.G.O) के रूप में हर्ष है कि वर्धमान सेवा समिति कोहड़ा विगत कई वर्षों से सामाजिक कार्य क्षेत्र में कार्यरत है।

उक्त समिति को सफल एवं ओर अधिक सामाजिक कार्यों में सहयोग हेतु महति कृपा होगी।

धन्यवाद

कोहड़ार , मेजा , प्रयागराज, उत्तर प्रदेश -212301

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सेवामें श्री मान पुलिस अधिकारी महोदय
मेजा थाना मिर्जापुर
प्रयागराज

विषय → बोलेरा पर पी.एम.जी. की जगह अन्य आदमियों भरी करने के सम्बन्ध में :—

महोदय जी, सविनय निवेदन है हम प्रार्थीगण, हरिवंश सिंह व बीरेंद्र सिंह आदि को नये ठेकेदार के द्वारा बोलेरा पी०एम०जी० को हटाकर बाहरी आदमी रख लिया है और हम लोगों को निकाल दिया है, जबकि हम लोग परियोजना प्रभावित गरीब व्यक्ति है बेरोजगार हो गये है अतः श्रीमान जी से करबद्ध प्रार्थना है कि हम प्रभावित व्यक्तियों को पुनः नौकरी दिलाने की कृपा करें हम आपके आजीवन आभारी रहेंगे।

धन्यवाद।

प्रार्थी गण :—

1. बृजेश सिंह S/o बलवंत सिंह
2. बीरेन्द्र सिंह S/o सरदीन सिंह
3. पंकज सिंह S/o रामसुन्दर सिंह

दि. ग्रा - सर्कुलर, मेजा
प्रयागराज

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सेवामें,

श्रीमान मेगा अर्थ सिमेंट प्रा० लिमिटेड

कोहड़ापार सेक्टर- पुरैना (उ०प्र०)

विषय:- सार्वजनिक शौचालय का निर्माण कार्य कराने के संबंध में।

महोदय,

आपको ज्ञात कराना है कि ग्राम पं० - सलैयासुई से दशौली मोड़ सड़क तक आने जाने में लोगों को बहुत बड़ी समस्या आती है। दोनों 2 तरफों को पढ़ने के लिए सरकारें होती हैं जिनमें से विद्यालय, कालेज सलैया सुई में स्थित हैं बच्चों को आने जाने में बहुत दिक्कत होती है इसलिए सार्वजनिक शौचालय को जल्द ही बनवाना आवश्यक है।

अतः श्रीमान जी से निवेदन है कि उक्त विषय पर गम्भीरता से लेकर शौचालय का निर्माण कराने की कृपा करें।

धन्यवाद

दिनांक 24/6/2024

VIKASH K.V

लालताप्रसाद

रामजीवन

अम्बिकाप्रसाद

भोलानाथ

ओमशरोगति

विश्वकांत

मनोजकुमार

ग्रामसभा ग्रामीणजन

ओमलोचन पांडेय

ग्राम-सलैयासुई

9936973558

ओमलोचन कुमार दिवाकर

ग्रामसभा उपाध्यक्ष

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ग्राम पंचायत झड़ियाही

विकास खण्ड - मेजा, जनपद- प्रयागराज

राजेश कुमार निषाद (ग्राम प्रधान)
: 9792586308 : 9651525416
निवास : ग्राम- झड़ियाही, पो0- सिरसौंद,
थाना-सीरी, मेजा, प्रयागराज

पत्र सं0...५५/६... दिनांक...24/06/2024...

सेवा में,
श्रीमान पीठासीन अधिकारी
मेजा ऊर्जा निगम स्टेज II
सामुदायिक भवन सनैपा कलाँ

विषय- मेजा ऊर्जा निगम परियोजना के स्टेज II के विस्तार हेतु सहमति पत्र

महोदय,

मेजा ऊर्जा निगम प्रा0लि0 कोहरा द्वारा जो बिजली का उत्पादन किया जा रहा है उस से गाँव, शहर ही नहीं देश को भी उत्पादन की बिजली की आपूर्ति हो रही है। इस संस्थान द्वारा हमारे गाँव में जैसे पेयजल योजना, शैक्षिक स्वास्थ्य सुविधाओं में कार्य उपलब्धि कराने जन कल्याण कारी कार्य भी किये गये हैं। मेजा ऊर्जा निगम स्टेज II के विस्तार से और अधिक बिजली की आपूर्ति होगी और मेरे गाँव का और अधिक विकास होगा इसलिए स्टेज II का विस्तार किया जाना आवश्यक है। अतः स्टेज II के विस्तार हेतु मैं और मेरा ग्राम सभा अपनी सहमति देता हूँ। इस पर मुझे कोई आपत्ति नहीं है।

ग्राम प्रधान हस्ताक्षरित
ग्राम झड़ियाही

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सेवा में,

उपजिलाधिकारी मेजा प्रयागराज उ0प्र0।

विषयः–**N.T.P.C.** मेजा के प्रदूषण विषयक:–

महोदय जी,

अवगत होना चाहे कि **N.T.P.C.** मेजा द्वारा इसौटा, पताई डांड़ी, मई कलां, मई खुर्द, कोहड़ार, सलैया कलां, सलैया खुर्द की जमीन अधिगृहीत की गई है। किसानो की जमीन अधिग्रहण के समय बिजली, पानी, सड़क एवं किसानो को रोजगार देने हेतु वादा किया गया था किन्तु कुछ भी सुविधा न देकर कोयले का प्रदूषण क्षेत्र में उड़ रहा है। फसलो के नुकसान के साथ आम जन मानस का जीना मुहाल है। सांस लेते समय प्रदूषण फेफड़े तक पहुँच रहा है। जनहित की गम्भीर समस्या को ध्यान में रखते हुए प्रकरण का निस्तारण तत्काल करवायें।

अतः निवेदन है कि मुक्त बिजली, पानी, सिचाई, सड़क, स्कूल, अस्पताल एवं रोजगार की सुविधा देने के साथ प्रदूषण पर तुरन्त नियत्रंण कराये जिससे फसलो का नुकसान रोका जा सकें और लोग अपनी पूरी जिन्दगी जी सकें।

दिनांकः–

प्रतिलिपिः–

1.मुख्य कार्यकारी अधिकारी **N.T.P.C.** मेजा प्रयागराज।

2.जिलाधिकारी प्रयागराज।

3.माननीय मुख्य मंत्री उ0प्र0।

4.पर्यावरण मंत्रालय भारत सरकार नई दिल्ली।

प्रार्थीगण

S/O

मो॰ 9839788987

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ग्राम पंचायत गड़ेवरा

गड़ेवरा, कोहड़ार, मेजा प्रयागराज

जिला प्रभारी
प्रधान संगठन

ग्राम प्रधान
अनिल कुमार शुक्ला
एस०ए०(अंग्रेजी, संस्कृत), बी०एड०
मो0- 9918975390

पत्रांक.....

दिनांक.....

सेवा में

श्रीमान खण्डधर्म
मेजा ऊर्जा निगम प्रयागराज

महोदय,

अवगत कराना चाहता कि आपके ऊर्जा निगम से लगा हुआ गाँव गड़ेवरा है जो अतिरिक्त पिछड़ा गाँव है अतः आपके कृपा दृष्टि की आवश्यकता है।

(1) 10 नग हैलोजन पम्प

(2) 5 नग हाई मास्क

(3) 15 नग स्ट्रीट लाइट

(4) आदिवासी एवं हरिजन बस्ती को जोड़ने के लिए 400 मीटर इन्टरलाकिंग.

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ग्राम पंचायत सलैया कला

विकास खण्ड मेजा, जनपद-इलाहाबाद

देवी शंकर यादव
(ग्राम प्रधान)
मो0- 7897789194

निवास स्थान
सलैया कला (भगवानदीन का पुरा)
मेजा, इलाहाबाद

पत्रांक.....24/6.....

दिनांक...24/06/024.....

सेवा में,

श्रीमान् मैनेजर/एरिया मैनेजर महोदय
जनपद-प्रयागराज उ0प्र0।

विषय:- नई बस्ती (विस्थापित परिवार) में हैण्डपम्प रिबोर व नये हैण्डपम्प की ——— के ——— के ——— के ——— के ———, स्थापना:-

महोदय

आपको सादर अवगत कराना चाहता हूँ कि ग्राम पं. सलैया कला (नई बस्ती) विस्थापित परिवार में हैण्डपम्प रिबोर व नये हैण्डपम्पों का विवरण निम्न प्रकार से है:-

नये हैण्डपम्प:-

① लाल बहादुर यादव के घर के सामने हैण्डपम्प कार्य।
② राम बाबू यादव (")
③ रामसरोमणि यादव (")
④ बालगोविन्द यादव (")
⑤ इन्द्रजीत यादव (")
⑥ नन्दकुमार यादव (")
⑦ मूल-चन्द यादव (")
⑧ गोरेलाल यादव (")

हैण्डपम्प रिबोर:-

① मौजी लाल यादव
② उमा शंकर यादव
③ दुबरी लाल यादव

भवदीय:-
देवी शंकर यादव
(प्रधान)
ग्रा. पं. सलैया कला
मेजा, प्रयागराज
mob 9695351152

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ग्राम पंचायत सलैया कला

विकास खण्ड मेजा, जनपद-इलाहाबाद

देवी शंकर यादव
(ग्राम प्रधान)
मो0- 7897789194

निवास स्थान
सलैया कला (भगवानदीन का पुरा)
मेजा, इलाहाबाद

पत्रांक.....2416.....

दिनांक 24/06/024.....

सेवा में

श्रीमान मेजा अंतर्गत खण्ड पंचायत/एडीओ महोदय
जनपद - प्रयागराज उ0 प्र0।

विषय :- विद्युतीकृत परिवर्त में सड़क नालियों का मरम्मत कार्य के संबंध में।

महोदय

आपको सादर अवगत कराना चाहता हूँ कि ग्राम पं. सलैया कला (नई व्यवस्था) विद्युतीकृत परिवर्त में सड़क नालियों का मरम्मत कार्य अत्यन्त आवश्यक है जिनका विवरण निम्न प्रकार से है-

1. सड़कों का मरम्मत कार्य।
2. नालियों का मरम्मत कार्य।
3. जल निगम टंकी में सोलर पैनल व मरम्मत कार्य।

अतः श्रीमान जी से अपेक्षा है कि उक्त विषय पर विचार करते हुए कार्य कराने की महान कृपा करें।

24/6/024

भवदीय,

ई0 ओ0 गार्ड (ग्राम प्रधान)
पंचा- सलैया कला
मेजा - प्रयागराज
मो0 9695351157

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ग्राम पंचायत सलैया कला

विकास खण्ड मेजा, जनपद-इलाहाबाद

देवी शंकर यादव
(ग्राम प्रधान)
मो0- 7897789194

निवास स्थान
सलैया कला (भगवानदीन का पूरा)
मेजा, इलाहाबाद

पत्रांक.....24/6.....

दिनांक...24/01/024.....

सेवा में,
श्रीमान मैनेजर इण्डिया सिमेण्ट प्रा० लिमिटेड
कंसारपार मेजा - प्रयागराज उ० प्र०।

विषयः- कोटिया (शंकर जी का मंदिर) का सौन्दरीकरण व बाउन्ड्रीवाल के संबंध में:-

महोदय,

आपको सादर अवगत कराना चाहता हूँ कि ग्राम पं - सलैया कला (नई बस्ती) में कोटिया (शंकर जी का मंदिर) में सौन्दरीकरण व बाउन्ड्रीवाल कराया जाना अत्यन्त जरूरी है। यह एक सार्वजनिक मंदिर है यहां पर मेले का हमेशा पर्व मनाया जाता है इसलिए उक्त मंदिर का जीर्णोद्धार कराना अत्यन्त आवश्यक है।

अतः श्रीमान जी से निवेदन है कि उक्त पर विचार करते हुए कार्य को कराने की महान कृपा करें।

भवदीयः-

24/01/024 दीपक यादव
पता - सलैया कला
मेजा - प्रयागराज
उ०प्र०।

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ग्राम पंचायत सलैया कला

विकास खण्ड मेजा, जनपद-इलाहाबाद

देवी शंकर यादव
(ग्राम प्रधान)
मो0- 7897789194

निवास स्थान
सलैया कला (भगवानदीन का पूरा)
मेजा, इलाहाबाद

पत्रांक.....24/6.....

दिनांक 26/05/024.....

सेवा में,

श्रीमान पंचायत अधिकारी
मेंजा अर्का निगम स्टेज-II के लिए अभिकरण स्वीकृति
हेतु लोक सुनवाई :-

स्थल - सामुदायिक भवन - सलैयाकला तह. मेंजा जिला-प्रयागराज।

विषय :- मेंजा अर्का निगम पावरहाउस स्टेज-II विस्तार हेतु सहमति पत्र :-

मेंजा अर्का निगम जगलिसैंड कोहार हमारे गांव में विद्युत का उत्पादन किया जा रहा है जिसके बदले में अंतर्गत मे पर्याप्त बिजली की आपूर्ति मिल रही है। हमारे ग्राम सभा के लोग इस परियोजना में सहयोग करते हैं और गांव के विकास में से सलैयाकला इन्टरलॉकिंग वाला तालाब, आरसी का सड़क बिना गया है। बहुत सराहनीय है। मेंजा अर्का निगम स्टेज-II के विस्तार से मेरे ग्राम सभा को और अधिक लाभ होगा।

अतः मेंजा अर्का निगम प्रा.लि. स्टेज-II के विस्तार से प्रभावित बिजली देना पैसा एवं रोजगार के मिलेगी इसके लिए ग्राम सभा-सलैयाकला स्टेज-II के विस्तार से सहमत है।

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ग्राम पंचायत सलैया कला

विकास खण्ड मेजा, जनपद-इलाहाबाद

देवी शंकर यादव
(ग्राम प्रधान)
मो- 7897789194

निवास स्थान
सलैया कला (भगवानदीन का पुरा)
मेजा, इलाहाबाद

पत्रांक....24/6.....

दिनांक...24/06/2024...

सेवा में,
श्रीमान मैनेजर अर्जा निगम प्रा० लिमिटेड/एन्ड्रेलमेंट
कोहड़ारकर मेजा - प्रयागराज उ०प्र०)

विषय :- ग्राम पं- सलैया कला (नई बस्ती) विस्थापित परिवार में व्यक्तिगत मांग पत्र :-

महोदय,

आपको सादर अवगत कराना चाहता हूँ कि ग्राम पं- सलैया कला (नई बस्ती) विस्थापित परिवार में व्यक्तिगत मांग पत्र निम्न प्रकार से हैं-

1. सामुदायिक स्वास्थ्य केन्द्र (हास्पिटल) की स्थापना
2. गर्ल्स डिग्री कालेज की स्थापना
3. आई०टी०आई० (प्रशिक्षण) करने वाले व्यक्तियों को रोजगार
4. विस्थापित परिवार को एक-एक घर को नौकरी
5. सुरक्षा गार्ड की नौकरी
6. किसानो का मुवावजा बकाया देवे।

अतः श्रीमान जी से निवेदन हैं कि उक्त विषय पर विन्दु करते हुए कार्य कराने की महान कृपा करें।

दिनांक 24/06/24

भवदीय
डी० शंकर यादव (प्रधान)
ग्राम - सलैयाकला
मेजा - प्रयागराज
mob. 9695351157

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ग्राम पंचायत मईकला

सुनीता सिंह पत्नी पुष्पराज सिंह
ग्राम प्रधान, मईकला
फोन 7355942106, 9838531394

कार्यालय/निवास :
गढ़ चुर्वा, पो० इसौटा
ग्राम मैजा, जनपद प्रयागराज-212301

पत्रांक : 6/24 Date : 24/6/24

सेवा में

श्री मान पीठासीन अधिकारी
मेजा ऊर्जा निगम सेक्टर 22 के लिये पर्यावरणीय स्वीकृति
हेतु लोक सुनवाई स्थल सामुदायिक भवन सलैया कला
— तहसील मेजा जिला प्रयागराज उत्तर प्रदेश।

विषय - मेजा ऊर्जा निगम परियोजना के सेक्टर 22 के
विस्तार हेतु सहमती पत्र।

मेजा ऊर्जा निगम प्रा. लि. कोहार के द्वारा बिजली बनने से हमारे क्षेत्र को अथवा पूरे भारत वर्ष को फायदा है, क्योंकि वर्तमान समय मे बिजली का होना बहुत जरूरी है बिजली के द्वारा ही कुल व्यवस्थाये जैसा सिंचाई इत्यादि का कार्य किया जा सकता है इसलिये मेजा ऊर्जा निगम सेक्टर 22 का विस्तार किया जाना बहुत महत्वपूर्ण है।
मेजा ऊर्जा निगम सेक्टर 22 के विस्तार है मैं ग्राम प्रधान व हमारे ग्रामवासी इस कार्य से पूरी सहमत है इस विस्तार से मेरे गाँव का पहले से अधिक विकास एवं रोजगार मे भी वृद्धि होगी।

सुनीता सिंह
ग्राम पंचायत मईकला, मेजा, प्रयागराज

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ग्राम पंचायत मईकला

सुनीता सिंह पत्नी पुष्पराज सिंह
ग्राम प्रधान, मईकला
फोन 7355942106, 9838531394

कार्यालय/निवास :
मई खुर्द, पो० इलौटा
थाना मेजा, जनपद प्रयागराज-212301

क्रमांक : मेमो

दिनांक : 24/4/24

सेवा मे

श्रीमान पीठासीन अधिकारी
मेजा ऊर्जा निगम स्टेज ०२ के लिये पर्यावरणीय हेतु लोक सुनवाई
स्थल- समुदायिक भवन सलैया कला तहसील मेजा प्रयागराज

महोदय्

आपको अवगत कराना है । कि हमारा ग्राम पंचायत मई कला आपके परियोजना प्रभावित ग्राम पंचायत है जो कि काफी पिछड़ा क्षेत्र है इसलिये विकास कार्य कराये जाने हेतु निम्न कार्य व स्थल इस प्रकार है

१- लिफ्ट कैनाल पम्प जिससे मई कला, मई खुर्द, पताई दाड़ी, इसौटा, शाहपुर कला कोहड़ार घाट,के किसानो के खेत की सिंचाई की जा सके।
२- मई कला व मई खुर्द टौंस नदी पर पक्का स्नान घाट बनाया जाय।
३- ग्राम पंचायत मई कला मे १२०० मी० इन्टर लाकिंक सड़क व नाली कार्य।
४- ग्राम पंचायत मई कला मे १५ नग हैण्डपम्प लगाया जाय।
५- ग्राम पंचायत मई कला मे ३० नग सोलर लाइट लगाया जाय।
६- ग्राम पंचायत मई कला मे पंचायत भवन व प्राइमरी स्कुलो मे टाइल्स व इन्फ्रास्ट्रक्चर किया जाय।
७-ग्राम पंचायत मई कला मे गौसाला मे बडा गेट व स्क्रू बाउन्ड्री बाल बनाया जाय।
८-ग्राम पंचायत मई कला मे लघु पेय जल योजना ०५ नग टंकी लगाया जाय।
९-ग्राम पंचायत मई कला मे ०५ सोलर हाईमास्क लगाया जाये
१०- ग्राम पंचायत मई कला मे गौसाला मे हाईमास्क व सोलर पम्प लगाया जाय।
११-ग्राम पंचायत मई कला मे गौसाला मे ०२ नग चरही सेड़ बनाया जाय।
१२-ग्राम पंचायत मई कला से झड़ियाही तक सड़क के बगल वृक्षारोपण किया जाय।
१३-ग्राम पंचायत मई कला मे कम्बल व मच्छरदानी वितरण किया जाय।
१४-ग्राम पंचायत मई कला मे समुदायिक भवन निर्माण किया जाय।
१५-परियोजना मे २५% परियोजना प्रभावित ग्रामो के मजदूर रखे जाय।
१६-ग्राम पंचायत मई कला मे फल दार वृक्ष किसानो को दिया जाए

ग्राम पंचायत - मईकला
प्रधान-सुनीता सिंह
दिनांक 24/4/24
विकास - मेजा, प्रयागराज

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ग्राम पंचायत बिजौरा

विकास खण्ड- उरुवा, जनपद-प्रयागराज

दशरथ निषाद
"प्रधान"

निवास-बिजौरा उरुवा
मेजा-प्रयागराज
मोबाइल नं0-9793390176

पत्रांक .....7/24.....

दिनांक 22/06/2024

सेवा में-
श्रीमान पीठासीन अधिकारी
मेजा, ऊर्जा निगम स्टेज-II के लिए पर्यावरणीय स्वीकृति
हेतु लोक सुनवाई
स्थल- सामुदायिक भवन, सलैया कला, तहसील- मेजा
जिला- प्रयागराज, उत्तर प्रदेश

विषय- मेजा ऊर्जा निगम परियोजना के स्टेज-II विस्तार के संबंध में।

महोदय :- मेरे ग्राम पंचायत बिजौरा से आपके परियोजना को पानी की सेल्लाई की जानी है। मेरे ग्राम पंचायत बिजौरा में आपके संस्थान द्वारा पेय जल सड़क इत्यादी की व्यवस्था की गयी है। तथा तीन यूनिट बिजली पावर प्लान्ट लगने से मेरे ग्राम सभा का और भी विकास होगा। जिससे मैं पूरी तरह से सहमत हूँ और मैं आपकी परियोजना को अपनी पूर्ण सहमती प्रदान करता हूँ। और मेरी ग्राम-पंचायत भी पूरी तरह से सहमत है।

भवदीय

22/06/24

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ग्राम पचायत सलैया खुर्द

...कुमार
...175030575

-: निवास :-
सलैया खुर्द पोस्ट रिलौठी
मेजा प्रयागराज 212301

पत्रांक..24/6.....

दिनांक..21-6-2024

सेवा में,—

श्री मान् पीठासीन अधिकारी
मेजा ऊर्जा निगम स्टेज-II के लिए पर्यावरणीय
स्वीकृति हेतु लोक सुनवाई —
स्थल - सामुदायिक भवन, सलैया कला, तहसील - मेजा
जिला - प्रयागराज, उत्तर प्रदेश.
विषय - मेजा ऊर्जा निगम परियोजना के स्टेज-II विस्तार हेतु
सहमति पत्र -

मेजा ऊर्जा निगम के द्वारा हमारे गाँव के लोगों के लिए बहुत उपयोगी सिद्ध हुई है इसके माध्यम से हमारे को बिजली मिल रही है जिस से लोगों को रोजगार मिला है तथा C.S.R. कल्याण के अंतर्गत जैसे - स्कूल निर्माण, स्वास्थ्य - शिक्षा, पेय जल के साधन के साथ ही हमारी इस क्षेत्र मेजा ऊर्जा निगम परियोजना हमारे लिए विशेष रूप से महत्व पूर्ण है। इस संदर्भ में हमारे ग्रामीणों को देखते हुए आगे हमारे जिले को बिजली की आपूर्ति और बढ़ाने की संभावनाओं को ध्यान में रखते हुए क्षेत्र में रोजगार सुविधाओं में वृद्धि के साथ विकास के नये आयाम खुलेंगे। इसलिए मेजा ऊर्जा निगम स्टेज II का विस्तार होना अति आवश्यक है ताकि हमारे क्षेत्र में ऊर्जा और भी विकास हो सके। इसके साथ में मेजा ऊर्जा निगम स्टेज II के विस्तार हेतु सहमति पत्र प्रदान करते हैं।

ग्राम पंचायत सलैया खुर्द
मेजा, प्रयागराज

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ग्राम पंचायत कोहड़ार वि0 ख0 मेजा-प्रयागराज

रमेश कुमार
ग्राम प्रधान कोहड़ार
मो0: 7311112426

निवास :
कोहड़ार, मेजा, प्रयागराज
पिन : 212301

पत्रांक :06/24

दिनांक 24/06/2024

सेवा में

श्रीमान पीठासीन अधिकारी
मेजा ऊर्जा निगम स्टेज-II
के लिए पर्यावरणीय स्वीकृति
हेतु लोक सुनवाई -
स्कूल - सामुदायिक भवन
सलैया कला - तह0 मेजा
प्रयागराज - उ0 प्र0

विषय : मेजा ऊर्जा निगम परियोजना के स्टेज-II विस्तार हेतु सहमति पत्र।

मेजा ऊर्जा निगम, कोहड़ार के द्वारा बिजली उत्पन्न करने से हमारे क्षेत्र को तथा पूरे मानव जगत व संसार को फायदा है। क्योंकि वर्तमान में पूरा मानव जीवन बिजली पर आश्रित हो गया है व निर्भर है। परियोजना स्टेज-II के आने से बिजली की आपूर्ति बढ़ जायेगी और गांव का विकास, रोजगार, इत्यादि का लाभ भी होगा।

अतः मेजा ऊर्जा निगम स्टेज-II के विस्तार के लिए ग्राम सभा कोहड़ार सहमति प्रदान करता है तथा मेरे ग्रामवासी भी सहमत हैं।

रमेश कुमार
प्रधान
ग्राम पंचायत-कोहड़ार
वि0 ख0-मेजा, प्रयागराज

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ग्राम पंचायत –कोहड़ार
मेजा प्रयागराज

रमेश कुमार
ग्राम प्रधान
मो नम्बर 7311112426

ग्राम पो0–कोहड़ार मेजा प्रयागराज

पत्रांक .....

दिनांक 24-/11/2024-

सेवा में,

श्रीमान् परियोजना अधिकारी
मेजा ऊर्जा निगम एरिया 02 के लिए फीडिंग ई-लोक सुरक्षा
स्थान - सामुदायिक भवन शंकरगढ़ मेजा, प्रयागराज

महोदय,

आपको अवगत कराना है कि हमारे ग्राम पंचायत-कोहड़ार आपके परियोजना अन्तर्गत ग्राम पंचायत है- जो कि काफी पिछड़ा क्षेत्र है, इसलिए विकास कार्य कराये जाने अति आवश्यक है-

1- 1500 मी0 पेवर ब्लॉक लगाना है।
2- 5 पीस लघु पेयजल योजना हेंडी लगाया जाए।
3- 2000 मी0 पक्की नाली।
4- 20 नग हैण्डपम्प।
5- कोहड़ार बाजार का सौन्दर्यीकरण।
6- कोहड़ार खेल-मैदान को पूर्ण विकसित करना।
7- कोहड़ार बाजार में सामुदायिक विवाह-घर।
8- गौशाला में इन्टरलाकिंग।
9- 20 पीस सोलर-लाईट।
10- कोहड़ार बाजार मे शुद्ध पेय जल की व्यवस्था करना।

रमेश कुमार

प्रधान
ग्राम पंचायत-कोहड़ार
पो0 ख0-मेजा, प्रयागराज

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क्षेत्र पंचायत सदस्य ग्राम 1198

कोहड़ार मेजा प्रयागराज 521

वन्दना सोनी

9839621430

दिनांक ...

सेवा में

श्रीमान् अध्यक्ष जी/मंत्री जी/अधिकारी (खं.वि.अ.)
मेजा उर्जा निगम प्राइवेट लिमिटेड कोहड़ार मेजा-प्रयागराज

महोदय/महोदया,

सादर अवगत कराना है कि मैं श्रीमती वन्दना देवी सोनी ग्राम पंचायत कोहड़ार विकासखण्ड मेजा जनपद प्रयागराज की वार्ड संख्या 52 से निर्वाचित क्षेत्र पंचायत सदस्य हूँ जो लोगों की समस्या के समाधान के उद्देश्य रहती हूँ श्रीमान् जी का गाँव नदी नाला एवं पहाड़ी क्षेत्र से घिरा है जिसमें बसी लोहर लाइट की वजह से श्रीमान् जी को 12 (बारह) घंटे लाइट की अत्यन्त आवश्यकता है

अतः श्रीमान् जी से विनम्र निवेदन एवं अनुरोध है कि आपसे सेवा प्रदान करने की कृपा करें जिससे ग्राम वासियों प्रधान सुविधाओं उपलब्ध एवं पहुँचाने का कार्य कर लोगों एवं क्षेत्रवासियों विकास करने में

प्रार्थिका

(वन्दना सोनी)
क्षेत्र पंचायत सदस्य वार्ड 52
ग्राम मेजा प्रयागराज
मो० 9839621430

क्षेत्र पंचायत सदस्य ग्राम
सदस्य...
दिनांक 20.6.24
कोहड़ार मेजा-प्रयागराज

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क्षेत्र पंचायत सदस्य ग्राम

कोहड़ार मेजा प्रयागराज 52 I

वन्दना सोनी

9839621430

दिनांक 13/10/2021

सेवा में,

श्रीमान मुख्य कार्यकारी अधिकारी जिला पंचायत,
मेजा उर्फ जिला पंचायत कोहड़ार, मेजा- प्रयागराज ।

महोदय जी,

सादर अवगत कराना है कि प्रार्थिनी वन्दना सोनी ग्राम पंचायत - कोहड़ार, विकास खण्ड - मेजा, जनपद- प्रयागराज की वार्ड नं0 52 से निर्वाचित क्षेत्र पंचायत सदस्य है एवं उनको भी समस्या का समाधान मे अहेतर रहती है । प्रार्थिनी का ग्राम- पंची , पंचायत के पहाड़ पे अवस्थित है जहाँ बरसात मे पिनो मे पिछेरे सर्प एवं विषधर तथा अन्य जंगली जानवरो का आतंक बना रहता है । आये दिन पिछा अटैको से ग्राम निवासी के कई मृत्यु मे ग्रसित बना रहता है । फलित मे ग्रामीणो को कृपया लेड 12 सोलर लाइट की अति आवश्यकता हो रही है । अतः और पूर्ण विश्वास है कि ग्रामीण क्षेत्रो की समस्या के समाधान अवश्य करेंगे । एवं इस आशा के प्रार्थिनी कृतज्ञ बनी रहेगी ।

भवदीय :-

वन्दना सोनी

(क्षेत्र पंचायत सदस्य,)
ग्राम पंचायत -कोहड़ार, विकास-
तहसील- मेजा, जिला- प्रयागराज ।

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सेवामें,

जिलाधिकारी- प्रयागराज

माननीय श्री उज्जवल रमण सिंह
सांसद प्रयागराज (उ.प्र.)

आदरणीय महोदय,

हम ग्रामवासी सलेमा कला आप को विजय पर खुशी बांटा करते हैं तथा गाँव में प्रथम आगमन पर आपका हार्दिक स्वागत एवं अभिनन्दन करते हैं। महोदय जी से निम्न निवेदन करते हैं:-

(1) पूर्वी गाम की जमीन व मकान का अधिग्रहण कर लिया गया। आश्वासन दिया गया कि पीने का पानी की व्यवस्था की जायेगी परन्तु टंकी बनवाकर इतिश्री कर दिया गया। पूर्व. बोर पानी के लिए तरसना पड़ता है।

2- कुछ लोगों को नहर व सड़क के बीच में तथा कुछ लोगों को नहर के दक्षिण व तलरी के बीच में बसाया गया है। बरसात मे पानी से घरों में जल पहुँच जाता है। नाली की कोई व्यवस्था नहीं है जबकि NTPC द्वारा बनवाने का आश्वासन दिया गया था।

3- NTPC के माध्यम से जो हैण्डपम्प दिये जाते हैं उसे प्रधान स्वयं अपने घर के पास तथा अपने चहेतों को दे देते हैं। हम विस्थापित लोग वंचित रह जाते हैं। कुछ लोगों को 200-300 मीटर दूरी से पानी लाना पड़ता है। जैसे- लाल गोविन्द इन्द्रजीत रामकैलाश, लाल बहादुर, राम जनम, रामबाबू आदि।

4- कुछ लोगों को NTPC द्वारा आई. टी. आई. कराया गया तथा परीक्षा लेकर ट्रेनिंग कराकर कम्पनी में रखा गया। चार वर्ष बाद बाहर कर दिया गया। लड़के माननीय कुँवर साहब के पास गये तो रु. 13000/- मासिक पर रख लिए हैं जबकि पहले रु. 18000/- देते थे।

5- कुछ लड़कों को आई. टी. आई. कराकर तथा अपरेन्टिस कराकर भी नौकरी नहीं दे रहे हैं जबकि जमीन व मकान का अधिग्रहण किया गया है। उदाहरण के लिए सुशील कुमार तथा कृष्ण लाल पुत्रगण क्रमशः राज कुमार व देवनाथ आदि। राम चन्द्र पुत्र मौजे लाल भी आई. टी. आई. किये हैं।

6- NTPC की तरफ से कभी कभार कम्बल, बैग, मच्छरदानी, सौर-ऊर्जा दी जाती है। उसे कुछ प्रधान विस्थापितों को न देक...

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स्वयं, अपने परिवार तथा अपने नजदीक अन्य पुरवा के लोगों को वितरित करवा देते हैं।

6- गाटा सं० 237 जिसमें हम लोग बसाये गये हैं, में 5 बीघा जमीन ग्राम-समाज की शेष है। उसमें प्रधान ने पैसा लेकर उमा शंकर पुत्र शारदीन तथा गुरना निवासी पुत्र सुरबई को दे दिया है। ये लोग उसमें खेती करते हैं तथा कच्चा करके घर भी बना लिये हैं। शेष विस्थापित लोगों को अपने पशुओं तथा खलिहान के लिए भी जगह नहीं है।

7- विस्थापन के समय ग्राम में स्कूल तथा अस्पताल बनवाने का आश्वासन दिया था परन्तु कुछ नहीं किया गया। विस्थापितों का लाल कार्ड भी अभी तक नहीं बनाया गया।

8- नौकरी के नाम पर रु० 3001- डेली वेजेज के आधार पर इस प्रचंड धूप में 8 घंटे की कड़ी ड्यूटी करवा रहे हैं।

9- हम लोगों को बिना मुआवजा दिये ठेकेदार काम करवाने आते थे। हम लोग मुआवजा तथा आवास के लिए अपना पक्ष रखने मौके पर जाम करते थे। शान्तिपूर्ण ढंग से मांग करने को कुचलने के लिए अधिकांश लोगों के खिलाफ कठोर धाराओं में इसें मुकदमे फर्जी रूप से दर्ज करा दिये गये हैं जबकि न कभी मार-पीट हुई एवं न ही कोई तोड़-फोड़ ही हुई। अस्तु फर्जी मुकदमे वापस लिए जायँ।

10- सभी विस्थापितों को एक-एक शौचालय देने को कहा गया था परन्तु सब को नहीं दिया गया।

11- विस्थापितों में से तीन लोग दशकंवर रामगनेश व देवनाथ लालतारा में बस गये। रामकुमार 'गौंव' में ही पुरानी नहर के पास अपने खेत में बस गये हैं। इनलोगों को बिजली-पानी व ट्रांसफार्मर की व्यवस्था आज तक नहीं की गयी है।

12- तालाब (राख) के लिए सलैया कला की जमीन का पुनः अधिग्रहण किया जा रहा है। इसका स्वास्थ्य, पशुओं के चारागाह, जंगली वन्य जीवों तथा पास-पड़ोस की कृषि भूमि पर दुष्प्रभाव पड़ेगा। जमीन ऊसर हो जायगी तथा फलदार वृक्षों में फल नहीं लगेंगे। NTPC द्वारा अधिगृहीत जमीन में अभी दो तालाब बनवाने के लिए जमीन शेष है, अतः अधिग्रहण दुबारा रद्द किया जाय।

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अतः सहोदयी से सादर अनुरोध है कि उपर्युक्त समस्याओं का शीघ्र समाधान करवाने की कृपा करें। महान दया होगी।

दिनांक - 24-06-2024

भवदीय प्रार्थिगण,
निवासी ग्राम - सरैया कला
(नई बस्ती) थाना मांडा

आदित्य कुमार
8756614312

1- रामबेलास
2- रामआसरे
3- आशीष
4- शीलू
5- राहुल
6- आदित्य कुमार
7- मनोज
8- सुशील
9- हलधरिया
10 रामजनम
12 राहुल
17- रामबीरोमाणी
18 - [illegible]
20 रामदुलारे

प्रतिलिपि → जिलाधिकारी प्रयागराज

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ANNEXURE-20 DMP - Onsite and Offsite

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MEJA URJA NIGAM (P) LIMITED
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)
PO – NTPC Kohdar, Meja, Distt - Prayagraj (UP), Pin – 212308

DISASTER MANAGEMENT PLAN
ON SITE & OFF SITE EMERGENCY PLAN



Rev. 04 (April'24)		
24/04/2024	25/4/2024	30/04/24
Prepared By	Reviewed By	Approved By
Safety Department, MTPP	GM (O&M) / Factory Manager	CEO - MUNPL/ Occupier

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FOREWORD

MTPP is a Power Generating Plant with an installed capacity of 2x660MW (1320 MW) from Coal based Units. In accordance with the NTPC Safety Policy, it is the responsibility of the Station Management to ensure that all arrangements relating to safety are informed to all employees as well as to local population who are likely to be affected by operation of the plant. In spite of best efforts, occurrences of accidents and even disasters have been observed worldwide. Such disasters have caused loss to human life and property.

Therefore, it is in the right earnest to prepare a Disaster Management Plan for the Station. The plan deals with probable hazards, their consequences, protections, preventive measures and action plans to deal with the emergencies on occurrence of the disaster.

It is also obligatory on part of the Occupier of the Plant, handling hazardous chemicals, to prepare a Disaster Management (Emergency Plan) as stipulated under Rule-13 of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989. Additionally, under section-41(B) (4) of the Factories Act, 1948, also every Occupier is to prepare an On-Site Emergency Plan with detailed disaster control measures for the Factory and to educate the workers employed in the factory premises, as well as others who may be affected by operations.

As the disaster management deals with management and resources and information as far as a disastrous event is concerned and as to how effectively and seamlessly the teams co-ordinate these resources, it is imperative on the part of the management to educate and train the employees regarding effects of various types of disasters, their dimensions and characteristics, their roles to control the situation, etc. It is worth mentioning that the Disaster Management Plan has been tested and demonstrated by conducting proper Mock Drills.

I hope the Station DMP document shall go a long way to benefit our organization which is committed to minimizing Safety, Health and Environmental risks and for the better management of our business, corporate governance and sustainability.

30/04/24

Kamlesh Soni
Chief Executive Officer (MUNPL)

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ON-SITE

EMERGENCY

PLAN

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CHAPTER-1
GENERAL INFORMATION ABOUT NTPC-MEJA

1.	NAME AND ADDRESS OF THE FACTORY	**NTPC LIMITED** **MEJA URJA NIGAM PVT LTD** P.O : NTPC KOHDAR MEJA SO – 212308 DISTRICT : PRAYAGRAJ (U.P.)
2.	NAME, ADDRESS AND TELEPHONE NUMBER OF THE OCCUPIER	SH. KAMLESH SONI CHIEF EXECUTIVE OFFICER NTPC LIMITED MEJA URJA NIGAM PVT LTD P.O : NTPC KOHDAR MEJA SO – 212308 DISTRICT : PRAYAGRAJ (U.P.) • PHONE - 0532-2696104 • E-MAIL - kamleshsoni@ntpc.co.in • FAX - 6104
3.	NAME, ADDRESS AND TELEPHONE NUMBER OF THE FACTORY MANAGER	SH. AJIT BASAK GENERAL MANAGER (O&M) NTPC LIMITED MEJA URJA NIGAM PVT LTD P.O : NTPC KOHDAR MEJA SO – 212308 DISTRICT : PRAYAGRAJ (U.P.) • PHONE - 0532-2696105 • E-MAIL - ajitbasak@ntpc.co.in • FAX - 6105
4.	NAME, ADDRESS AND TELEPHONE NUMBER OF THE SAFETY OFFICER	SH. RAJENDRA KUMAR PRAJAPATI DGM (SAFETY) NTPC LIMITED MEJA URJA NIGAM PVT LTD P.O : NTPC KOHDAR MEJA SO – 212308 DISTRICT : PRAYAGRAJ (U.P.) • PHONE - 0532-2693127 • E-MAIL - rajendrakumarprajapati@ntpc.co.in
5.	INSTALLED CAPACITY	STAGE 1 - 1320 MW: (2×660) (COAL)
6.	PRODUCTS MANUFACTURED	COAL BASED POWER GENERATION

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CHAPTER-2
INTRODUCTION

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Meja Urja Nigam Pvt. Ltd is situated in a sparingly populated area at Meja Tehsil in Prayagraj District of Uttar Pradesh. It is, by road, about 50KM from Prayagraj and 20KM from Meja Road Railway Station. The nearest airport is the Bamrauli Airport Allahabad which is about 60KM from the plant location.

The aim of MTPP is to generate electricity and transmit to different parts of Uttar Pradesh and the country. Boundary wall of the factory is about 1KM in North, South, West directions and about 3 KM in the East direction from the main plant equipment.

- The installed capacity of the Plant Station is 1320 MW (Coal).
- The source of water for this Power Station is River Ganges. However temporary arrangement of water is from nearby Tons River.
- The main source of coal supply is from Northern Coalfields Limited (NCL) & Central Coalfields Limited (CCL).
- The approximate consumption of coal per day is 20,000 MT.

LOCATION OF DANGEROUS SUBSTANCES

MUNPL to generate power, stores and/or handles following major hazardous chemicals/hazardous substances at various locations inside the plant:

Sl. No.	Chemical Stored/Handled	Location [Inside the Plant]
1.	Sulphuric Acid (H_2SO_4)	Between Cooling Tower#2A & Fore Bay
2.	Hydrochloric Acid (HCL)	Between DM Streams & Fire Water P/H
3.	Caustic Soda Lye	Between DM Streams & Fire Water P/H
4.	Chlorine	PT Chlorination Plant & CW Chlorination Plant
5.	Liquid Ammonia (Sol. 22-25%)	Chemical Store
6.	Lubricants	Chemical Store
7.	Coal	Coal Handling Plant
8.	Light Diesel Oil (LDO)	Fuel Oil Storage Tank area & Pump House [FOPH]
9.	Low Sulphur High Speed (LSHS)	Fuel Oil Storage Tank area & Pump House [FOPH]

The quantities of the hazardous chemicals either stored or handled at MUNPL have been detailed at Chapter-9. The information related to the Physical, Chemical, and Toxicological characteristics of these chemicals is given in the form of MSDS. The chlorine is the only toxic chemical which is stored in bulk. A detailed exercise on hazardous identification and consequences analysis is made and based on such analysis the "ON-SITE EMERGENCY PLAN" is prepared.

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CHAPTER-3
EMERGENCY TELEPHONE NUMBERS

Sl. No.	Description	Intercom	DOT	Mobile
1.	Chief Executive Officer (CEO) Occupier **[CIC]**	6104	0532-2696104	9416212439
2.	General Manager (O&M) Factory Manager **[WIC]**	6105	0532-2696105	9434039137
3.	Shift Charge Engineer**[SCE]** Control Room (CCR)	6099/ 3200	0532-2696099/ 0532-2693200	7518802424
4.	Emergency Hospital	3001	0532-2693001	
5.	First Aid Centre	6102	0532-2696102	7518802423
6.	Hospital (Casualty) Ambulance (Township)	3414	0532-2693414	
7.	ALS Ambulance (Township)			8429525599
8.	Chief Medical Officer CMO-Aarogyam Hospital	3414	0532-2693414	9650993607
9.	Safety Department	3127	0532-2693127	9424140623
10.	Safety Control Room	3204/ 6103	0532-2693204/ 0532-2696103	
11.	CISF Assistant Commandant	3438	0532-2693438	8189011484
12.	CISF Inspector-Security	3484	0532-2693484	8189011485
13.	CISF Inspector-Fire	3418	0532-2693418	8189011489
14.	CISF Fire Station	3000/ 6101	0532-2693000 0532-2696101	8189011490 8189011491
15.	Quick Response Team [QRT]			8189011486
16.	CISF Main Plant Gate	6100	0532-2696100	
17.	CISF Main Plant Gate [Pass Section]	3417	0532-2693417	
18.	Main Control Room [CCR]	6099/ 3200	0532-2696099/ 0532-2693200	
19.	AHP Control Room	3207	0532-2693207	
20.	CHP Control Room	3206	0532-2693206	
21.	DM Plant Control Room	1382	0532-2691382	7525006461

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CHAPTER-4
SAFETY POLICY OF NTPC

(First Release: 07th Nov'16; Last Reviewed: 1st March 2022)

Applicable to all employees of NTPC and are required to comply.

Chairman and Managing Director is responsible to issue and review the Safety Policy periodically describing intent, responsibility and broad frame work.

A. Statement of Intent:

Safety is part of our core values; therefore, safety shall be at the forefront of all our activities.

We recognize all accidents are preventable.

The objective is to provide safe working environment and strive for zero incidents at work. This policy, supported by safety rules and procedures, is applicable for all business activities carried out by NTPC.

Safety policy is built around following principles:

1. Our activities carry various hazards; however, all such hazards can be identified.
2. Every job shall be done safely, no matter how important or urgent it is.
3. Putting people to work carries a specific responsibility and accountability for safety which shall be visibly demonstrated.
4. Right procedures and actions can bring the risks under control.
5. Trained and committed team can ensure incident free operations.
6. We shall comply with all applicable safety regulations and other legal requirements. We shall strive to improve and make it better than the minimum standard(s).

B. Organization's Responsibility:

We have a three tier approach to make work place incident-free:

1. Top Management responsibility:

a. Directors and REDs are accountable for:

I. Ensuring that all work activities under their control are carried out in adherence with this policy;

II. Ensuring that Heads of Projects / Stations are individually accountable for implementation of this policy and ensuring they have the necessary skills in safety management;

III. Setting appropriate standards for safety in their work area;

IV. Putting Safety as a part of appraisal system, both for self and their teams;

V. Ensuring that safety audit is conducted periodically through third party at all sites

2. Head of the Project/Stations are accountable for:

a. Implementing this policy by introduction of local management systems with high standards of safety;

b. Ensuring identification and display of all hazards;

c. Establishing rotating cross-functional team for internal audits.

d. Making employees accountable for working safely by creating a safer work environment and ensuring that their actions do not harm either themselves or other people.

3. Heads of Departments are accountable for:

a. Ensuring that the Engineer-in-charge (EIC) shall spot, report and deal with hazards to help create safe and incident free workplace.

b. Ensuring training of workers in the area of work and awareness about the hazards of the site.

c. Ensuring that the contractor has deployed safety equipment relevant to its area of operation.

d. Making sure that EIC ensures cordoning of unsafe areas and reports unsafe conditions

e. Make certain that all co-operate with management and observe rules and procedures which enable the highest standards of safety to be achieved.

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This Policy will be effective only with the support from all the employees and contractors. Accordingly, every employee shall be a signatory to this safety policy and shall be responsible and accountable for safety in their work area and activities.

C. Policy framework and coordination:

a. Policy framework, review and enablers:

i. Corporate Safety in associations with other Corporate functions to prepare and review safety framework for ensuring "zero incidents".

ii. Corporate Safety to present its analysis on progress of safety framework implementation and safety culture of the Company to senior management periodically.

iii. Corporate Safety is responsible for providing policy /rules / system / procedural enablers wherever required to implement and adhere to Safety framework.

iv. Corporate Safety shall also be responsible for ensuring that safety rules / systems / procedures are being implemented at all work areas through regular visits, interactions and reviews.

v. Corporate Safety to gather inputs internally and from other leading Organizations and review Safety Framework as required, or every five years.

vi. Corporate Safety shall prepare a calendar for all reviews and shall ensure adherence to the schedule.

b. Training:

Director (HR) shall ensure that appropriate training and learning interventions are designed and implemented.

Corporate Safety department shall come up with detailed requirements (including skill training and culture building) clearly bringing out the desired objectives, audience and responsibility.

c. Reporting:

All safety officers at site and regions shall report administratively to respective Head of Project/REDs and functionally to Corporate Safety department.

d. Communication:

Wider dissemination of Safety policy, rules, safety analysis and best practices shall be the responsibility of Corporate Safety department in association with the Corporate Communication department.

e. Safety Plan & Provision for Contractors:

I. Contractual provisions shall be reviewed by CC&M in association with OS, Engineering and PP&M for Corporate packages and provide guidelines to Stations / Projects to implement the same in site awarded packages.

II. Safety plan to be submitted by contractor and approved by NTPC before start of any work.

III. CC&M shall include safety performance assessment in contractor rating system.

IV. CC&M shall devise systems to enable projects/stations for immediate procurement of quality safety equipment, PPE, etc.

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CHAPTER-5
DEFINITION AND GLOSSARY OF TERMS

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5.0 EMERGENCY

An emergency occurring in the plant is one that may affect a section of the plant or area within it as a result of deviation from normal operating conditions, malfunction of a system, human errors etc. However, this can be controlled by operation control procedures. If it is failed to control with OCPs, emergency may lead to a major emergency.

5.1 DISASTER

A Disaster (Major Emergency) occurring in the plant is one that may affect several sections within it and or may cause serious injuries, loss of lives, extensive damage to property or serious disruption outside the works. It will require the best use of internal resources as well as ***o***utside resources to handle it effectively. Apart from the result of a malfunction of the system, human errors, it may also be precipitated by the intervention of outside force such as a cyclone, flood, and deliberate acts of arson or sabotage.

5.2 ACCIDENT SITE

The location of an unexpected occurrence, failure or loss either at a facility along a transportation route, resulting in a release of hazardous materials on incident site.

5.3 A MAJOR ACCIDENT

A major accident is a sudden unexpected, unplanned event resulting from uncontrolled development during an industrial activity, which causes or has the potential to cause serious damage to property, environment and people or an emergency intervention of normal work for long period.

5.4 AIRBORNE RELEASE

Release of any chemical into the air.

5.5 BOILING LIQUID EXPANDING VAPOUR EXPLOSIONS

Boiling Liquid Expanding Vapor Explosions (BLEVE) are amongst the most feared events when containers of hazardous chemical are exposed to fire or physical damage or other events that cause excessive pressure within the tank. The pressure inside the containers eventually vents itself through the weakest area of the tank. This sudden venting of pressure and vaporization of product involves violent rupture of the container with rocketing fragments.

5.6 CHEMICAL ABSTRACT SERVICES NO (CAS NO)

The chemicals are listed by their common names and also by their Chemical Abstract Service (CAS) Number. While a chemical may be known by several different names, the CAS number provides a unique and unambiguous identification.

5.7 CHEMICAL PROCESS

A particular method of manufacturing or making a chemical, usually involving a number of steps or operations.

5.8 Chronic Effects

Of long duration or having a frequent recurrence, chronic health effects are those that become apparent or continue for some time after exposure to hazardous chemicals.

5.9 CONTINGENCY PLAN

A document to identify and catalogue the elements required responding to an emergency, to define responsibilities and specific task, and to serve as a response guide.

5.10 EVACUATION

Removal of residents and other persons from a area of danger.

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5.11 HAZARD
Any situation that has the potential for doing damage to life, property and / or the environment.

5.12 HAZARDOUS CHEMICALS
A chemical, which is explosive, flammable, poisonous, corrosive, reactive or radioactive and requires special care in handling because of the hazards it poses to public health and environment.

5.13 HAZARDOUS INSTALLATION
An industry handling hazardous chemicals.

5.14 HAZARDOUS ANALYSIS
Identification of undesired events that lead to the materialization of the hazard. The analysis of the mechanism by which those undesired events could occur and usually the estimation of the extent, magnitude and relative likelihood of any harmful effects.

5.15 HAZARD IDENTIFICATION
Provides information on available extremely hazardous substances (EHSs) on site, their nature, and quantities and also on storage and conditions of storage.

5.16 IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH)
Immediately dangerous to life or health level means the maximum level to which a healthy worker can be exposed for 30 minutes without suffering irreversible health effects or escape impairing symptoms.

5.17 OCCUPIER
"Occupier" in relation to MUNPL-Meja is Head of MUNPL, i.e. CEO-MUNPL.

5.18 CHIEF INCIDENT CONTROLLER (CIC)
Occupier / Head of the Project/Station will be Chief Incident Controller. In his absence whoever is second in the charge will be the CIC.

5.19 WORKS INCIDENT CONTROLLER (WIC)
Factory Manager (Head of O&M) will be the Works Incident Controller (WIC).

5.20 INCIDENT CONTROLLER
Shift Charge Engineer (SCE) / Head of Operation will be the Incident Controller.

5.21 KEY PERSONNEL
The personnel who will have key role to play in providing advice and in implementing the decisions made by the Chief Incident Controller.

5.22 LETHAL CONCENTRATION LOW (LCLO)
When acute exposure data are available (30 minutes to 4 hours exposure), the lowest exposure concentration causing death or irreversible effects in any species is used as the IDLH concentration. These data are often reported as a lethal concentration, LOW (ICLO).

5.23 LETHAL
Causing or capable of causing death.

5.24 LEVEL OF CONRERN (LOC)
The concentration of an extremely hazardous substances (EHS) in the air above which there may be serious irreversible health effect or death as a result of single exposure for a relatively short period of time.

5.25 MOCK DRILLS
A simulated accident or release set up to test emergency response methods and for use as a training tool.

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5.26 ON-SITE EMERGENCY

An accident, which takes place in an industry and its effects are confined to the factory premises involving only the people working in the factory.

5.27 OFF-SITE EMERGENCY

If an accident takes place in an industry and its effects are felt outside the factory premise, the situation thus generated is called an Off-side Emergency.

5.28 PROBABILITY

A number expressing the likelihood of occurrence of a specific event, such as the ratio of the number of outcomes that will produce a given event to the total number of possible outcomes.

5.29 RADIUS OF VULNERABLE ZONE

The maximum distance from the point of release of a hazardous substance at which the airborne concentration could reach the level of concern (LOC) or (LCLO) under specified weather condition.

5.30 RESPONSE

The efforts to minimize the risk created in an emergency by protecting the people, environment or property, and the efforts to return the scene to normal emergency conditions.

5.31 RISK

The predicted or actual frequency or occurrence of an adverse effect of a chemical or other hazards.

5.32 RISK ANALYSIS

It is a relative measure of likelihood of various possible hazardous events and enable the emergency plan to focus on the greatest potential risk.

5.33 SITE FACILITY

Any location where actually toxic chemicals are processed, stored, handled, used or disposed; in short any place where these chemicals may be found.

5.34 STORAGE

Method of keeping raw materials, finished goods, or products while awaiting use, or consumption.

5.35 TRANSFER

Loading and unloading of chemicals between transport vehicles and storage place.

5.36 TRANSPORT

To carry or convey goods from one place to another using any type of vehicle.

5.37 THRESHOLD PLANNING QUANTITY (TPQ)

A quantity designated for each chemical which requires the occupier to take various steps in preparation of emergency planning like preparation of On-site Plans, submission of information for preparation of Off-site Plan or making a safety report as per Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.

5.38 VULNERABLE ZONE

It is an estimated geographical area that may be affected by the toxic release at levels that could cause irreversible acute health effects or death to human population within the area following an accidental release.

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6.0 ON-SITE EMERGENCY PLAN

Emergencies may occur due to many reasons. It may occur due to natural causes like earthquake, cyclone, flood etc. It may occur due to terrorist activity or it may be due to malfunction of standard working systems or practices.

In the industry handling hazardous materials, large scale emergencies will be essentially those of a major release of flammable or toxic material and of events which have significant environmental impact.

This ‘‘On-Site Emergency Plan’’ is made considering the nature and scale of the events and based upon all relevant information including, most importantly, practical operating experience.

6.1 OBJECTIVES OF “ON-SITE EMERGENCY PLAN”

The Emergency plan is aimed at ensuring safety of people, protection of environment, protection of installation, restoration of production and salvage operations in the same order of priorities. For effective implementation of the Emergency Plan, it will be widely circulated and personnel are trained through mock drills.
The Emergency plan should reflect the probable consequential severities of the undesired event due to deteriorating conditions or through ‘Knock on’ effects. Further the Emergency Plan should be able to demonstrate that the correctness of assessment of the consequences, use of supporting evidences, currently available and reliable information and incident data and if necessary the reports of outside consultancies.

To tackle the consequences of a major emergency (Disaster) inside the factory (Power Plant) a major emergency plan has been formulated and this document is called **“DISASTER MANAGEMENT PLAN”.**

The objective of the major emergency plan is to make use of the combined resources of the plant and the outside services to achieve the following:

a) Effect the rescue and Medical treatment of casualties
b) Safeguard other people
c) Minimize damage to property and the environment
d) Initially contain and ultimately bring the incident under control
e) Identify any dead
f) Provide for the needs of relatives
g) Provide authoritative information to the news media
h) Secure the safe rehabilitation of affected area
i) Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of the Emergency.

6.2.1 MAJOR PLANT SECTIONS

Considering the process and the material to be used at Thermal Power Station, the following can be considered as major plant sections.

a) Coal Handling Plant
b) Main Plant (Boiler, Turbo Generator, Lube.oil Tanks)
c) Water treatment Plant
d) Hydrogen Generation Plant (under construction)
e) Switchyard including sub-stations and transformers
f) Fuel oil handling plant
g) Cable Galleries

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6.2.2 MAJOR HAZARD POTENTIAL ASSESSMENT

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The major disasters or emergencies could take birth from one or any combination of the following:

a) Slow isolated fires
b) Fast spreading fires
c) Explosions
d) Bursting of pipe lines/vessels
e) Uncontrolled release of toxic/corrosive/flammable liquids
f) Floods
g) Uncontrolled release of toxic/flammable gases/dusts depending upon the nature, scale, speed and impact on environment. Each of these may constitute an emergency.

6.2.3 HAZARDWISE AREA IDENTIFICATION

6.2.3.1 FIRE HAZARD AREAS:

a) Coal Handling Plant and conveyor galleries including Transfer Points (TPs)
b) Cables in galleries and on trays in all plant sections
c) Fuel oil handling and oil tanks in Main Plant
d) Transformer oil and lube oil storage facilities
e) Burner areas in Boilers
f) Turbine Hall

6.2.3.2 EXPLOSION HAZARD AREAS:

Hydrogen Plant (under construction)

6.2.3.3 BURSTING OF PIPE LINES & VESSELS AREAS:

a) Steam pipes due to high pressure/temperature
b) H_2 Gas lines and Acid lines.
c) H2 Gas Cylinders

6.2.3.4 RELEASE OF GASES/DUST AREAS:

a) Chlorine in Water Pre treatment Plant, CW Plant
b) Hydrogen in Turbo Generator area of Main Plant

6.2.3.5 RELEASE OF CHEMICALS AREAS:

a) Chemical tanks and Chlorine tonners in water pre treatment plant CW Plant
b) Acid & Alkali storage tanks in WTP & CPU

6.2.3.6 FLOOD AREAS:

Ash Slurry Pump House

6.3 MAJOR CAUSES OF ON-SITE EMERGENCY:

6.3.1 CHLORINE LEAKAGE:

Liquid Chlorine filled containers are brought by the suppliers through their own transport. The tonner containers are placed on its seat, specially fabricated for this purpose.

The tonner containers are connected to the manifold system and then to the evaporation line for use.

The possible emergencies in this process are mentioned below:

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6.3.2 RELEASE OF CHLORINE DUE TO LEAKAGE:

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Due to corrosion or mishandling, or occasions, leakage of Chlorine from chlorination system has happened in different parts of the country. Most of the leakages occur from the tonner valves and joints. To control such leakages, emergency sealing kits have been provided close to the chlorine container stores.

The staff has been fully trained to seal any leakage with the help of such emergency kit in shortest possible time and neutralize the leaking Chlorine. A specially designed chlorine neutralization pit is available at chlorination plants. This can be used if there is any uncontrollable chlorine leakage from any tonner. Breathing equipments (BA Sets) are also provided to use in such operation.

6.3.3 EXPLOSION OF CYLINDERS DUE TO TERRORIST / SABOTAGE ACTIVITIES:

In case of any terrorist activity and blasting of manifold system or Chlorine tonners with the use of explosives, heavy quantum of Chlorine may leak, which in no case can be sealed. In that case, only action is evacuation of victims and personnel.

However, such probabilities in Meja Thermal Power Plant are reduced to almost zero, by providing full proof security measures and restricting entry into chlorine handling / storage area. Leak absorption system for neutralization of chlorine is installed & water curtaining of the area is done.

6.3.4 EXPLOSION DUE TO FIRE:

Such an explosion may occur due to fire also. But again to prevent such events, no flammable material is allowed to be kept in the vicinity of Chlorine. Even uncontrolled growth of grass is not allowed there.

6.4 MAJOR FIRES:

Major fires can occur in following areas:

a. Coal handling plant
b. Fuel oil handling system
c. Cable galleries/Cable Vaults

Appropriate fire fighting and protection system are provided, maintained and details of the same are given in later pages.

6.4.1 COAL DUST EXPLOSION:

Coal dust can explode when they are suspended in air. A coal dust explosion may occur if the coal dust is present in the concentration between LEL & UEL limits i.e., 30-2000 grams/M3 of air and also a source of ignition like sparks caused by friction or static electricity. However measures are adopted to prevent the chances of explosion in the design stage itself. To prevent the accumulation of dust, dust suppression and dust extraction systems are available at strategic locations.

6.4.2 FUEL OIL HANDLING SYSTEM - HAZARDS:

The main hazard in fuel oil section is fires and storage tank explosion. However, to contain the chances of fires/explosions due to spill over dyke walls are provided all around the fuel oil storage tanks. Apart from this, foam pourers and MV water spray systems are provided on all Fuel Oil tanks. The level gauges and temperature monitors are also provided on the fuel oil tanks.

6.4.3 FIRES IN CABLE GALLERIES:

The main hazard in cable galleries is fires. To contain fires, heat sensors and smoke detectors are provided in the cable galleries to detect the fires at the inception stage itself. Automatic sprinkler systems are provided throughout the cable galleries to extinguish the fires. Fire resistance barriers are provided at the cable entries/intersections, intermittent places on cable trays, cable raisers and cable entry points.

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6.5 EXPLOSION:

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Explosion in the plant is possible in Hydrogen Generation Plant (under construction), Oil storage tanks, or where Hydrogen cylinders/ DA cylinders are stored. To prevent such possibility Hydrogen is purged with inert gas like N_2 or CO_2 and always purity above 99% is maintained.

6.6 BOMB SCARE:

Threat of bomb blast due to terrorist activities.

6.7 TRANSFORMER - HAZARDS:

Possible hazards in transformers are:

a. Failure of terminal bushings and flash-over.

b. Sudden gas pressure formation due to transformer internal faults and subsequent failure of explosion vents and pressure release devices may cause explosion of transformer and fires.

c. Accumulated leakage oil from different parts of transformers can catch fire due to spurious sparking.

d. To take care of all these, adequate protection systems are available as per engineering and in case of failure emulsifier system is provided to quench fires.

6.8 SUB-STATION - HAZARDS:

Where indoor Switch gears are provided, fires and explosions may occur due to:

a. Short circuit either at bus-bars, breaker high voltage parts or cable termination chambers may occur due to reptiles' ingress or falling of internal accessories on to live parts.

b. Failure of supporting insulators of bus-bars, breakers, termination and subsequent earthing of supply may cause flash-over.

c. Failure of measurement equipments like CTs & PTs may cause flashover in the concerned chambers.

To take care of the above problems, the following precautions are taken:

a. Plugging of cable gland plates and breaker inspection plates against reptile entry.

b. Periodical inspection/testing of switch gear equipment.

c. Providing proper nomenclature of switchgear equipment with regards to Voltage level, feeder description and panel numbering to avoid wrong identification.

6.9 WATER TREATMENT PLANT - HAZARDS:

There are chances of spill-over/ leakage of HCL & NaOH from storage tanks and also due to bursting of acid lines in LWTP (Liquid Waste Treatment Plant) namely-WTP (Water Treatment Plant), ETP (Effluent Treatment Plant), STP (Sewage Treatment Plant), WSWS Pump House (Waste Water), Coal Settling Plan, etc.

There are chances of chemical burns due to contact with acids / alkalis. However, dyke walls are provided to contain any overflow/leakage of acids from tanks. Also, all the spillover are collected in neutralization pits and disposed off.

6.10 WORK ENVIRONMENT QUALITY

For environmental monitoring three online Ambient Air Quality Monitoring Systems in the three directions (East, north and South) of the plant are installed and in service. The monitoring station in the south direction of the plant is having arrangement to monitoring meteorological parameter also.

Real time Continuous Emission Monitoring System (CEMS) Data displayed at Main Plant Gate.

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MONITORING PARAMETERS DETAILS

Sl. No.	Parameter	Range	Location
1.	SO_2 Analyzer	0-0.05 ppm	Chimney Stack 01: 0 Meter
2.	NO-NO_2-NOx Analyzer	0-0.05 ppm	Chimney Stack 01: 0 Meter
3.	CO_2 Analyzer	0-200 ppm	Chimney Stack 01: 0 Meter
4.	SPM Monitor (TSP, PM10 & PM 2.5)	0-5000 ug/m3 (24 hrs average)	Chimney Stack 01: 0 Meter
5.	Wind Speed Sensor	0-60 m/s	Srijan Vihar Township
6.	Wind Direction Sensor/ wind socks	Accuracy +/- 3	CW/PT Plant
7.	Ambient Air Quality Monitoring System (AAQMS)		**a.** Srijan Vihar Township **b.** Near H_2 Plant **c.** S&T Building **d.** Cooling Tower
8.	Relative Humidity Sensor	0-100% RH	Srijan Vihar Township
9.	Solar Radiation Sensor	0-1500 Watt/m^2	Srijan Vihar Township
10.	Rain Gauge	Accuracy +/- 1% to 5% for rainfall from lowest to 125 mm/hr	Srijan Vihar Township

In addition to above portable flue gas analyzer and portable effluent analyzer are also available for measurement of air and water parameters relevant to Thermal Power Plant.

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CHAPTER-7
BRIEF DESCRIPTION OF PROCESS

Meja Urja Nigam Pvt. Ltd is situated in a sparingly populated area at Meja Tehsil in Prayagraj District of Uttar Pradesh. It is, by road, about 50 KM from Allahabad and 20 KM from Meja Road Railway Station. The nearest airport is the Bamrauli Airport which is about 60 KM from the plant location.

- The installed capacity of the Station is 1320 MW (2x660 MW).
- The source of water for this Power Station is from River Ganges (CWC clearance received on 17.11.2009) from where water is drawn through pumps. The main source of coal supply is SECL, Chhattisgarh and approximate consumption is 5.49 MTPA.
- Boundary wall of the factory is about 1 KM in North, South and West direction from the main plant equipment and 3 KM in the East direction.

7.1 MANUFACTURING PROCESS WITH DETAILS OF RAW MATERIALS, INTERMEDIATES AND FINISHED PRODUCTS

We take coal from SECL Chhattisgarh through our MGR (Marry-Go-Round) system (Railway) to Track Hopper and transport it through Conveyor belt to Crusher House and crush it up to 25 mm size. Again transport it through conveyor belt to the Bowl Mills. Excess coal is stacked in coal stockyard through conveyor belts. Pulverized coal is transported through pipes to Boiler's burners to burn it in closed area (Boiler). Ash dust from boiler is arrested in ESP (Electrostatic Precipitators) upto 98 to 99% to minimize the air pollution and arrested ash is transported to ash dyke in from of high concentration ash slurry through pipes.

We take DM Water (de-mineralized water) from DM Plant to Boiler tubes to make it super heated steam at 568 ºC and 271.5 atm. pressure to run the steam turbines which function as prime movers for Turbo-Generators, generated electricity is exported to different parts of our country through 400KV transmission lines.

7.2 DM WATER IN BOILER TUBES

Coal-burn in boiler super-heat steam through pipes.
Turbine - Turbo
Prime mover - Generator - Generates electricity

There is no intermediate product and by product in the process, except waste product (burnt coal ash) which is not so harmful (dust nuisance), even though we try to arrest ash dust by different methods like Electrostatic Precipitator (ESP), Dust Extraction system and tallest (275M height) chimneys, FGD, etc.

7.3 PROCESSES INVOLVED IN POWER GENERATION

7.3.1 PRODUCTION OF STEAM

The principal raw material is coal and water. Light Diesel Oil is also used for start-up and flame stabilization in boiler whenever required. Coal is unloaded from the coal wagons in the Coal handling plant (CHP). This coal is transported up to the raw coal bunkers with the help of belt conveyors. Coal is fed into mills by coal feeders. This raw coal is ground to powder form in the mill. This pulverized coal is transported to the furnace through coal pipes with the help of hot and cold air mixture from P.A. Fan. P.A. Fan takes atmospheric air, a part of which is sent to Air Pre-heaters for heating while a part goes directly to the mill for temperature control. Atmospheric air from F.D. fan is heated in the air heaters and sent to the furnace as combustion air. Water from the Boiler feed pump passes through Economizer and reaches the separator. Water from the separator passes through down comers and goes to bottom ring header. Water from the bottom ring header is divided to all the four sides of the furnace. Due to heat and the density

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difference the water rises up in the water wall tubes. Water is partly converted to steam as it rises up in the furnace. This steam and water mixture is taken to the separator and through the Boiler circulation pump it is circulated in economizer, water wall and super heaters for superheating. BCP is in service till the whole steam converted to superheated steam. The super heaters are located inside the furnace of boiler and the superheated steam finally goes to turbine. Flue gases from the furnace are extracted by Induced draft fan which maintains balance draft in the furnace with Forced draft fan. These flue gases emits their heat energy to various super heaters located in the furnace, economizer and finally passes through air pre heaters and goes to Electrostatic precipitator where ash particles are extracted so that they do not pass through the Chimney to pollute the atmosphere. The ash collected on ESP plates falls to bottom with the help of hammers and it is collected in hoppers for disposal. This ash is transported through air and collected in the hopper and from the hoppers it being taken by various agencies through bulkers. Bottom ash collected from the bottom of the furnace is mixed with water and transported to ash dyke through pipe lines.

7.3.2 STEAM TO POWER

Steam from the boiler enters to high pressure turbine through steam pipe lines, turbine stop and control valves. In high pressure turbine this steam passes through a series of stationary and moving blades to convert heat energy into mechanical energy. The steam leaving the high pressure turbine goes back to the boiler for reheating and returns by a further pipe to the intermediate pressure turbine. From intermediate pressure cylinder the steam is taken to the low pressure turbine. The steam leaving the low pressure turbine exhausted directly to the Condenser. The condenser consists of a large vessel containing tubes; cold water is circulated through these tubes and as the steam from the turbine passes round them it is rapidly condensed into water (condensate). Because water has a much smaller comparative volume than steam, a vacuum is created in the condenser. This allows the steam to reduce down to pressure below that of the normal atmosphere and more energy can be utilized. From the condenser, the condensate is pumped through low pressure heaters by the extraction pump, after which its pressure is raised to boiler pressure by the boiler feed pump. It is passed through further feed heaters to the economizer and the boiler for re-conversion into steam. The cold water which passes through condenser gains the temperature from steam. This water is cooled in Cooling Tower (where its heat is removed by evaporation) and reused. The turbine shaft usually rotates at 3,000 revolutions per minute. This speed is determined by the frequency of the electrical system used in this country and is the speed at which a 2-pole generator must be driven to generate alternating current at a frequency of 50 cycles per second (Hz).

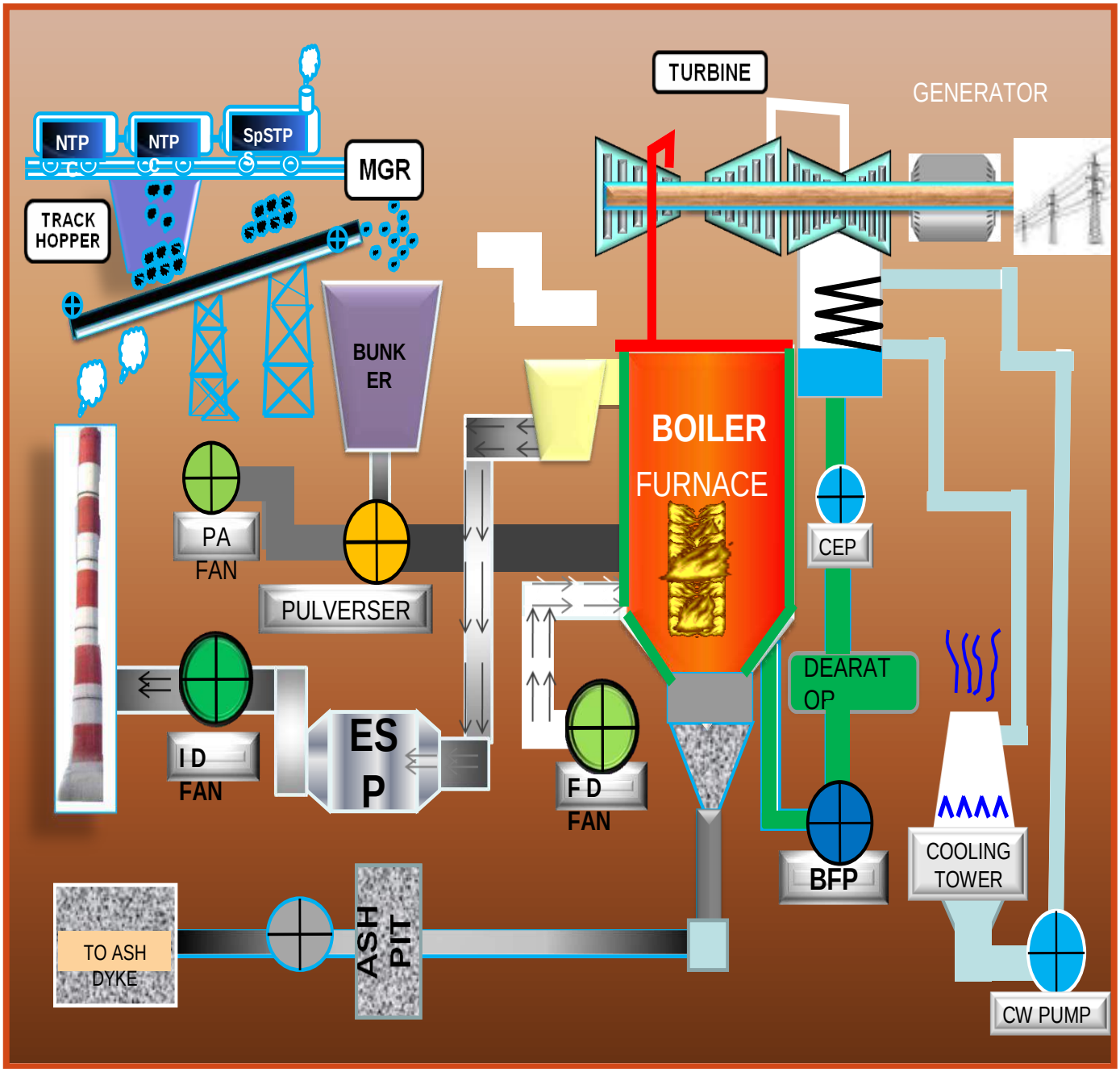
7.3.3 SWITCHING AND TRANSMISSION

The electricity is produced in the stator winding of large modern 660 MW Generators at 21,000 volts & 660 MW Generator at 23.5 kV and is fed through terminal connections to one side of a generator transformer that steps-up the voltage to 400 kV. From here conductors carry it to a series of three switches comprising an isolator, a circuit breaker and another isolator.

The electricity generated is fed into a common set of bus bars.

The centre of the Power Station is the Control Room. Here engineers monitor the output of electricity, supervising and controlling the operation of generating plant and high voltage switch gear and directing power to the grid system as required. Instruments on the control panels show the output and conditions which exist on all the main plant and a miniature diagram indicates the precise state of the electrical system.

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7.4 RAW MATERIALS USED

a) Water - From Ganges River (Temporary arrangement is from river Tons)
b) Coal - From SECL, Chhattisgarh and consumption is about 5.49 Million MTPA.
c) Acid - Diluted acid (5% concentration) about 1.5 T/per day.
d) Alkali - Diluted alkali solution (5% concentration) about 1.0 T/per day.

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CHAPTER-8

PLANT LAYOUT

DIAGRAM

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CHAPTER-9
PLANT HAZARDS / FACILITIES

9.1 HAZARDOUS CHEMICALS & FLAMMABLE /COMBUSTIBLE MATERIALS AT SITE

TOXIC CHEMICALS STORED

Sl. No.	Chemicals stored	Type of Container	Capacity	Nos.	Max. Storage Capacity
1.	Liquid Chlorine PT Chlorination Plant	Tonner	900 Kg	5	4,500 kg
2.	Liquid Chlorine CW Chlorination Plant	Tonner	900 Kg	17	15,300 kg
3.	Liquid Ammonia (25%)	Jerry can	25 Ltrs	15,000 Liter	15,000 Liter
	DM Plant				
4.	HCL (30%) Solution	Rubber lined	60 m^3	90 MT	180 m^3
5.	Caustic Soda (47%) solution	Rubber lined	60 m^3	55 MT	120 m^3
	CPU Plant				
6.	HCL (30%) Solution	Rubber lined	20 m^3	14 MT	40 m^3
7.	Caustic Soda (47%) solution	Rubber lined	10 m^3	12 MT	20 m^3
8.	H_2SO_4 (98%)	MS tank	60 m^3	75 MT	120 m^3
9.	Hydrogen Gas	Cylinders	6 M^3 per cylinder	180	1080m^3

Chemistry use only one H_2 cylinder for dissolve gas analyzer.

FLAMMABLE/COMBUSTIBLE MATERIALS STORED

Sl. No.	Material stored	Type of Container	Nos.	Max. Storage Capacity
1.	Coal	Open yard	04-Bays	6,00,000 MT
2.	LDO	Tank	03	3000 M3
3.	LSHS	Tank	01	2000 M3
4.	Lubricants	MS Drum	100 Nos	20 KL

9.2 QUANTITIES AND TOXICOLOGICAL DATA

The quantities of the hazardous chemicals either stored or handled at MUNPL are shown above. The information related to the Physical, Chemical, and Toxicological characteristics of these chemicals is given in the form of MSDS of these chemicals. The chlorine is the only toxic chemical which is stored in bulk. Looking towards its potential to cause major accident, we have been detailed the toxicological properties of the Chlorine. These are described as follows.

CHLORINE HEALTH HAZARDS

Chlorine concentration in Air	Degree of Hazard
0.1-0.5ppm or 0.3-1.5 mg/m3	No noxious long term effect
0.5ppm or 1.5 mg/m3	Slight odour (tentative limit)
1-3ppm or 3-6 mg/m3	Definite odour, Irritation of eyes and nose
30ppm or 90 mg/m3	Intense coughing fits
40-60ppm or 120-180 mg/m3	Exposure without effective respirator for 30-60 minutes or more may cause serious damage
100ppm or 300 mg/m3	May cause lethal damage
1000ppm or 3000 mg/m3	Danger to life even after a few deep inhalations.

(From Encyclopaedia of Occupational Health and Safety; International Labour Organisation, 1998)

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9.3 HEALTH HAZARD

Chlorine is mucous membrane and respiratory system irritant. It reacts with body moisture to form acids and at high concentration, it acts as asphyxiate by causing cramps in the muscles of larynx and swelling of the mucous membranes. The presence of chlorine in the atmosphere is, to some extent, detectable by its characteristic odour and irritant properties. Consequently in the event of leakage, workers usually have sufficient warning to escape and avoid excessive exposure.

9.4 ACUTE EXPOSURE

First symptoms of exposure to chlorine are irritation to mucous membranes of eyes, nose and throat, which increases to smarting and burning pain – this irritation generally spreads to the chest.

A reflex cough develops, which may be intense and often associated with pain behind the breast bone, the cough may lead to vomiting.

Cellular damage may occur with excretion of fluid in the alveoli which may prove fatal if adequate treatment is not given immediately (complete rest, Oxygen therapy, immediate transfer to hospital). Vomit frequently contains blood due to lesions of the mucous membrane caused by the gas.

Other common symptoms include headaches, general indisposition anxiety and feeling of suffocation.

Massive inhalation produces pulmonary oedema; fall of blood pressure and in a few minutes cardiac arrest.

9.5 CHRONIC EXPOSURE

Chlorine concentration considerably higher than its odour threshold limit may occur without being immediately noticeable; men rapidly lose their ability to detect the odour of chlorine in small concentrations.

a. Prolonged exposure to atmospheric Chlorine concentration of 5ppm results in the disease of bronchi and predisposition to tuberculosis.

b. Lung studies have indicated that concentration of 0.8 to 1.0ppm causes permanent, although moderate, reduction in pulmonary function.

c. Acne is not unusual in persons exposed for long period of time to low concentration of Cl2 and is commonly known as “Chloracne”.

d. Tooth enamel damages may also occur.

9.6 TRANSFORMATION IF ANY WHICH COULD OCCUR

In chemistry a chemical transformation shows the conversion of a substrate to a product omitting the reagents and catalysts or underlying reaction mechanism as opposed to a chemical reaction. The phrase Chemical transformation is also used in a more general sense when reaction specifics are not relevant or not available.

The process of power generation involves use of Chlorine, HSD, HFP/LSHS, Sulphuric Acid, HCl, Ammonium Hydroxide, Sodium Hydroxide, Natural Gas, etc. None of these chemicals stored or handled at the MUNPL, by virtue of their chemical, physical and storage conditions, has no potential to transform in to the more hazardous substances. However under certain conditions the chlorine may possess the chemical reaction hazards.

These are detailed below:

- The chlorine reacts violently with Alcohol, causes explosive reactions with finely divided metals, hydrocarbons, sulphides and borates.
- The chlorine is not combustible by its nature but can enhance the rate of combustion reaction. Contact with combustible substances like Acetylene, Ammonia, etc. should be avoided.

9.7 PURITY OF CHEMICALS

All the hazardous chemicals listed in this chapter have been described for their purity. But the purity of the Hydrogen is of utmost importance. The hydrogen is used for cooling purpose in the generator section. The ingress of air in to the hydrogen cooling and/or make-up system can form an explosive mixture. To avoid this hazard there is the provision for the monitoring of hydrogen purity in the hydrogen cooling system. The hydrogen control panel monitors the hydrogen condition in the cooler on continuous basis. Besides this, there is the possibility of formation of explosive mixture and hence the management should ensure that a purity level of ‘>98%’ is maintained in the hydrogen gas cooling system.

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CHAPTER-10
IDENTIFIED EMERGENCY

LEVEL OF EMERGENCIES

Meja Urja Nigam Pvt. Ltd is intrinsically safe with due precautions taken during design and operation stages (however, an emergency can occur due to any reason during plant operation). Hence preparedness is essential to contain and minimize the effects of any disaster, if occurred.

Following levels of emergencies have been visualized:-

a) Low Level

It is limited to a particular section / area of the plant, i.e. limited to a small area or section of the plant, viz. small fires, local gas leakages etc. This will be handled at plant section level.

b) Medium Level

When the emergency occurs in a large area, affecting several plant sections and external help is required.

c) High Level

When the emergency or disaster is endangering human life, property etc. inside and outside the plant and neighborhood, plant safety arrangement will be inadequate to handle the situation. In such case, help of external agencies is sought to contain the disaster.

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CHAPTER-11
EMERGENCY FACILITIES

11.1 EMERGENCY CONTROL CENTER (ECC)

An Emergency Control Centre is established in the CEO's Office and equipped with adequate means of communication.

Another Emergency Control Center is established in the Shift Charge Engineer Office at TG-17 M and equipped with adequate means of communication to inside and outside the plant with relevant data, personal protective equipments and equipment to assist those manning the center and to enable them to plan accordingly.

No other personnel shall have access to the Control Room.

ECC will also contain the following data:

a) Safety data pertaining to all hazardous materials likely to cause emergency, like Fire-Explosion in oil tank, chlorine leakage, bursting of steam pipe lines etc.

b) Procedure of major and special fire fighting, rescue operations, first aid etc.

c) Emergency call out list of persons drafted for emergency control Key Personnel, Fire, Safety, First Aid, Medical, HR, Security, Police and District Administration Authorities.

11.2 FACILITIES AVAILABLE IN E.C.C

Following facilities to be available in Emergency Control Centre:

- 2 Nos. of intercoms
- 2 Nos. of P&T Phones
- Emergency Manuals
- Emergency Contact Numbers
- District phone directories
- Emergency Siren Codes
- Plant Layout
- Emergency lights
- Wind direction and speed indicator (CCR)

11.3 EVACUATION AND ASSEMBLY POINTS

In an emergency, it is almost certainly be necessary to evacuate the personnel from affected areas and as a precautionary measure, to further evacuate non-essential workers, in the first instance from areas likely to be affected. The evacuation will be effected on getting necessary message from WIC.

On evacuation, employees shall assemble at the following assembly points:

a) Safety Park

b) Coal Handling Plant (CHP): Adjacent to CHP#1B Control Room

11.4 EMERGENCY POWER SUPPLY

Emergency lights are provided at all vulnerable points for lighting arrangements as well as to operate basic minimum equipment for operating the plant safety. Stationed battery system as well as stand by DG sets is employed at the plant for this purpose. More than one supply through different transmission system is also provided to ensure electric supply without fail.

11.5 AVAILABILITY OF EMERGENCY SAFETY EQUIPMENT

Self-contained Breathing Apparatus are located at areas where there may be a need including DM Plant, CCR AND WITH CISF Fire Wing.

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11.6 FIRE FIGHTING FACILITIES AVAILABLE AT MUNPL

The plant is protected against fire hazard and it is well equipped with the fire protection systems. The plant has its own Fire Station also that is run by CISF Fire Wing.

The details of fire fighting facilities available at MUNPL are furnished as below:

A.	**Fire Tenders** **1)** UP 70 FT 0394: Foam Type [Water-4050 Liter: Foam-550 Liter] **2)** UP 70 FT 8642: Foam Type [Water-4050 Liter: Foam-550 Liter] **3)** UP 70 CT 4240: Water Type-4050 Liter	03
B.	**Transport** • Pickup • Bolero	 01 01
C.	**Fire Staff** • Inspector • Sub-Inspector • Asst. Sub-Inspector • Others • **TOTAL**	 01 01 05 40 **47**

11.7 FIRE STATION NEARBY

There is no other fully fledged Fire Station near the MUNPL-Meja power plant except UP Government fire station at Meja which is approx 18 KM distant from MUNPL.

FIRE FIGHTING EQUIPMENTS &APPLIANCES INSTALLED AT MTPP

11.8 FIRE WATER PUMP HOUSE

The fire water pump house is situated in vicinity of cooling tower area. The source of water for fire water pump is drawn from CW Pump House.

The water house is equipped with the following facilities:

Sl. No.	Facility	Quantity (No.)
1.	Diesel engine driven water pumps (Each pump has a capacity of 410 M^3/hr.)	02 (Hydrant – 01 No. & Spray – 01 No.)
2.	Motor driven water pumps (Each pump has a capacity of 410 M^3/hr.)	04 (Hydrant-03 Nos. & Spray – 01 No.)
3.	Jockey pumps (Each pump has a capacity of 75 M^3/hr.)	02
4.	Storage Tank; Cap-2130M^3	02
5.	**FOPH Area**	
	i. Storage Tank Foam (AFFF-7,000 Liters)	02
	ii. FOPH Spray Pump (Electric-07m^3/ hr and Diesel-7 m^3/ hr)	02

11.9 H.V. SPRINKLER SYSTEM

The high velocity sprinkler system protection has been given to all transformers viz. GTs, UATs, STs, ATs and RTs. CIPV and the turbine oil tanks are also covered under this system.

This system is an automatic one and gets activated through fire detection network provided around the equipment covered under protection. The high velocity sprinkler sprays water on the equipment and completely engulfs the equipment. The entry of the oxygen in fire zone is restricted through this system and the fire is completely extinguished.

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11.10 FIXED FOAM SYSTEM

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Low Sulpher High Speed (LSHS) & Light Diesel Oil (LDO) tanks have been provided with fixed foam system. The foam station is situated in between the LSHS tanks farm area, where foam concentrate has been kept in the foam tanks. The mixture of water and foam concentrate goes to the HFO tanks, where foam water converts into foam and through it on to the top surface of the oil to extinguish the fire.

i. Light Diesel Oil in 03 LDO Tanks
ii. Low Sulphur High Speed Oil in 01 LSHS Tank

Capacities:

a) LDO#01-500 M^3
b) LDO#02-500 M^3
c) LDO#03-2000 M^3
d) LSHS – 2000 M^3

11.11 M.V. SPRAY SYSTEM

In addition to the foam system, the LSHS & LDO tanks have been provided with Medium Velocity Spray System to cool down the oil vapors, which develop due to heating of the oil in case of fire incident.

11.12 SPRINKLING SYSTEM

All coal conveyors (forward as well as backward) have been provided with the sprinkler system against fire hazard. Quardzoid bulb heat detectors are provided at the tips of each pipe covered under the network of pipe meant for sprinkling system. The bulbs break at 79° centigrade of heat and through the tips the water automatically sprays out on the conveyor and arrest the fire. Besides the above, sprinkling system in cable galleries is also provided.

11.13 AUTOMATIC FIRE PROTECTION SYSTEM

This facility is provided at all UCBs rooms of the plant. The fire is detected through a network of smoke detectors and the detection leads to automatic operation of the valve mounted on clean gas cylinders facilitating quick spread of gas in the affected area to extinguish the fire. The system is designed to operate independently through three different panels. Each panel has zones identified where the particular panel network operates.

11.14 RATE OF RISE TYPE (ROR) TEMPERATURE DETECTOR

This system is provided in coal conveyors to prevent moving of fire. In this system, the temperature of two different places are continuously monitored and if any change of temperature is detected, the concerned conveyor is brought to the half of its existing speed to prevent spread of moving fire.

In addition to above, LHS cable network is also provided all along these conveyors which transmit alarming signal to CHP Control Room through annunciation panel to make the personnel alert and take preventive measures as soon as it faces due to rise of temperature at 79° centigrade and above.

11.15 PORTABLE FIRE EXTINGUISHERS:

In addition to above fire fighting and fire detection system, as well as the alarming system, portable fire extinguishers have been installed at various fire prone areas to handle the fire promptly.

The extinguishers installed at the plant area of various kinds and capacity, viz. Water type Extinguisher 09 Liter, Water type Extinguisher 50 Liter, Mechanical Foam Extinguisher 09 Liter, Mechanical Foam Extinguisher 50 Litre, DCP Extinguisher 05Kg, DCP Extinguisher 09Kg, DCP Extinguisher S/Pr 10Kg, DCP Extinguisher 50Kg, CO_2 4.5kg, CO_2 Extinguisher 6.50 kg, CO_2 Extinguisher 6.80 kg and Extinguisher CO_2 22.50 kg.

Total 1087 nos. of fire extinguishers are installed in the Plant area, MGR, I.T., Office buildings, Hospital, Township Elect. Sub Stations, Miscellaneous Township buildings and Bijaura Pump House.

11.16 HYDRANT LANDING VALVES

There are 264 hydrant landing valves alongwith 45 number of water monitors that are installed at various locations of the plant which are manually operated, whenever water is required for firefighting work.

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CHAPTER-12
EMERGENCY PROCEDURES (ACTION PLAN)

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ACTION PLAN

For effective control and management of an emergency; an action plan and Organization hierarchy is prepared along with responsibilities. Action Plan for emergency management and critical incident recovery plan consists of following factors:

The Action Plan consists of:

- Responsibility of employees about first Information
- Responsibility of Shift Charge Engineer (SCE) / Incident Controller
- Responsibilities of Work Incident Controller (WIC)
- Responsibilities of Chief Incident Controller (CIC)
- Responsibilities of Emergency Control Centre
- Responsibilities of various teams constituted to deal with specific emergency requirements
- Responsibilities for Declaration of Emergency
- Responsibility of CIC for "All Clear" Signal.

12.1 FIRST INFORMATION

The first person who observes / identifies the hazardous incident shall inform by shouting or by telephone to the Shift Charge Engineer (SCE) / Incident Controller and Fire Station about the hazard.

SCE will inform to the following:

- Fire Station Control Room/CISF Fire
- WIC
- CIC
- Hospital
- Communication/IT Team Head
- Safety

Further, after declaration of the Emergency, Communication/IT Team will communicate to all Task Force Teams to take appropriate actions.

SCE will then hand over the control room to Asst. SCE for further communication and he shall move to the incident site for assessing the situation.

12.2 RESPONSIBILITY FOR DECLARATION OF MAJOR EMERGENCY

WIC immediately shall reach to the site/ shift charge control room and decide action plan accordingly. The emergency may be like: - *Large quantity Chlorine leakage, Cyclone, Earthquake, Fire* occurring in the plant is one that may affect more than one section within it or may cause serious injuries, loss of lives, extensive damage to property or serious disruption around the area or any type of disaster threatening the part or associated area or whole of the plant, danger threatening to human life & other such type of disaster.

12.3 EMERGENCY DECLARED BY

- CIC
- WIC in consultation with CIC
- Incident Controller/ SCE, if unable to contact CIC/WIC for any reason, based on severity, SCE declares EMERGENCY taking confidence with Head of Operation. Once the emergency alarm is raised the "ON SITE EMERGENCY PROCEDURE" will be activated.

12.4 MAKING THE EMERGENCY KNOWN INSIDE THE PLANT

The emergency will be made known to everybody inside the plant and vicinity of the plant by blowing the Emergency Siren by Shift Charge Engineer after getting instruction from CIC/WIC.

The alarms are sounded to warn different type of major emergencies such as Fire, Explosion, Chlorine gas release, etc.

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12.5 RESPONSIBILITIES OF SHIFT CHARGE ENGINEER (SCE) / INCIDENT CONTROLLER:

The SCE / Incident Controller on knowing about an emergency will rush to the incident site and take overall charge and report to the WIC and CIC.

The main responsibilities / duties of SCE / Incident Controller shall be as follows:

i. Take the decision to stop / continue or isolate operations within the affected area taking in to consideration safety of persons, damage to plant / property, environment and minimize loss of materials.

ii. To assess the extent of emergency in consultation with WIC and activate "ON SITE EMERGENCY" plan accordingly. In case SCE / Incident Controller are unable to contact WIC/CIC, based on the situation, declares emergency taking confidence with Head of Operation.

iii. *Shall work under WIC till the WIC arrives , he may have to:*

- **a)** Direct for search of causalities
- **b)** Arrange for evacuation of area likely to be affected
- **c)** Ensure key persons are informed & called in
- **d)** Inform WIC / CIC the type of help required
- **e)** Inform the UP SLDC about the emergency
- **f)** Set up communication & establish contact with Emergency Control Centre
- **g)** Tender advice / information to Fire Fighting & emergency services
- **h)** To preserve the evidence so as to facilitate any enquiry into in to cause and circumstances of the emergency.

12.6 RESPONSIBILITY OF WORKS INCIDENT CONTROLLER (WIC)

The General Manager (O&M) & Factory Manager designated as the Works Incident Controller (WIC) on knowing about Disaster, shall immediately rush to the incident site with appropriate safety measures.

i. As soon as he has been made aware of an incident the Works Incident Controller (WIC) should assess its scale against predetermined criteria or emergency reference levels, and decide whether a major emergency exists or is likely. If so, he should immediately activate the On-Site Emergency Plan and if necessary the Off-Site Emergency Plan. He will also inform the CIC.

ii. He should assume the duty of the Chief Incident Controller (CIC) pending the latter's arrival, in particular to:

- **a.** Ensure the emergency services have been called;
- **b.** Direct the shutting down and evacuation of the other plant areas, etc., likely to be affected;
- **c.** Ensure key personnel have been summoned.

iii. His main function, however is to direct all operations at the scene of the incident , e.g.

- **a.** Rescue and firefighting operations, until the arrival of the fire brigade, when he should hand over control to a senior fire officer,
- **b.** Search for casualties;
- **c.** Evacuation of non-essential workers to assembly areas.

iv. He should also:

- **a.** Set up communication points and establish continuous contact with Emergency Control Centre relating to failure of electric supply and thereby Public Address System (PAS) and internal telephones.
- **b.** Give advice and information as requested to the emergency services;
- **c.** Brief the Chief Incident Controller and keep him informed of developments
- **d.** Issue instructions to shut down all operations within the affected area taking into consideration priorities for safety of personnel, minimize damage to the plant, property and the environment.
- **e.** Provide advice and information to the fire and security personnel in consultation with concerned officials.
- **f.** Ensure that all non-essential workers/staff of the affected area have been evacuated to the safer places.

v. Report all significant and developments to CIC.

vi. Will take action to preserve all the evidences for further enquiry into the cause and circumstances which caused or escalated the emergency

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12.7 RESPONSIBILITY OF CHIEF INCIDENT CONTROLLER (CIC)

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The CEO or Occupier who is designated as the Chief Incident Controller (CIC), on receipt of information regarding the emergency inside the plant premises will go to the Emergency Control Centre and will assume overall responsibilities for the Factory/ Storage site and its personnel.

His responsibilities will include:

1. Declaration of **"Major Emergency"** if he is satisfied that the incident cannot be controlled with routine operations. If he decides that a major emergency exists of is likely, he should ensure that the emergency services have been called and the off-site plan activated.
2. Depending on the circumstance, he should then;
   - **a.** Ensure that key personnel are called in;
   - **b.** Exercise direct operational control of those parts of the works outside the affected area;
   - **c.** Continually review and assess possible developments to determine the most probable course of events;
   - **d.** Direct the shutting down of plants and their evacuation in consultation with the Incident Controller and key personnel;
   - **e.** Ensure that casualties are receiving adequate attention. Arrange for additional help if required. Ensure that relatives s are informed;
   - **f.** In case of emergencies which involve risk to outside areas from wind blown materials, contact the local meteorological office to receive early notification of impending changes in weather conditions;
   - **g.** Liaise with chief officers of fire and police service and with the Health and Directorate of Factories; provide advice on possible effects on areas outside the works; ensure that personnel are accounted for;
   - **h.** Control traffic movement within the works;
   - **i.** Arrange for book of the emergency to be maintained;
   - **j.** Where the emergency is prolonged, arrange for the relief of site personnel and the provision of catering facilities;
   - **k.** Issue authorized statement to the news media;
3. Assessment of the magnitude of the situation and to decide whether the employees are to be evacuated from the assembly points to identified shelter place.
4. To undertake a continuous review of possible developments and assess in consultation with various teams as to whether shutting down of the plant or any section of the plant is required.
5. To consult and liaise with senior officials of the government like Fire Brigade, Police, Medical and the Factories inspector through appropriate Team Leaders and on the basis of the recommendation of Team Leaders provide advice to authorities on possible harmful effects to neighboring population, staying outside the factory premises. The overall action will be under the leadership of district administration.
6. To Inform CMD about the details of the disaster and arrangements made by him to prevent loss of lives/property.
7. To look after rehabilitation of affected persons on discontinuation of emergency.
8. To issue authorized statements to news media, and ensure that evidence is preserved for enquiry to be conducted by the Statutory Authorities.
9. The corporate office assistance shall be sought as and when required depending upon the severity of the situation.

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12.8 KEY PERSONNEL:

Apart from Chief Incident Controller [CIC] & Work Incident Controller [WIC]; other works personnel will have key role to play in providing advice and in implementing the decisions made by the Chief Incident Controller. They shall guide the personnel working under them for their safety.

KEY PERSONNEL

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Kamlesh Soni	CEO-CIC **Chief Incident Controller**	HOS	6104	9416212439
2.	Ajit Basak	GM-WIC **Work Incident Controller** Team Leader	O&M	6105	9434039137
3.	Guru Prasad Singh	GM	Maintenance	3485	9425178039
4.	Anil Parwal	AGM	Finance	3084	9406712506
5.	Sanjay Kumar Singh	AGM	FM	3328	9425219603
6.	Akhila K P Pattnaik	AGM	HR	3133	9424209178
7.	Y.Ajay Kumar	AGM	IT	3062	9440918387
8.	Dr. Manisha Pandey	CMO	Medical	1132	9650993607
9.	Omprakash P Gondule	DGM	Chemistry	3327	9424141651
10.	Sunjay Kumar Sharma	DGM	Safety	3181	9650990919
11.	R.K. Prajapati	DGM	Safety	3127	9424140623
12.	Rakesh Kumar Parik	AC - CISF	CISF Security	3438	8527037717

TASK FORCE TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Ajit Basak	GM (O&M)	Team Leader	6105	9434039137
2.	Pradeep Kumar Sabat	GM (C&M)	Member	3277	9431215217
3.	Sibsankar Gangopadhyay	AGM (MM)	Member	3209	9650996003
4.	Sanjay Kumar Singh	AGM(FM)	Member	3328	9425219603
5.	Nitesh Kumar Singh	DGM (Civil Maint.&FM)	Member	3332	9650995092
6.	Vinaya Krishna Dixit	AGM (MM)	Member	3337	9425304501
7.	Omprakash P Gondule	DGM(Chemistry)	Member	3327	9424141651
8.	Rajput Om singh	DGM (Operation)	Member	3322	9493173878
9.	Sunjay Kumar Sharma	DGM (Safety)	Member	3181	9650990919
10.	UCB-Control Room	Shift charge	Member	3200	7518802424
11.	Namo Narayan Yadav	Inspector (CISF- Fire Wing)	Member	3484	8189011485

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SUPPORTING TEAM TO CIC

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Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Ajit Basak	GM (O&M)	Team Leader	6105	9434039137
2.	Guru Prasad Singh	GM (Maintenance)	Member	3485	9425178039
3.	Pradeep Kumar Sabat	GM (C&M)	Member	3277	9431215217
4.	Akhila K P Pattnaik	AGM (HR)	Member	3133	9424209178
5.	Y.Ajay Kumar	AGM	IT	3062	9440918387
6.	Amit Rautela	AGM (Finance)	Member	3077	9153269307
7.	R.K. Prajapati	DGM (Safety)	Member	3127	9424140623

MAINTENANCE TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Guru Prasad Singh	GM (Maintenance)	Team Leader	3485	9425178039
2.	Sibsankar Gangopadhyay	AGM (MM)	Member	3209	9650996003
3.	Praveen Kumar Patel	AGM (BMD)	Member	3317	9415110863
4.	Sanjay Kumar Singh	AGM (FM)	Member	3328	9425219603
5.	Rajeev Pandey	AGM (EMD)	Member	3175	9650994412
6.	Pankaj Kumar Singh Chauhan	DGM (C&I Maintenance)	Member	3162	9650993742
7.	Durgesh Kumar Vishwakarma	DGM (MTP)	Member	3173	9415110332
8.	Rajput Om singh	DGM (Operation)	Member	1632	9493173878
9.	Omprakash P Gondule	DGM (Chemistry)	Member	3086	9424141651
10.	Ashwini Kumar	Sr. Manager (MM)	Member	3321	9425281351
11.	Munna Lal	Manager (Civil Maintenance)	Member	3027	9415335024

FIRE-FIGHTING TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Ajay Kumar Goel	DGM (MM)	Member	3303	9650999430
2.	Sunjay Kumar Sharma	DGM (Safety)	Member	3181	9650990919
3.	Arvind Prakash Bharti	DGM (FM)	Member	3144	9425823246
4.	Namo Narayan Yadav	Inspector (CISF- Fire Wing)	Member	3484	8189011485

TRANSPORT TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Ajit Basak	GM (O&M)	Team Leader	6105	9434039137
2.	Sanjay Kumar Singh	AGM (FM)	Member	3328	9425219603
3.	Manoj Kumar Verma	DGM (HR)	Member	3056	8318160124
4.	Parminder Mohan Singh	DGM (FM)	Member	3331	9650994307
5.	Shyam Singh	Asst. Manager (HR)	Member	3124	7458012690

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COMMUNICATION (IT) TEAM

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Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Y.Ajay Kumar	AGM	IT	3062	9440918387
2.	Upma Singh	Sr. Manager (IT)	Member	3112	7763801868
3.	Sudhir Mudahi	Sr. Manager (HR)	Member	3016	7030808475
4.	Mohuwa Bhowal	Manager (HR)	Member	3128	9650997480

EMERGENCY COMMUNICATION OFFICER (ECO)

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Pratigya Yadav	PR (HR)	Team Leader	3091	9910787121

SAFETY TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Ajit Basak	GM (O&M)	Team Leader	6105	9434039137
2.	Sunjay Kumar Sharma	DGM (Safety)	Member	3181	9650990919
3.	Omprakash P Gondule	DGM (Chemistry)	Member	3086	9424141651
4.	Praveen Patel	AGM (MM)	Member	3317	9415110863
5.	Rajeev pandey	AGM (EMD)	Member	3175	9650994412
6.	Pankaj Kumar Singh Chauhan	DGM (C&I Maintenance)	Member	3162	9650993742
7.	R.K. Prajapati	DGM (Safety)	Member	3127	9424140623
8.	Sudhir Mudahi	Sr. Manager (HR)	Member	3016	7030808475
9.	A.K. Srivastava	Asst. Manager (Safety)	Member	3127	7571908555
10.	Namo Narayan Yadav	Inspector (CISF- Fire Wing)	Member	3484	8189011485

MEDICAL TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Dr. Manisha Pandey	CMO	Team Leader	1132	9650993607
2.	Dr. Arvind Singh	Assistant Medical Officer	Member	1605	7906812421
3.	Geetika Sikri	Sr. Manager (HR)	Member	3160	9650994995

SECURITY TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Akhila K P Pattnaik	AGM (HR)	Team Leader	3133	9424209178
2.	Sudhir Mudahi	Sr. Manager (HR)	Member	3016	7030808475
3.	Rakesh Kumar Parik	AC - CISF	Member	3438	8527037717
4.	Namo Narayan Yadav	Inspector (Security)/ CISF (Control Room)	Member	3484	8189011485

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ADMINISTRATIVE TEAM

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Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Akhila K P Pattnaik	AGM (HR)	Team Leader	3133	9424209178
2.	Manoj Kumar Verma	DGM (HR)	Member	3056	8318160124
3.	Sudhir Mudahi	Sr. Manager (HR)	Member	3016	7030808475
4.	Rakesh Kumar Parik	AC - CISF	Member	3438	8527037717

EMG TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1.	Saurabh Kumar Pathak	Sr.Manager (EMG)	Team Leader	3023	9435326427
2.	Anil Kumar	AGM (P&S/FES)	Member	3134	9068202233
3.	Sumit Kumar Kundu	AGM (AHP)	Member	3092	9434043065
4.	Arvind Prakash Bharti	DGM (FM)	Member	3144	9425823246
5.	Prashant Shukla	Manager (Chemistry)	Member	3088	7458011778

CHEMICAL TEAM

Sl. No.	Name (Sh./Smt.)	Position / Department	Designation	Telephone Number	
				Office	Mobile
1	Omprakash P Gondule	DGM (Chemistry)	Member	3086	9424141651
2	Rajeev Kumar Pandey	AGM (EMD)	Member	3175	9650994412
3	Anil Kumar	AGM (P&S)	Member	3134	9068202233
4	Ashutosh Singh Bhadoria	DGM (Ash Handling)	Member	3312	9412771651
5	Dilip Kumar	Sr. Manager (Chemistry)	Member	3088	9473196023
6	Sushil Kumar Sharma	Sr. Manager (C&I Maint)	Member	3037	9559780561
7	Mahendra Singh	Deputy Manager (MM)	Member	3310	9406712055
8	Namo Narayan Yadav	Inspector (CISF- Fire Wing)	Member	3484	8189011485

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CHAPTER-13

RESPONSIBILITY OF VARIOUS TEAMS

Apart from Chief Incident Controller [CIC] & Work Incident Controller [WIC]; other works personnel will have key role to play in providing advice and in implementing the decisions made by the Chief Incident Controller. They shall guide the personnel working under them for their safety.

TASK FORCE

- To identify source of hazard and try to neutralize/contain it
- To isolate remaining plant and keep that in safe condition
- To organize safe shutdown of plant, if necessary
- To organize all support service like operation of fire pumps, sprinkler system, etc.

MAINTENANCE TEAM

- Attend to all emergency maintenance jobs on top priority
- To take steps to contain or reduce the level of hazard
- To organize additional facilities as desired/ required

FIRE FIGHTING TEAM

In case fire erupts and emergency is due to fire, the fire team is responsible

- To rush to fire spots and extinguish fire
- To seek help from outside fire fighting agencies through notified MUNPL officers, if require
- To evacuate persons affected due to whatever reasons

TRANSPORT TEAM

- To make all available vehicles ready to proceed for evacuation or other duties, when asked for
- To send at least one mechanic at the site of incidence where he may help in attending minor defects in ambulance, fire tenders or other vehicles
- To arrange petrol/diesel supply
- Make all arrangements regarding transportation.

COMMUNICATION TEAM

- To maintain the communication network in working condition.
- To attend urgent repairs in the communication system, if required.
- To arrange messengers for conveying urgent messages when needed so.
- To help MUNPL Authorities to communicate with external or internal authorities / officials.

SECURITY TEAM

- To man all gates
- To restrict unauthorized persons
- To permit, with minimum delay, the entry of authorized personnel and outside agencies, vehicles etc., who have come to help
- To allow the ambulance/evacuation vehicles etc. to go through the gates without any delay.

ADMINISTRATION TEAM

- To rescue the casualties on priority basis
- To transport casualties to first aid post, safe places, or medical centers
- To account the personnel
- To help in search for missing personnel
- To pass information to the kith and kin of fatal or serious injured persons.

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SAFETY TEAM

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- To arrange required safety equipment.
- To record accidents.
- To collect the preserve evidences in connection with accident inquiries.
- To guide authorities on all safety related issues.

EMG TEAM

- To assess the impact on air / water pollution.
- To assess the land contamination during chemical spillage, fire hazard, chlorine leakage.
- To assess the impact of dust/smoke emission in the surrounding environment/ atmosphere.

MEDICAL TEAM

- To arrange First Aid items/stretchers immediately &reach to site of incident.
- To arrange for immediate medical attention.
- To arrange for sending the casualties to various hospitals and nursing homes.
- To ask specific medical assistance from outside including through Medical Specialist in consultation with CIC/WIC.

SUPPORTING TEAM

In addition to the teams already mentioned, there will be two additional teams known as Supporting Team:

Supporting team to CIC:

This team will assist CIC during an emergency to execute his functioning in consultation with CIC. The members of the team and their responsibilities are given below:

GROUP – I (Directly reporting to CIC)

a) Work Incident Controller (WIC)
b) Head of Operation
c) Head of C&M
d) Head of Finance
e) Head of HR
f) Asst. Commandant (CISF)
g) In-charge Medical (CMO)
h) Head of IT
i) Head of Safety

a) Head of Human Resource

Alternative – Next below Head of HR

- Contacting statutory authorities
- Arranging for relievers and catering facilities
- Giving information to media
- Arranging shelters for affected persons
- Contacting medical centers and nursing homes
- Providing all other support, as necessary.

b) Head of Materials

Alternative – Next below Head of Materials

- Arranging for urgently required materials through cash purchase or whatever means.

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c) **Head of Finance**
Alternative – Next below Head of Finance

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- Arranging funds for various relief measures as well as emergency purchase of materials, sending his representative for emergency purchase.

Supporting Team to WIC (Work Incident Controller)
GROUP – II (Reporting to Work Incident Controller)

a) Head of Maintenance
b) Head of FM
c) Head of MGR
d) Head of Chemistry
e) Ash Dyke Incharge
f) Operation Incharge

The team may call more persons depending upon the need.
This team will assist the WIC in manning communication and passing instructions to the teams. The Steno / Secretary shall always be available with WIC for recording all information coming in and instructions going out.

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CHAPTER-14
COMMUNICATION SYSTEM & WARNING AND ALARM SYSTEMS FOR VARIOUS EMERGENCIES

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14.0 Communication System

Communication is the most important system for the effective management of an emergency situation. When any accident occurs, it is a general practice to raise alarm immediately and declare the emergency. The process of declaration of emergency will involve passing of the information to the essential services and threatened areas. Besides, it also becomes essential to inform outside agencies, relatives, press, etc.

Hence during the emergency situation there occurs a large volume of two way communications. It is therefore the communication system should have inherent advance features to take care of large volumes of two way communications. The Emergency control room should have an effective communication system and it must be able to function during the emergency. It is the responsibility of the management to ensure that the communication facility at the local emergency control rooms is efficient and fool proof.

The Emergency control rooms should be linked by the telephone to all essential points e.g. facilities under crisis, essential services, etc. It is vital that the telephone system provided at emergency control rooms should work during the emergency. This means that there should be adequate numbers of outgoing and incoming lines. It is suggested that minimum two sets of outgoing and incoming lines should be provided at the emergency control rooms. It should be ensured that the outgoing lines should not be neutralized by the incoming lines during the emergency. For this purpose we suggest that at least one outgoing line provided at the emergency control room should not be made public.

Current guidance on emergency planning makes little reference to the use of mobile telephones. These clearly have role to play, they may become ineffective because of situation of network jam during the emergencies. The guidance given here largely retains the emphasis on basic fixed landline telephone system and walkie–talkie system. If mobile phones are used, the primary system should be the basic fixed telephone system; the mobile phone system should be used as the additional system of the communication and as a powerful aid to the primary system of basic fixed phones.

14.1 Communication System At MUNPL

The details of the communication facilities available are given below;

- Public address system has been provided in the key plant locations.
- Telephone and Intercom facilities are available at all required officially desks.
- Emergency alarm is available at chlorine storage shed alerting the neighboring plant areas in case of heavy leakage of chlorine.
- Two P&T telephone connection are provided in Emergency Control Room to contact nearby industries to seek for any external assistance.
- Internet connection at SCE office is provided.

In case of an emergency situation any persons who is first to notice the adverse conditions is advised to convey the message either to the Shift-In-charge of the concerned plant and/or to the fire station. With the help of these facilities for communication system any person from any of the key locations in the plant can communicate with shift In-charge Engineer, fire station safety department, etc. by dialing the number. The same facility is used to contact District Authorities in case of an off-site emergency situation for information and help. For the effective functioning of the Communication system there is the provisions of communication team who is responsible for conveying all urgent messages.

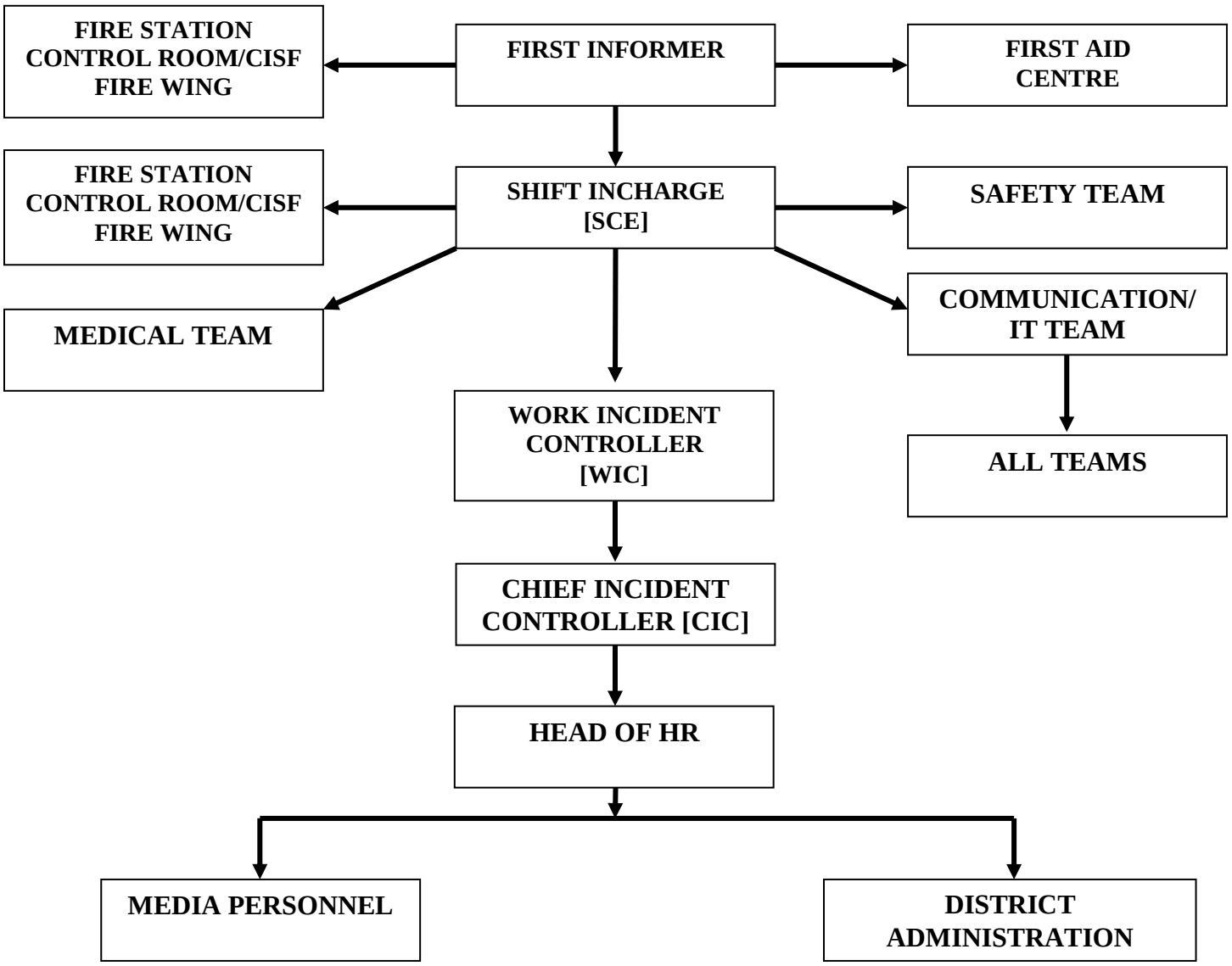
The details of communication network are given below:

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COMMUNICATION NETWORK

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Warning & Alarm Systems for Various Emergencies

In any Emergency Management Plan, one of the most important pre-requisites is a good warning system. Efficient warning system will save lives, prevent injuries and reduce losses. The Emergency alarm to issue warning for the Onsite and/or Off-site emergency will be sounded by Emergency Control Room. The emergency alarm has been located on the top roof of Fire Station & top roof of Unit # 1 and under control of Shift Charge & Emergency Control Room.

The emergency alarms provided at MUNPL consist of different and/or repeated long and short blasts for different periods. The purpose is for easy identification of the type of emergency on the basis of ringing of Siren. In other words the alarms are coded such that the nature of emergency can be distinguished as a chlorine release or major fire or possible explosion. A siren audible up to a distance of 5KM range is available to issue warning for emergency situation.

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14.2 TYPES OF ALARMS

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The detail of the warning & alarm system as decided by the management of the MUNPL is given below. However depending upon the nature of hazards and the area affected, the management of MUNPL may explore the use of other methods of warning if required.

STANDARD EMERGENCY SIREN CODES		
SL. NO.	**EMERGENCY TYPE**	**SIREN CODE**
1.	Fire	10 Seconds ON and 05 Seconds OFF - 03 Times
2.	For Heavy Chlorine Leak	20 Seconds ON and 15 Seconds OFF - 03 Times
3.	Any major emergency that requires evacuation of work area & reach to assemble points	20 Seconds ON and 15 Seconds OFF - 05 Times
4.	All Clear	02 Minutes Continuous Siren

The detail of these methods is as follows:

1. Outdoor/Indoor Warning Sirens.
2. Telephonic contact with schools and other organization/public institution.
3. Information to be provided at common gathering places such as Canteens, Shops, etc.

It is responsibility of the plant management to communicate the details of alarm and warning system to all the employees and the contract staff.

The designated persons from MUNPL with due support from the local Police Department will be responsible for implementation of the Warning System for Offsite Emergency Management.

14.3 ALL CLEAR SIGNAL

After Cessation of Emergency:

- WIC will communicate to CIC about it.
- After verification of the status. CIC will issue necessary instructions to Shift Charge Engineer (SCE) to sound **"ALL CLEAR SIREN".**

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CHAPTER-15
ACTION TO BE TAKEN IN CASE OF CHLORINE LEAKAGE

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It is assumed that due to some reasons or other, large quantity of chlorine gas may leaks out in to the atmosphere from the Chlorine Toner. The first person(s) noticing the leakage should immediately inform in the SCE- Control Room and in Fire Station.

On getting the information the Shift In-charge will rush to the spot and assume charge of the situation and inform Works Incident Controller and Chief Incident Controller, if an emergency exists.

Actions to be taken:

1. All possible steps to control / stop the leakage will be taken by the Shift In-charge using Chlorine kit, Breathing Apparatus, etc.
2. If the situation does not come under control, people in the area will be asked to move out to the nearest assembly point taking into consideration the direction of wind etc., and allow only essential staff equipped with necessary protection equipments to ensure that they are not exposed to any undue risk.
3. The direction of the wind should be indicated from DM/ PT plant by wind sock cloth /control room through PA system.
4. The gates of the plant will be closed/area cordoned off to control entry of unauthorized persons.
5. Depending on the seriousness, the Work Incident Controller will arrange information to –
   a) Main Control Room
   b) Chief Incident Controller

In emergency the Key Personnel, on reaching the spot, will take action to control the leakage:

a) If the leakage is from gland nut, it may be tightened.
b) If the valve is leaking, it should be checked by closing it fully.
c) If the leakage is from the tread, the cylinder should be rolled to such a position that the leakage point is on the top side. This will enable escape of chlorine as gas and not as liquid.

The leak to be attended using chlorine kit and vent connected to neutralization tank/ scrubber containing caustic soda/ lime bath/ scrubber.

Alternatively, the toner may be shifted to an isolated open place where gas may be diluted and carried away by natural / artificial draught and movement of people should be from windward side so that escaping gas is carried downward.

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CHAPTER-16
ACTION PLAN FOR FIRE EMERGENCIES

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Any fire starts small and it is easy to control the fire when it is in the incipient stage. In the factory all major fire-prone areas are declared as "NO SMOKING AREAS". Any hot job in these areas is prohibited unless authorized by a written permit from the operation Engineer In-charge.

The following actions to be followed to avoid fires –

a) Any person noticed the fire:

1. Any person noticed the fire shall try to put off the fire by using the fire fighting appliances available.
2. Simultaneously, the person start shouting FIRE-FIRE till assistance arrives, the person shall intimate the Fire Control Room also.

b) Action by next person arriving at the scene of Fire:

Any person hearing the shout FIRE-FIRE will immediately rush to the scene of fire and start –

1. Shout "FIRE-FIRE" and assist the first person.
2. Assist in rescue and fire fighting by use of equipment and extinguishers available nearby and intimate fire wing, if not done already.
3. Guide the Fire fighting party to the correct location.

c) Fire Fighting Party:

1. The Fire Fighting Party soon after reaching the scene of fire shall start rescue and fire fighting work as quickly as possible and keep passages, doors etc. clear.
2. Arrange salvage operation protecting valuable property or covering up of machinery etc.
3. Keep the area clear of unnecessary persons.
4. Assist the other Fire Tenders in all possible manners.

d) In-charge of the Plant:

1. Immediately, after getting the information, the I/C will rush to the scene of fire and resume charge of rescue and fire fighting operation and ensure that the information is passed to the Fire Station.
2. Post a guide to direct the fire tender to the scene of fire, if not already done.
3. If required, get electrical connection cut off from the main switches.
4. Guide fire fighting personnel about any special hazard and ensure successful fire fighting.

e) Officer I/C Fire Fighting:

The senior most officer present at the scene of fire, irrespective of the fact whether he is controlling the section or not, shall assume control, assess the situation and take action to extinguish or control the fire as expeditiously as possible. He shall consult the Asst. Commandant to take further action or call external assistance.

f) By the Fire Control Room I/C in Fire Station:

1. On getting information regarding fire, he shall sound the turn out bell / siren and inform the officer on duty about the location and nature of fire.
2. Inform the Assistant Commandant as quickly as possible about the location and nature of fire.
3. Keep record about the time of alarm, time of turn out etc.
4. Give the required information to the off duty personnel for reporting for duty at the fire station to assist the fire fighting, if required.
5. Attend all telephone calls and to take further action as ordered by the Assistant Commandant and or Officer I/C of the fire fighting operations.
6. **Inform the following Authorities regarding the location and nature of fire in case of serious fire:**
   - **a)** Head of the Station (CIC)
   - **b)** GM (O&M) i.e. WIC
   - **c)** Head of HR
   - **d)** Head of P&S
   - **e)** Head of Safety

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CHAPTER-17
MEDICAL FACILITIES AVAILABLE AT MUNPL HOSPITAL

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MUNPL Hospital is situated in the central place of Srijan Vihar Township. It is equipped with all necessary facilities leading to a medium size hospital.

It has following facilities:

1.	Ambulance	03 numbers **a)** Adverse Life Saving (ALS) Ambulance **b)** Hospital Ambulance **c)** First Aid Center Ambulance
2.	Jeeps deployed at Hospital	01 number
3.	Bed capacity	10 numbers (Emergency)
4.	Specialists	02 numbers and Visiting specialists regularly
5.	Para Medical Staff	33 persons

18.1 AT NEARBY PROJECTS/INDUSTRIES/LOCATION

In case of emergency, medical assistance and all sorts of medical help can be sought from the following nearby hospitals.

A. NAZARETH HOSPITAL

Address:
13/A, Near Hathi Park, Kamla Nehru Rd
Prayagraj, Uttar Pradesh
Pin Code – 211001
Phone: 05322407430

B. JEEVAN JYOTI HOSPITAL

Address:
162, Bai Ka Bagh, Lowther Road
Prayagraj, Uttar Pradesh
Pin Code – 211003
Phone: +91-532-2417248/ 52/ 54, +91-6390103003, +91-6390103011

C. PREETI HOSPITAL

Address:
29B, Panna Lal Rd, Near Indian Press
Darbhanga Colony, George Town
Prayagraj, Uttar Pradesh
Pin Code – 211002
Phone: 063932 83820

18.2 FIRST AID CENTER IN PLANT

Apart from a full-fledged hospital situated at MUNPL Township, a First-Aid Center is functioning at Plant area near Gate No.-01 round the clock. An ambulance is also deployed there round the clock to shift the serious cases to MUNPL hospital. In case of any disaster, transportation facilities for first-aid center / MUNPL township hospital may be extended by the available vehicles of Shift Charge Engineers and other Departmental Heads in addition to ambulance.

18.2.1 Medicines and Facilities in First Aid Centre

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The followings items are made readily available in the MUNPL Occupational Health Centre cum hospital:

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a) Oxygen Cylinders.
b) Injection Deriphyllin
c) Injection Periphyllin
d) Injection Lazix
e) Injection Decadron
f) Injection Coramine
g) Erasma Tablets.
h) Lasix Tablets.
i) Strepsils/Lozenges.
j) Glucose Saline
k) I.V. Sets.
l) 5 ml Syringes
m) 2 ml Syringes
n) Injection Needles
o) Stretchers

18.3 MEDICAL MANAGEMENT OF CHLORINE EXPOSURE

18.3.1 First Aid for Chlorine Exposure

General Caution:

- Wear proper personal protective equipment to ensure your safety.
- Remove exposed persons to uncontaminated areas as quickly as possible.
- Remove contaminated clothing.
- Wash contaminated parts of the body with running water.
- Give nothing by mouth if the person is unconscious or convulsing.
- Call a physician at the earliest.
- Give assurance to the victim to alleviate his anxiety.

Chlorine Gas Inhalation

A. *In case the victim is not breathing*

- Remove him to fresh air.
- Give artificial respiration immediately.
- Administer Oxygen by inhalation, as soon as possible, through trained personnel.

B. *If the victim is breathing*

- Keep the victim in a comfortable position.
- Encourage him to have slow deep regular breathing.
- Administer oxygen by inhalation, as soon possible, through skilled medical personnel.
- Keep the victim warm; and at rest.
- Render any other first aid, if necessary.
- Assure the victim to alleviate his anxiety and obtain his co-operation.
- In severe cases position victim in chair make him lie down with the head and trunk elevated to 40-50 degrees position.

18.3.2 Liquid Chlorine Eye Contact

1. Flush eyes immediately with copious amounts of tepid running water for a minimum period of 15 minutes.
2. Hold eyelids apart to ensure complete irrigation of all eye and lid tissues.
3. Do not attempt chemical neutralization of any kind.
4. Refer victim to a physician.

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18.3.3 Liquid Chlorine Skin Contact

1. Flush contaminated skin with copious amounts of running water for a minimum of 15 minutes.
2. Remove clothes from the victim's body, while in the shower, to ensure irrigation of all contaminated skin.
3. Do not try chemical neutralization or apply any ointments to damaged skin.
4. Refer to a physician if irritation persists after irrigation or if skin is broken or blistered.

18.3.4 Chlorine Exposure – Medical Relief Measures

A. For mild cases give the following treatment:

1. Cough syrup – 2 tea spoon (10 ml)
2. Erasma – Chlorosped + Strepsil tablets.
3. Hot tea or water to drink.

Note: Only Trained Persons should give the above treatment

B. For severe cases (who are conscious) give the treatment as above PLUS:

1. Injection Derphyllin/ Periphyllin 2ml IM
2. Injection Decadron 2 ml IM
3. Tablet Lasix or Injection Lasix
4. Oxygen inhalation.

Note: Only doctors/nurses/compounders/trained/ persons shall give the treatment.

C. For unconscious cases:

Doctor to give the following and send the victims to the hospitals where they will be attended by specialists.

1. Injection Deriphyllin
2. Injection Coromine
3. Injection Decadron
4. Injection Lasix
5. Oxygen by mask/catheter

18.3.5 General Principles

1. All individuals who have been exposed to acute over exposure to chlorine gas by inhalation should be sent for medical treatment.
2. For acute chlorine exposure no specific antidote is known. Prompt supportive measures can be taken to obtain good therapeutic results.
3. Victim's anxiety should be alleviated by communicating with him the various procedure undertaken and elicit has co-operation in breathing exercises.
4. Position victim in chair. In severe cases the victim should lie down with the head trunk elevated to 45-60 degree position.
5. Encourage the victim to take slow, regular respirations.
6. Use of intermittent positive pressure breathing apparatus helps in minimizing the risk of pulmonary oedema.

18.3.6 Therapy for Specific Physiological Disturbances

Pulmonary Oedema

1. Administer 60 – 100% oxygen, 6 litres per minute.
2. Intermittent positive pressure breathing apparatus helps in reducing oedema. Caution is required if there is Co-existing peripheral circulatory collapse.
3. Steroid therapy, given early, may be effective in preventing or alleviating pulmonary oedema.
4. If steroids are used, a loading dose should be given promptly and the dose then gradually tapered off over one two week period, in keeping with clinical findings.
5. Consider use of Antibiotics to protect against secondary pulmonary infection.

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- **Bronchospasm**
  1. Bronco dilators nebulised into the inspirator air may be beneficial when spasm is present. An effective drug is Ventolin.
- **Increased Mucus Secretion**
  1. Positive pressure treatment and nebulised detergent may be beneficial Care should be taken to maintain the patient's hydration and to humidify the inspired air.
  2. Coughing is not harmful but a cough suppressant may be helpful for a persistent, non-productive and irritating cough.
- **Excitement Phenomenon**
  1. This occurs as a result of a central stimulation and emotional disturbance.
  2. Mild sedation with the diazepam is usually effective. In more severe cases, heavier sedation may be employed with close supervision of respiratory function.
  3. Some patients may require special sedation for the first night following over exposure.

DETAILED INFORMATION ABOUT CHLORINE

a)	CHEMICAL NAME & SYNONYMS	Chlorine
b)	CHEMICAL FORMULA	Cl_2
c)	U.N. NUMBER	1017
d)	U.N. CLASSIFICATION	Class 2
e)	CHARACTERISTICS/NATURE	Liquid in cylinders, Gas at atmospheric temperature and pressure
f)	BOILING POINT Deg. C	-31.05 at 1atm.
g)	VAPOUR PRESSURE (mmHg)	3.3 atm at 20^0 C
h)	VAPOUR DENSITY (Gas)	2.5 at 20^0 C (gm/lr)
i)	SOLUBILITY IN WATER	Slightly soluble
j)	APPEARANCE AND ODOR	Greenish yellow (gas), Clear amber (liquid) Suffocating and Pungent.
k)	SPECIFIC GRAVITY	1.468 AT 0^0 C and 3.617 atm. (liquid Cl_2)
l)	THRESHOLD LIMIT VALUE	1 ppm
m)	MELTING POINT Deg. C.	-101 at 1 atm
n)	FIRE & EXPLOSION HAZARD	Neither liquid nor gaseous Chlorine is explosive or flammable by itself, but both react readily with many organic substances, usually with the evolution of heat & in some cases resulting in explosion.
o)	HEALTH HAZARD NATURE	Corrosive Liquid
p)	EFFECTS OF OVER EXPOSURE	Causes headache, retrostermal burning, Nausea, Painful breathing, Sweating, eyes, nose, throat irritation, coughing, vomiting, increase in respiratory & pulse rate. Massive inhalation causes pulmonary oedema, fall of blood pressure and in a few minutes cardiac arrest.
q)	EMERGENCY & FIRST AID	For eye and skin contact flush with plenty of water. Apply artificial respiration only if he is not breathing. Consult a Physician.
r)	SPILL OR LEAKAGE STEPS TO BE TAKEN IN CASE CHLORINE IS RELEASED	If a leak occurs keep the leaking valve on the upper side by rolling the cylinder to prevent discharge of liquid. No water to be splashed at any point of time on the cylinder. Keep other containers cool by spraying water.
s)	SPECIAL PROTECTIONS RESPIRATORY PROTECTION	Self contained breathing Apparatus.
t)	PROTECTIVE GLOVES EYE PROTECTION	Rubber or PVC Goggles giving complete protection to eyes.
u)	OTHER PROTECTIVE EQUIPMENTS	Rubber Aprons and Boots. Eye wash showers should be with the clean water.
v)	PRECAUTIONS TO BE TAKEN DURING HANDLING & STORAGE	Keep containers and valves closed when not in use. Store cylinders in a covered shed only. Use protective equipments as indicated above.

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HAZARDS OF CHLORINE AT DIFFERENT ATMOSPHERIC CONCENTRATIONS

(As given in International Labour Organization Encyclopedia of Occupational Health and Safety)

Chlorine Concentration in air		Degree of Hazard
ppm	**mg/m3**	
0.1 - 0.5	0.3 - 1.5	No noxious long term effect
0.5	1.5	Slight odor (tentative limit)
1 - 3	3 - 6	Definite odor, Irritation of eyes and nose.
30	90	Intense coughing fits
40 - 60	120 - 180	Exposure without effective respirator for 30-60 minutes or more may cause serious damage.
100	300	May cause lethal damage
1000	3000	Danger to life even after a few deep inhalations.

A 30 minute period following the start of a release was used to compute distances in the table.
AREA LIKELY TO BE AFFECTED DUE TO THE RELEASE OF CHLORINE IN MEJA:

Concentration of Chlorine in PPM	Distance in meters from source of release of chlorine	
	1 Ton	**2 Tons**
140	280	410
60	410	600
15	850	1250

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CHAPTER-18
EMERGENCY ANALYSIS, MITIGATION AND PLAN UP-GRADATION

1252

After control of every emergency a committee is formed to analyze the cause of emergency. This will analyze and record the sequence of the occurrence of the emergency.
Based upon this analysis necessary recommendations would be made to concerned employee to make and/or improve i.e. skills of response team members, the required engineering and administrative controls.

Also for strengthening the safety preparedness, necessary amendments wherever required would be made in the emergency plan.

For strengthening the contingency preparedness, as well as the critical incident recovery plan whatever damage occurs; that would be immediately attended by the concerned department to start the normal operation as early as possible.
All the actions required by the post emergency analysis would be monitored by the competent authority and would be taken as benchmark in future to assist the strengthening of Emergency Planning, Preparedness, Response and Recovery plans.

1.1 Evaluation & Functioning of Disaster Plan:

A committee shall be constituted at Plant level to evaluate / supervise the functioning of the implementation of Disaster Management Plan.

19.2 Full Mock Drill Monitoring Committee

(To be conducted at least once in six months)

Sl. No.	Designation	
a)	CEO	Chairman of the Committee
b)	Head of O&M	Vice-Chairman (alternate to Chairman in his absence)
c)	Head of Operation	Member
d)	Head of Maintenance	Member
e)	Head of Medical	Member
f)	Head of HR	Member
g)	Head of CISF	Member
h)	Head of Materials	Member
i)	Head of Safety	Member

The committee may invite any other Official / Expert, if considered necessary.

The Committee shall supervise the following activities:

- Functioning of Emergency Control Center and very specifically the availability of all facilities as mentioned in the plan and its functional healthiness.
- To evaluate communication of the Disaster Plan to all segments of employees to familiarize them about their responsibilities in case of any disaster including evaluation of behavior of employees and others.
- To ensure that all the facilities as required under the plan from within or from nearby industries / aid center under mutual assistance scheme or otherwise are available.
- To ensure that the necessities under mutual assistance scheme is properly documented and the concerned employees are fully aware in this regard.
- To ensure that employees are fully aware to fight any emergency like chlorine gas leakage, Coal mill fire, Fire in belt conveyor or other such incident, etc.

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19.3 Disaster Management Efficiency Drill Monitoring Committee

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(To be conducted at least once in every 6 months)

Sl. No.	Designation	
a)	Head of O&M	Chairman
b)	Head of Maintenance	Member
c)	Head of Medical	Member
d)	Head of Fuel Management	Member
e)	Head of C&I	Member
f)	Head of Electrical	Member
g)	Head of CISF	Member
h)	Head of Chemistry	Member
i)	Head of Communication/ PRO	Member
j)	Head of Safety	Member

The committee may invite any other Official / Expert to assist its functioning, if considered necessary.

Following activities shall be necessarily supervised for its effectiveness:

- All employees are trained & aware about their responsibilities/duties. They all are well aware about evacuation routes, direction of evacuation, equipments to be used during evacuation or the method of evacuation.
- All employees are fully trained to rescue their colleagues, who are affected due to the cause of disaster. In case they are unable to rescue their colleagues, they should know to whom they have to inform about such persons.
- All employees are fully trained in first aid, use of desired equipment including breathing apparatus, first aid box etc. are available at the desired locations.
- All warning alarms & Communication system are functional.
- Public address system is in healthy condition.
- All telephone lines/ communication systems are provided in control rooms and there is no removal of the facilities (as prescribed) from the control rooms.
- It is very clear amongst the concerned Managers, who shall call for assistance under mutual aid scheme or the facilities from within.
- It is clear at the Plant, who shall declare emergency.
- Head of HR shall inform the District Authorities, State Authorities and Corporate Center.

19.3 Mock drills

It is imperative that the procedures laid in this plan are put to the test by conducting Mock Drills.

The mock drills should be carried out in steps as stated below:

- First Step – To check the effectiveness of communication system.
- Second Step – To check the mobilization of the plant emergency team.
- Third Step – To check the effectiveness to search, rescue and treatment of casualties.
- Fourth Step – To check emergency isolation/shut down and remedial measures taken on the system.
- Fifth Step – To conduct a full rehearsal of all the actions to be taken during an emergency.

It is periodically reviewed based on experiences gained from the Mock Drills.

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19.4.0 RESPONSIBILITY OF CORPORATE CENTRE

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19.4.1 RESPONSIBILITY OF CHAIRMAN & MANAGING DIRECTOR

In case of receipt of any information by the Chairman & Managing Director, he shall coordinate with Ministry of Energy, Department Of Power and other such higher authorities in the Government.

Upon receipt of information regarding occurrence, CMD shall constitute the Corporate Crisis Management Group with Director (Operations) as the Co-ordinator and Director (HR) and Executive Director (CP) as permanent members another two members can be co-opted by Director (Operations) depending on the type of emergency. The Crisis Management Group will immediately initiate action on request of services required by the CIC.

19.4.2 TASK FORCE

A Task Force consisting of the following shall immediately proceed to the Disaster site to study the circumstances relating to the mishap:

- **a)** General Manager (OS) or AGM (OS) in case GM (OS) is not available – Coordinator.
- **b)** General Manager (PE) or AGM (PE) in case GM (PE) is not available
- **c)** Sr. Medical Specialist
- **d)** Head of Safety

If the Task Force Co-coordinator feels necessary, it may co-opt any other official to help the Task Force.

19.4.3 OS CONTROL ROOM

CIC shall provide the OS Control Room with the first information of the occurrence when CMD is informed, Shift-In Charge OS Control Room will in turn inform Directors and Delhi based Executive Directors regarding the occurrence. Information from site shall be collected at regular intervals by OS Control Room till the crisis Control Room under Addl. General Manager (IR) starts functioning.

19.4.4 CRISIS CONTROL ROOM

A Crisis Control Room shall be set up at Corporate Centre, which shall be controlled by Addl. General Manager (IR). Information shall be collected regularly and given to the Chairman & Managing Director, Directors, Executive Director (HR) and other concerned officials to deal with the situation.

19.4.5 SERVICES OF NTPC HELICOPTER

Project General Manager may requisition the services of the Helicopter for shifting of critically injured personnel to hospitals with advanced medical facilities. Request for same can be made along with the requirement of essential external services. Executive Director (CP) shall organize the deployment of the helicopter to the project. Thereafter helicopter movement shall be directed by Project General Manager till the crisis is over.

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A SAMPLE EMERGENCY MESSAGE

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On getting the message that emergency has been declared, CIC / WIC / ECO will rush to the affected / likely affected area and announce through P.A system the following message:-

HEAVY CHLORINE LEAK HAS TAKEN PLACE IN MEJA THERMAL POWER PROJECT AND AS A RESULT OF WHICH CHLORINE CONTENT IN THE ATMOSPHERE MAY BECOME HIGH.

STEPS TO CONTROL THE SITUATION IS IN PROGRESS. IN THE MEANTIME YOU ARE ADVISED TO:

- **a)** NOT TO GET PANIC
- **b)** CLOSE THE DOORS AND WINDOWS TIGHTLY
- **c)** DON'T TRY TO COME OUT FROM CLOSED DOORS IF YOU FIND IRRITATING SMELL. OUTSIDE CONCENTRATION OF CHLORINE MAY BE MUCH MORE.
- **d)** IF FOUND NECESSARY, WE MAY EVACUATE YOU TO THE NEAREST ASSEMBLY POINT. BE PREPARED FOR IT.

Announcement to be made by the concerned official in local language **(i.e. HINDI).** Similarly, announcement of termination of the emergency should also be announced.

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CHAPTER-19
COMMUNICATION CHART
(EXTERNAL AGENCIES)

Sl. No.	Authority (S/Sh.)	Address	Telephone Number	
			Office	Residence
1.	Director of Factories Govt. of U.P., Kanpur	P.B. No. 220, G.T Road, Kanpur (U.P.)	0512-223886	9410660677
2.	Director (Boiler), Kanpur	P.B. No. 220, G.T Road, Kanpur (U.P.)	0512-2373173	
3.	CMO, Prayagraj	Office of CMO, Stanley Road, Prayagraj, U.P.	9454455138	
4.	CMO, MUNPL	MUNPL Hospital, Prayagraj (U.P.)	9414070586	
5.	DM (Prayagraj)	Office of District Magistrate, Prayagraj (U.P.)	9454417517	
6.	SDM (Meja)	Office of SDM, Meja	9454417820	
7.	SSP (Prayagraj)	Office of SSP, Prayagraj (U.P.)	9454400248	
8.	DLC (Prayagraj)	Office of DLC, 9 Mayo Road, Prayagraj (U.P.)	0532-2667942	
9.	CMD, NTPC, New Delhi	7, Scope Complex, Lodhi Road, New Delhi	011-24360044 011-24360024	
10.	Director (Operation) NTPC (CC), New Delhi	7, Scope Complex, Lodhi Road, New Delhi	011-24360232	
11.	Director (HR) NTPC (CC), New Delhi	7, Scope Complex, Lodhi Road, New Delhi	011-24360950	
12.	ED (RED), NRHQ, Lucknow	Pickup Bhawan, Gomti Nagar, Lucknow	0522-2580535	9911322334
13.	GM (Safety) CC	EOC, 7th Floor, Room 96	0120-2410744	7588187023
14.	CEO	MUNPL-MTPP	0532-2693333	9650994567
15.	GM (O&M)	MUNPL-MTPP	0532-2693011	9650991296
16.	AGM (HR)	MUNPL-MTPP	0532-2693133	9424209178
17.	Astt. Commandant, CISF	MUNPL-MTPP	0532-2693438	9037134970

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CHAPTER-20
VILLAGES AROUND NTPC-MUNPL

POPULATION DETAILS

Sl. No.	Place	Approximate Distance from Plant (Km.)	Approximate Population
1.	Esauta & Patai Dandi	07	3,726
2.	Mai Kala & Mai Khurd	03	1,353
3.	Jhadiyahi	05	2,063
4.	Kohdar	07	5,804
5.	Salaiya Khurd	08	2381
6.	Salaiya Kala	09	1677

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CHAPTER-21
MATERIAL SAFETY DATA SHEET (MSDS)

22.1 HYDROCHLORIC ACID

A. CHEMICAL IDENTITY

Chemical Name : Hydrochloric Acid Chemical Classification Inorganic Acid
Synonyms Muriatic Acid : Hydrogen Chloride, Chlorohydric Acid
Spirits of Salts : Trade Name

Formula : HCI: C.A.S No.7647-01-0 U.N No.1789

Regulated Identification : Shipping Name : Hydrochloric Acid Hazchem Code 2 R
: Codes/Label Corrosive Class – 8
: Hazardous Waste ID No.16

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S No.
Hydrochloric Acid	7647-01-1	3	

B. PHYSICAL / CHEMICAL DATA

Boiling Pt/Range	-84.8C	: Physical State Liquid		: Appearance Colorless
		:Vapour Pressure		: Odour Sharp Irritating Odour
Melting/Freezing Pt.	– 114.3C	:@35 C	3040mm Hgat 17.8C	
Vapour Density	- Not Pertinent	: Solubility		: Other soluble in Ethyl alcohol &
(Air=1)		: In water at 30	C Soluble	: Ethyl Ether
Specific Gravity	1 19 at	: pH	>1	
(Water = 1)	20C (Liquid)			

C. FIRE/EXPLOSION HAZARD DATA

Flammability No : LEL Not Pertinent %: Flash Point C Not Pertinent (OC)
TDG Flammability N.A. : UEL Not Pertinent % : Flash Point C Not Pertinent (OC)

Auto ignition Temperature : Not Pertinent
Explosion sensitivity to Impact : Stable
Explosion sensitivity to static electricity : Stable
Hazardous Combustion Products : Emits toxic fumes of CI
Hazardous Polymerization : Will not occur

Combustible Liquid	No	: Explosive Material	No	: Corrosive Material	Yes
Flammable Material	No	: Oxidizer	No	: Others	
Pyrophoric Material	No	: Organic Peroxide	No	:	

D. REACTIVITY DATA

Chemical Stability : Stable
Incompatibility : With alkali and Active metals
With other material :

Reactivity : Violent reaction with Acetic Anhydride, 2-Aminoethanol, NH4OH1Ca3P2 Chloro sulfuric Acid, 1.1 Difluoroethylene, Ethylene Diamine, Ethylene, Oleum, HCLO, Propylene Oxide.
Hazardous
Reaction product : Potentially dangerous reaction with sulfuric acid releases HCI Gas.

E. HEALTH HAZARD DATA

Routes of entry : Inhalation, Ingestion, Eyes and Skin
Effects of Exposure/ : Inhalation of fumes results in coughing choking sensation, irritation to nose and
Symptoms : lungs. Liquid causes burns can burn mouth and the digestive tract.
Emergency : Inhalation : Remove the victim to fresh air area, keep him warm, start artificial respiration, if
Treatment breathing stops.
For : Ingestion : Have the victim drink water or milk. Do not induce vomiting. Eyes & skin flush

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1635

With plenty of water 15min. Remove contaminated clothing. Seek medical aid immediately.

1259

(Oral Rat) Not Listed Mg/Kg : STEL Not listed ppm Not Listed mg/m
Permissible exposure limit 5(Ceiling) ppm7 (Ceiling) mg/m Odour Threshold 1.5ppm 47.7.36mgm
TLV (ACGIH) 5(Ceiling) ppm7 (Ceiling) mg/m

F. PREVENTIVE MEASURES

Personnel Protective Equipment : Avoid contact with liquid or vapours
: Provide chemical protective suit with self contained breathing apparatus. Air line mask rubber hand gloves.
: Face shield and shoes

Handling & storage precautions area: Store in a rubber lined or ERP coated steel tanks away from oxidizers, in a well ventilated

---

G. EMERGENCY / FIRST AID MEASURES

Fire : Fire Extinguishers : Not Flammable
: Media

: Special Procedure : Keep the containers cool by spraying water if exposed at fire
: Unusual Hazards : Flammable gas may be produced on contact with metals.

EXPOSURE : First Aid Measures : Inhalation – Remove the victim to fresh area, start artificial respiration, if breathing stops. Keep him warm and quiet. Ingestion – have the victim drink water or milk. Do not induce vomiting. Eyes & Skin – Wash with plenty of water for 1 min. Seek medical aid immediately for all types of exposures.
: Antidotes/Doses: Not available

SPILLS : Steps to be taken : Shut off leaks if without drench with water. Do not use metal Containers to spill liquid.
: Waste disposal method : Seal all waste in vapour tight plastic bags for eventual disposal.

H. ADDITIONAL INFORMATION / REFERENCES

A concentration of 35ppm causes irritation of the throat after short exposure.
Vigorous reaction with Aluminium Chlorine + Dinitroanilines (evolves gas)

MANUFACTURERS / SUPPLIERS DATA

M/s Grasim
Renukoot

Name of Firms : 1. M/s Kanoria Chemicals Works or any other chloro-alkali manufacturer
Contact Person : Sh. N.K. Dhadich
Renukoot (U.P)-231 217
Mailing address : P.O – Renukoot In emergency :Dy. General Manager(Mktg.)
Dist – Sonbhadra (UP) – 231 217 Tel.
Fax:
: 2. M/s BCC Ltd. Sr. Sales Officer
Rehla, Palamu (Jharkhand) Tel. 06584-
: 3. M/s GMMCO Ltd. V.P. (SALES)
Kolkata Tel.

Local bodies involved : Police, Fire
Term Card Details/Ref : Available with carrier

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22.2 AMMONIUM HYDROXIDE

A. CHEMICAL IDENTITY

Chemical Name : Ammonium Hydroxide Chemical Classification Inorganic Alkaline compound

Synonyms Ammonia Aqueous : Ammonia Solution

Trade Name

Formula : HCI:C.A.S No.1336-21-6 U.N No. 2672

Regulated Identification : Shipping Name : Ammonium Hydroxide Hazchem Code not listed
: Codes/Label Corrosive Class – 8
: Hazardous Waste ID No.16

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S No.
Hydrochloric Acid	1336-21-6	3	

B. PHYSICAL / CHEMICAL DATA

Boiling Pt/Range	-Not pertinent C	: Physical State Liquid	: Appearance Colorless, Watery
		:Vapour Pressure	: Odour Ammonical Odour
Melting/ Freezing Pt.	–77C	:@35 C Not available mmHgC	
Vapour Density	- Not available	: Solubility	: Other not available
(Air=1)		: In water at 30 C Soluble	
Specific Gravity	0.89	: pH Alkaline	
(Water = 1)	20C		

C. FIRE/EXPLOSION HAZARD DATA

Flammability	No	: LEL Not Pertinent	%	: Flash Point C Not Pertinent (OC)
TDG Flammability	N.A	: UEL Not Pertinent	%	: Flash Point C Not Pertinent (OC)

Auto ignition TemperatureC : Not Pertinent
Explosion sensitivity to Impact : Stable
Explosion sensitivity to static electricity : Stable
Hazardous Combustion Products : Emits toxic fumes of NH3 and Nox
Hazardous Polymerization : Will not occur

Combustible Liquid	No	: Explosive Material	No	: Corrosive Material	Yes
Flammable Material	No	: Oxidiser	No	: Others	
Pyrophoric Material	No	: Organic Peroxide	No	:	

D. REACTIVITY DATA

Chemical Stability : Stable
Incompatibility :Aerolein, Nitromethane, Acrylic Acid, Chlorosulfonic Acid, Dimethy Sulphate, Halogens, HCL
With other material : HF HNO3, AgNO3, Ag20
Reactivity : Reacts with H2So4 strong mineral acids exothermically corrosive to Copper, Copper Alloys, Aluminium
Hazardous : Galvanized surfaces. Mild liberation of heat on reaction with water
Reaction product : Not available

E. HEALTH HAZARD DATA

Routes of entry : Inhalation, Ingestion, Eyes and Skin
Effects of Exposure/ Symptoms : Causes burning pain in mouth, throat, stomach, constriction of throat & coughing followed by vomiting of blood. Severe eye and skin irritation.
Emergency : Inhalation treatment : Remove the victim to fresh air area, keep him warm, start artificial respiration& oxygen, if needed.
For : Ingestion : Do not induce vomiting savage stomach with water or lemon juice, milk. Delay may cause perforation of esophagus or stomach swelling of glottis may Necessitate tracheotomy eyes wash with plenty of water for 15mins. Skin wash The affected area with plenty of water. Seek medical aid immediately.

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(Oral Rat)	Not Listed	Mg/Kg	: STEL	Not Listed	ppm Not Listed mg/m
Permissible exposure limit		5(Ceiling)	ppm7(Ceiling)	mg/m	Odour Threshold 1.5ppm 47.7.36mgm
TLV (ACGIH)		5(Ceiling)	ppm7(Ceiling)	mg/m	

NFPA Hazard	: Health	: Flammability	: Reactivity	: Special
Signals	: Not listed	: Not listed	: Not listed	

F. PREVENTIVE MEASURES

Personnel	: Avoid contact with liquid or vapours
Protective Equipment	:Use rubber boots, gloves, apron, safety goggles. Use of protective oil will reduce skin irritation
Handling &storage precautions	: Keep in a cool, strong glass, plastic or rubber stopered bottles not completely filled.

G. EMERGENCY / FIRST AID MEASURES

Fire	: Fire Extinguishers : Media	: Not Flammable
	: Special Procedure	: Keep the containers cool by spraying water if exposed at fire/heat
	: Unusual Hazards	: Poisonous gases are produced in fire.
EXPOSURE	: First Aid Measures	: Inhalation – Remove the victim to fresh area& provide artificial respiration, Ingestion – Do not induce vomiting. Leavage stomach with water, Lemon juice or milk.. Eyes – Wash with plenty of water for 15 min. Skin – Wash the affected area with plenty of water and soap. Seek medical aid immediately for all types of exposures.
	: Antidotes/Doses	: Not available
SPILLS	: Steps to be taken	: Shut off leaks if without risk. Drench with water Containers to spill liquid.
	: Waste disposal method	: Seal all waste in vapour tight plastic bags for eventual disposal.

H. ADDITIONAL INFORMATION / REFERENCES

Ammonia vapour 16 to 25% by volume is capable of forming flammable mixer with air. Contact of Mercury, Chlorine, Iodine, Bromine etc. may form explosive compounds. Above 2000 ppmvapour concentration may be fatal after a short exposure specific gravity – 0.903 at 25 C. Vapour Density (Air=1)-0.597. pH=10, Approx. concentration – 25% in solution with water.

I. MANUFACTURERS / SUPPLIERS DATA

Name of Firms	: 1. M/sCatalist& Chemicals or any other chloro-alkali manufacturer			
Contact Person	:Manager(Comml.)			
Mailing address	:P.O – Sindri (Jharkhand) : 2. M/s Qualigen Fine Chemicals Lucknow (U.P)	In emergency	:	-do-
		Local bodies involved	:	
		Standard Packing	:	
		Term Card Details/Ref	:	

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22.3 SODIUM HYDROXIDE

A. CHEMICAL IDENTITY

Chemical Name	:Sodium Hydroxide	Chemical Classification	Inorganic Alkaline compound

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Synonyms :Caustic soda, Soda Lye, Lye 1638 Trade Name 1262

Formula : HCI:C.A.S No.1310-73-2 U.N No. 1823/1824

Regulated Identification : Shipping Name :Sodium Hydroxide Solid/Soln. Hazchem Code - 2
: Codes/Label Corrosive Class – 8
: Hazardous Waste ID No.16

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S No.
Hydrochloric Acid	1310-73-2	3	

B. PHYSICAL / CHEMICAL DATA

Boiling Pt/Range	- 1390C	:Physical State- Liquid/Solid		: Appearance Colourless
		:Vapour Pressure		: Odour sharp irritating Odour
Melting/Freezing Pt.	–114.3 C	:@35 C 3040mm Hgat 730C		
Vapour Density	- Notpertinent	:Solubility		: Other soluble in alcohol
(Air=1)		:In water at 30C	Soluble	: Methanol & Glycerol
Specific Gravity	2.12 at	: pH	13-14	
(Water = 1)	20C /4C			

C. FIRE/EXPLOSION HAZARD DATA

Flammability	No	: LEL Not Pertinent	%	: Flash Point C Not Pertinent(OC)
TDG Flammability	N.A	: UEL Not Pertinent	%	: Flash Point C Not Pertinent(OC)

Auto ignition TemperatureC	: Not Pertinent
Explosion sensitivity to Impact	: Stable
Explosion sensitivity to static electricity	: Stable
Hazardous Combustion Products	: Emits toxic fumes of Na2OI
Hazardous Polymerization	: Will not occur

Combustible Liquid	No	: Explosive Material	No	:Corrosive Material	Yes
Flammable Material	No	: Oxidiser	No	:Others	
Pyrophoric Material	No	: Organic Peroxide	No	:	

D. REACTIVITY DATA

Chemical Stability	:Stable
Incompatibility	:WithActide, Flammable liquids, Organic halides, Metals, AL.
With other material	:Sn., Zn., Nitromethane and Nitro Compounds

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Reactivity : Reacts with H2So4 strong mineral acids exothermically corrosive to Copper, Copper Alloys, Aluminium
Hazardous :Galvanised surfaces. Mild liberation of heat on reaction with water.
Reaction product : Not available

E. HEALTH HAZARD DATA

Routes of entry : Inhalation, Skin, Ingestion, and Eyes
Effects of Exposure/ Symptoms :Inhalation causes small burnsto upper respiratory tract & lungs, mild nose irritation Ingestion causes severe damage to mucous membrane, severe scaring or perforation May occur. Eyes: Severe damage, Skin : Causes severe burns.
Emergency treatment : Inhalation : Remove the victim to fresh air area, keep him warm, start artificial respiration, if breathing stopped.
For : Ingestion : Have the victim drink water or. Do not induce vomiting. Eyes & Skin – Flush with plenty of water for 15mins. Remove contaminated clothings. Seek medical aid immediately.

(Oral Rat)	Not Listed	Mg/Kg	: STEL	Not Listed		ppm Not Listed	mg/m
Permissible exposure limit		5(Ceiling)	ppm7(Ceiling)		mg/m	Odour Threshold 1.5ppm 47.7.36mgm	
TLV (ACGIH)		5(Ceiling)	ppm7(Ceiling)		mg/m		

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NFPA Hazard Signals	: Health : 3	: Flammability 0	: Reactivity 1	: Special

F. PREVENTIVE MEASURES

Personnel : Avoid contact with liquid or liquid

Protective Equipment :Provide side covered safety goggles, face shield, filter or dust-type respirator, rubber shoes & rubber hand gloves

Handling & storage precautions : Keep in a cool, dry and well ventilated place.

G. EMERGENCY / FIRST AID MEASURES

Fire : Fire Extinguishers : Media : Not Flammable

: Special Procedure : Keep the containers cool by spraying water if exposed at fire/heat

: Unusual Hazards : Toxic gases are produced.

EXPOSURE : First Aid Measures : If eyes are affected, flush with plenty of water for 15 min. Skin – Remove contaminated clothes & shoes. Wash the affected area With plenty of water. If inhaled, remove the victim to fresh air Area, Support respiration. Seek medical aid immediately for all types of exposures.

: Antidotes/Doses : Not available

SPILLS : Steps to be taken : Shut off leaks if without risk. Drench with water

: Waste disposal method : Seal all waste in vapour tight plastic bags for eventual disposal.

H. ADDITIONAL INFORMATION / REFERENCES

A strong base, vigorous reaction with 1, 2, 4, 5 – Tetrachlorbencene has caused many Industrial explosions and forms extremely toxic 2, 3, 7, 8 Tetrachlorodibenzodioxin. Under proper conditions of temperature pressure and state of division, it can react or ignite violently with Acetic Acid, Acetaldehdye, Aceti Anhydride, Acrolein, Acrylonitrite, Allyl Alcohol, Allyl Chloride.

I. MANUFACTURERS / SUPPLIERS DATA

Name of Firms : 1. M/s Kanoria Chemicals Works or any other chloro-alkali manufacturer.

Contact Person :

Mailing address : Renukoot (U.P)-231 217
P.O – Renukoot
Dist – Sonebhadra (UP) – 231 217

In emergency :Dy.General Manager(Mktg.)
Tel. : 05446-52044, 52055
Fax : 05446-52088

Local bodies involved : Police, Fire
Standard Packing :
Term Card Details/Ref : Available with carrier

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22.4 HYDROGEN

A. CHEMICAL IDENTITY

Chemical Name	: Hydrogen	Chemical Classification Inorganic gas Alkaline compound
Synonyms Hydrogen (Compressed)	:Liquid hydrogen	Trade Name
Formula 112	: HCI:C.A.S No.1333-74-0	U.N No. 1049

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Regulated Identification : Shipping Name : Hydrogen Compressed Hazchem Code – 2 SR
: Codes/Label Flammable gas Class – 8
: Hazardous Waste ID No.16

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S No.
Hydrochloric Acid	1333-74-0	3	

B. PHYSICAL / CHEMICAL DATA

Boiling Pt/Range	- 252.8 C	:Physical State	- Liquid	: Appearance Colourless
		:Vapour Pressure		: Odour sharp irritating Odour
Melting/Freezing Pt.	–259.18C	:@35 C Not available mm Hgat		
Vapour Density	- 0.069	:Solubility		: Other Not available
(Air=1)		:In water at 30C	Soluble	
Specific Gravity	- 0.899 g/L	:pH	Not pertinent	
(Water = 1)				

C. FIRE/EXPLOSION HAZARD DATA

Flammability	Highly Flammable	: LEL 04 %	: Flash Point C	Not Pertinent(OC)
TDG Flammability	N.A	: UEL 75 %	: Flash Point C	Not Pertinent(OC)

Auto ignition TemperatureC	:400.0
Explosion sensitivity to Impact	: Stable
Explosion sensitivity to static electricity	:Explode
Hazardous Combustion Products	:Not availableI
Hazardous Polymerization	: Will not occur

Combustible Liquid	No	: Explosive Material	Yes	:Corrosive Material	Yes
Flammable Material	No	: Oxidiser	No	:Others	
Pyrophoric Material	No	: Organic Peroxide	No	:	

D. REACTIVITY DATA

Chemical Stability	:Stable
Incompatibility with other material	:Water. No chemical reaction with comman materials. But low : temperature causes most materials to become very briule.

Reactivity :Violent reaction or ignition with air catalysis(Platinum & similar metals containing absorbed Oxygen or Hydrogen Bromine, Iodine, Dioxide-Nickel, Lithium, Nitrogen Trifluoride, Nickel + Oxygen Difluoride, Pd_Isoprop.

Hazardous :If from sonaltive explosive mixtures with Bromine, Chlorine, LodineHeplafluoride,Chlorine
Reaction product :Dioxide, Dichlorine Oxide, Dinitrogen Oxide.

E. HEALTH HAZARD DATA

Routes of entry	: Skin, Ingestion
Effects of Exposure/ Symptoms	: If atmosphere does not contain enough oxygen, inhalation can cause dizziness, unconsciousness or even death. Contact of liquid with eyes or skin causes freezing similar to burn.
Emergency : Inhalation treatmentfor	: If victim is unconscious (due to oxygen deficiency), move him to fresh air area and apply resuscitation methods. Eyes &skin : Treat for frostbite, soak the skin in lukewarm water. Seek medical help.

(Oral Rat)	Not Listed	Mg/Kg	: STEL	Not Listed	ppm Not Listed mg/m
Permissible exposure limit	ASPHYXIANT	ppm Asphyxiant mg/ml JUm	Odour ppm Threshold 1.5		ppm Odourless mg/m
TLV (ACGIH)	ASPHYXIANT	ppm Asphyxiant	mg/m		

NFPA Hazard Signals	: Health : 3	: Flammability 4	: Reactivity 0	: Special

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F. PREVENTIVE MEASURES

Personnel Protective Equipment : Avoid contact with liquid or GAS : Provide chemical goggles, face shield, insulated gloves & long sleeves, trousers worn outside boots or over high-top. Shoes to shed liquid, self-contained breathing apparatus Containing air (never use oxygen)

Handling &storage precautions :Store in a cool, FIRE PROOF, well ventilated area, separated from other cylinders, preferably in open air.

G. EMERGENCY / FIRST AID MEASURES

Fire	: Fire Extinguishers : Media	: Stop flow of gas, let fire burn under control.
	: Special Procedure	: Keep the containers cool by spraying water if exposed at fire/heat
	: Unusual Hazards	: Flash back along vapour trail, may occur.
EXPOSURE	: First Aid Measures	: Inhalation : If victim is unconscious(due to oxygen deficiency), Move him to fresh air area and apply Resuscitation method. Eyes &Skin : Treat for frostbite, soak the skin in lukewarm Water. Seek medical aid immediately for all types of exposures.
	: Antidotes/Doses	: Not available
SPILLS	: Steps to be taken	: Shut off leaks if without risk. Warn everybody. Explosion hazard.
	: Waste disposal method	:To be burnt under controlled condition.

H. ADDITIONAL INFORMATION / REFERENCES

Practically no toxicity, except that it is an Aspyxiant. Highly dangerous fire and severe explosion hazard when exposed to heat, flame and oxidizers.Flammable or explosive when mixed with air, O2, C12, Vigorous exothermic reaction with Benzene + Raney Nickel catalysis, metal (like Strontium, Sodium Potassium, Barium – above 300C, Ventilate at highest points).

I. MANUFACTURERS / SUPPLIERS DATA

Name of Firms : M/s MUNPL-MTPP/External Supplier
Contact Person : AGM(O&M) / DGM(O)
Mailing address : Meja U.P.(212301)
In emergency : -do-

Local bodies involved : Police, Fire Station
Standard Packing :
Term Card Details/Ref :

J. DISCLAIMER – Information contained in this material data sheet is believed to be reliable but not representation, guarantee or warranty of any kind are made as its accuracy, suitability for a particular application or results to be obtained from them. It is upto the manufacturer/seller to ensure that the information contained in the material data sheet is relevant to the product manufactured/handled or sold by them as the case may be.

22.5 AMMONIA

A. CHEMICAL IDENTITY

Chemical Name : AMMONIA
Chemical Classification : Inorganic Compound
Synonyms : Liquid Ammonia, Ammonia Gas
Trade Name: Ammonia
Ammonia Anhydrous.
Formula: NH_3
C.A.S.No. 7664-41-7
UN No.1005

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Regulated Shipping Name: Ammonia 1642 1266

Identification
Codes/Label : Non Flammable Gas, Class 2
Hazardous waste I.D. : 17
Hazchem Code: 2 PE

HAZARDOUS INGREDIENTS	C.A.S.No.
HAZARDOUS INGREDIENTS	C.A.S.No.
1. Ammonia	7664-41-7

B. PHYSICAL AND CHEMICAL DATA

Boiling Point/Range :-33.4^{0}C
Physical State: Liquefied Compressed Gas
Appearance: Colourless
Melting/Freezing point:-77.77^{0}C
Vapor pressure: 7600 mm Hg at 25.7 ^{0}C
Odour: Strong Pungent Odour
Vapor Density
Solubility in water @ 30^{0}C
Others: Moderately soluble (Air=1) 0.60
Very soluble in Alcohol
Specific Gravity : 0.771 @ 0^{0}C
pH 1 N aq. Sol.- 11.6
(Water=1)

C. FIRE AND EXPLOSION HAZARD DATA

Flammability	No	LEL 16.0%	Flash Point ^{0}C		Not pertinent (OC)
TDG Flammability	N.A.	UEL 25.0%	Flash Point ^{0}C		Not pertinent (CC)
Auto-ignition Temperature ^{0}C			651.0		
Explosion Sensitivity to Impact			Stable		
Explosion Sensitivity to Static Electricity			Not available		
Hazardous Combustion products			Emits toxic fumes of NH_3 & NO_X		
Hazardous Polymerization			Does not occur		
Combustible	Yes	Explosive Material	No	Corrosive Material	yes
Flammable Material	No	Oxidiser	No	Others	
Pyrophoric Material	No	Organic Peroxide	No		

D. REACTIVITY DATA

Chemical Stability	Stable
Incompatibility with Acrolein.	Strong Oxidisers, Calcium hydrochlorite, Gold, Mercury, Silver, Halogens, Acetaldehyde,
Other Material Reactivity	Reacts with Silver chloride, Silver nitrate, Silver azide, chlorine, bromine, iodine, Heavy metals and their compounds, Incandescent reaction when heated with Calcium.
Hazardous Reaction Products	Reacts with Silver chloride, Silver nitrate, Silver Azide and Silver Oxide form explosive silver nitride

E. EALTH HAZARD DATA

Routes of Entry	Inhalation, Skin and Eyes
Effects of Exposure/ Symptoms	700 ppm causes eye irritation and permanent injury may result if prompt medical remedial measures are not taken. 5000 ppm may cause death from spum

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inflammation, or edema of the larynx. Contact of the liquid with skin freezes the tissues and causes caustic burns.

Emergency Treatment Inhalation	: Remove the victim to fresh air and provide artificial respiration or oxygen, if needed.				
Skin and Eyes	: Wash the affected area with plenty of water for 15 mins. Seek medical Aid.				
Permissible Exposure Limit	25 ppm	18 mg/m^3	Odor Threshold	46.8 ppm	32.53 m^3
L.D_{50} (Oral-Rat)	350 mg/kg				
TLV (ACGIH)	25 ppm	18 mg/m^3	STEL	35 ppm	27 mg/m^3
NFPA Hazard Signals	Health	Flammability	Reactivity	Special	
	2	1	0		

F. PREVENTIVE MEASURES

Personal Protective Equipment: Avoid contact with liquid or vapor. Provide rubber boots, safety goggles, self-contained breathing apparatus, gas mask and protective clothing in case of liquid ammonia.

Handling and Storage Precautions: Avoid storing along with oxidizing materials and store away from all possible sources of ignition. Store in well ventilated flame resistant locations.

G. EMERGENCY AND FIRST AID MEASURES

FIRE	Fire Extinguishing Media	Stop flow of gas if possible. Use water spray or fog, DCP
	Special Procedure	Keep the containers cool by spraying water if exposed to heat or flame.
	Unusual Hazards	Gas is suffocating.
EXPOSURE First Aid Measures		Inhalation : Remove the victim to fresh air area, provide artificial respiration or oxygen, if needed.
		Skin : Remove the contaminated clothes and wash the affected area with plenty of water and soap.
		Eyes : Flush with plenty of water for 15 mins. Seek Medical aid.
	Antidotes/Dosages	Not available.
SPILLS		
	Steps to be taken	Contain leaking liquid with sand or earth, allow to evaporate. Dilute the vapors with plenty of water.
	Waste Disposal Method	Pour into a large vessel containing water, neutralize with HCI, and discharge into sewer with sufficient water.

H. ADDITIONAL INFORMATION/REFERENCES

LC50 : 30,000 ppm/5M (ihl-hmn). A human poison by an unspecified route. Difficult to ignite. NH_3 and air in a fire, can detonate. Potentially violent or explosive reactions on contact with inter halogens. Forms sensitive explosive mixture with air and hydrocarbons. Those affected with eye and pulmonary diseases should avoid exposure to Ammonia.

I. Manufactures: FACT Ltd. Udyogamandal or any other chloro-alkali manufacturer.

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22.6 CHLORINE

A. CHEMICAL IDENTITY

Chemical Name : CHLORINE Chemical Classification: Inorganic Gas or Liquid
Synonyms : Hydrazine, Anhydrous; Diamine Trade Name :
Formula : CI_2 C.A.S.No. 7782-50-5 UN No. 1017
Regulated Identification Shipping Name : Chlorine
Codes/Label : Flammable Gas, Poison, Class-2
Hazardous waste I.D. : 17
Hazchem Code : 2 XE

HAZARDOUS INGREDIENTS	C.A.S.No.	HAZARDOUS INGREDIENTS	C.A.S.No.
1. Chlorine	7782-50-5 2		

B. PHYSICAL AND CHEMICAL DATA

Boiling Point/Range -34^{0}C Physical State : Liquid Liquid Compr. Gas Appearance : Greenish Yellow
Melting/Freezing point -101^{0}C Vapor pressure : 4800 mm Hg at 20^{0}C Odor : Irritating, Bleach like choking odor.
Vapor Density (Air=1) 2.49 Solubility in water @ 30^{0}C Slightly soluble Others : Soluble in Alkalis
Specific Gravity (Water=1) 1.47 ^{0}C 2774 mm Hg pH: Not Pertinent

C. FIRE AND EXPLOSION HAZARD DATA

Flammability No LEL Not Pertinent % Flash Point ^{0}C Not pertinent (QC)
TDG Flammability N.A. UEL Not Pertinent % Flash Point ^{0}C Not pertinent (CC)
Auto ignition Temperature ^{0}C Not Pertinent
Explosion Sensitivity to Impact Stable
Explosion Sensitivity to Static Electricity Stable
Hazardous Combustion products Toxic products are generated when combustibles burn in CI.
Hazardous Polymerization Does not occur

Combustible liquid	No	Explosive Material	No	Corrosive Material	Yes
Flammable Material	No	Oxidiser	Yes	Others Supports Combustion	
Pyrophoric Material	No	Organic Peroxide	No		

D. REACTIVITY DATA

Chemical Stability Stable
Incompatibility with Other Material Combustible substances, finely divided metals.
Reactivity Violent reaction with Alcohol, explosive reaction with metals, potentially Dangerous reaction with Hydrocarbons : Lewis Acids, Sulfides, Tri-alkyl Boranes. Forms explosive mixtures with hydrogen.
Hazardous Reaction Products Toxic products are generated when combustibles burn in CI.

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E. HEALTH HAZARD DATA

Routes of Entry	Inhalation, Ingestion, Skin & Eyes
Effects of Exposure/ restlessness.	Cause Eye irritation, sneezing, copious salivation, general excitement, Symptoms High concentration causes respiratory distress and violent coughing often with Itching. Death may result from suffocation.
Emergency Treatment	Inhalation : Remove the victim to fresh air area, support respiration, give oxygen if necessary. Eyes : Flush with large amount of water at least 15 min. Seek medical aid Immediately for all types of exposures.

L.D_{50} (Oral-Rat)	Not listed	mg/Kg			
Permissible Exposure Limit	1 ppm	3 mg/m^3	Odor Threshold	3.5 ppm	10.16 mg/m^3
TLV (ACGIH)	1 ppm	3 mg/m^3	STEL	3 ppm	9 mg/m^3
NFPA Hazard Signals	Health	Flammability	Reactivity	Special	
	3	0	0		

F. PREVENTIVE MEASURES

Personal Protective Equipment	Avoid contact with liquid or vapor. Provide PVC gloves, gumboots, rubber overcoat, head mask, self-contained Breathing apparatus.
Handling and Storage Precautions	Keep in a cool, dry relatively isolated, well ventilated place. Store in cylinders, pressure vessels, or pipelines.

G. EMERGENCY AND FIRST AID MEASURES

FIRE	Fire Extinguishing Media	Not Flammable
	Special Procedure	Keep the containers cool by spraying water if exposed to heat or flame. In no circumstance water shall be directed towards leaking containers.
	Unusual Hazards	Poisonous gases are produced in fire.
EXPOSURE First Aid Measures		If inhaled, move the victim to fresh air area. If chlorine comes in contact with eyes or skin, wash with plenty of water under quick opening safety shower and eye wash fountain. Seek medical aid immediately for all types of exposures.
Antidotes/Dosages		Not available.
SPILLS		
Steps to be taken		Shut off leaks, if without risk. Contain liquid with earth or sand. Prevent the liquid from entering the sewer. Vapors create toxic atmosphere. Knock down vapours with water spray.
Waste Disposal Method		Neutralize small liquid spillage with soda ash & drain with abundant water. Cover pool with protein foam, so that the release of vapor to atmosphere is low and under control.

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H. ADDITIONAL INFORMATION/REFERENCES

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In case of large gas escapes, the presence of cloud can be marked with Ammonia with which it will turn in to a mist. Run away from the gas clouds in a direction perpendicular to the wind direction. Avoid liquid chlorine from leaking and body contact. Persons with pulmonary diseases should avoid the exposure.
A concentration of 3.5 ppm produces a detectable odour. 15 ppm causes immediate irritation of the throat. Concentration of 50 ppm is dangerous for even short exposures. 1000 ppm is fatal. Can react to cause fires / explosion on contact with Turpentine, illuminating gas, Polypropylene, Rubber, Sulfamic Acid, Acetaldehyde, and Alcohols. Bring the leaking portion of the cylinder to the uppermost position, so that only the gas escapes and not the liquid.

I. Manufactures:

T.C.C.Ltd. Udyogamandalor any other chloro-alkali manufacturer.
P.O., Kochi – 683 501
Ph.:0484 – 541011

MATERIAL SAFETY DATA SHEET

1. CHEMICAL IDENTITY

Chemical Name:	Diesel	**Chemical Classification:**	A mixture of paraffin, cyclo paraffin, aromatic hydrocarbon
Synonyms:	Diesel fuel, High, Medium or Low speed diesel, LDO	**Trade name:**	Diesel fuel, HSD, LDO
Formula:	Varies with grade	**C.A.S. No.:** 68476-34-6	**U.N. No.:** 1202
Regulated Identification:	**Shipping name:** Diesel Fuel, HSD, LDO	**Hazchem No.**	3YE
	Codes/Label: Class I, Flammable Liquid	**Hazardous Waste I.D. No.:**	E1

Hazardous Ingredients:	C A S No.	Hazardous Ingredients:	C A S No.	Hazardous Ingredients:	C A S No.
1. Naphtha (Reformed)	64741-68-0	2. Solvent Naphtha	64742-94-5	3. Diesel fuel	68476-34-6
4. Alkanes (C_{10}-C_{13}) Iso	68551-17-7	5. Alkanes (C_{14}-C_{16})	90622-46-1	6. Distillate (middle)	64742-46-7

2. PHYSICAL AND CHEMICAL DATA

Boiling Point:	150-320^{0}C	**Physical State:**	Liquid	**Appearance:**	Clear Liquid; It may be dyed
Melting / Freezing Point:	NA/NE	**Vapor Pressure @ 20^{o}C:**	0.1-0.5mmHg	**Odor:**	Typical hydrocarbon odor
Vapor Density (Air=1):	> 2.0	**Solubility :**	Insoluble in water, Freely soluble in alcohol, ether, chloroform, and benzene		
Specific gravity (H_2O=1):	0.82-0.88 (15.9 C)	**pH:**	NA	**Others:**	

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3. FIRE AND EXPLOSION HAZARD DATA:						1271
Flammability:	Yes	**LEL (% v/v):**	> 0.7	**Flash Point (OC):**		
TDG Flammability:	3	**UEL (%v/v):**	< 5	**Flash Point (CC):**	50-55^0 C	
Auto ignition Temperature (^{0}C):	**Not Determined**	**Explosion Sensitivity to impact:**	Yes			
Hazardous Polymerization:	Not reported under normal conditions	**Hazardous Combustion products:**	Decomposition or Combustion emits CO, CO_2, partially oxidized reactive hydrocarbons.			
Explosion Sensitivity to static Electricity:	Yes	**Combustible Liquid:**	Yes	**Explosive Material:**	No	
Flammable Material:	Yes	**Oxidiser:**	No	**Pyrophoric Material:**	No	**Organic Peroxide:** No
Corrosive Material:	No	**Others:**				

4. REACTIVITY DATA	
Chemical Stability:	Stable under normal conditions of storage &handling
Incompatibility (materials to avoid:	Avoid contact with heat, flame, other sources of ignition, and contact with strong oxidisers, acids and Halogens. Avoid buildup of static electricity.
Reactivity:	Reacts violently with Strong Oxidisers, Strong Acids e.g. Peroxides, nitric acid & perchlorates.
Hazardous Reaction Product:	Combustion/Decomposition of gasoline emits toxic &acrid fumes; oxides of carbon, Aldehydes, Sulphur dioxide and partially oxidized hydrocarbons

5. HEALTH HAZARD DATA	
Routes of Entry:	Inhalation, Ingestion and Absorption (Skin & eyes)
Effects of Exposure/Symptoms:	Skin: Repeated or Prolonged contact may result in to defatting, redness itching, cracking and possible secondary infection. May cause allergic reaction in some individuals. Prolonged or massive skin contacts and high pressure injections are serious medical emergencies. Eye: Exposures to vapors, fumes or mists may cause irritation. Inhalation: It may cause respiratory tract irritation; can affect Central Nervous System (CNS). Repeated or prolonged exposures may cause behavioral changes. Degenerative changes in liver, kidney and bone marrow may occur with prolonged exposures and high concentrations. Ingestion: Aspiration in to lungs may cause pneumonitis. It may cause gastrointestinal disturbances. The symptoms may include nausea, irritation, vomiting, and diarrhea. The effects on CNS may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death.
Emergency Treatment:	Skin Contact: Remove contaminated clothing immediately and wash the contact area with plenty of water/soap water. Get immediate medical attention in case of high pressure injection or if irritation persists. Eye Contact: Flush eyes immediately with fresh water for at least 15 minutes. Eyelids shall be held away from eyeball to ensure through rinsing. Seek medical attention, if irritation persists. Inhalation: Remove affected person from source of exposure. If nor breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult Seek medical attention, administrate oxygen & monitor closely. Ingestion: Do not induce vomiting due to possible aspiration of vomitus/chemical in to lungs. If spontaneous vomiting occurs, monitor for breathing difficulty.

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TLV (TWA) (gulf oil ltd.):	100ppm ($500mg/kg^3$)	**Permissible Exposure Limits:**	Not Established	**Immediately Dangerous to Life & Health (IDLH)**	Not Established
STEL (ACGIH):	Not Established	**LD_{50} (Oral-Rat):**	>2000mg/kg 3	**Odor threshold:**	Not available

NFPA Hazard Signals:	**Health:**	**Flammability:**	**Reactivity:**	**Special:**
	0	2	0	-

6.PREVENTIVE MEASURES:	
Personal Protective Equipments:	Eye Protection: Wear safety/chemical goggles. Do not wear contact lenses while working with this substance. Provide adequate eye wash towers in work place. Skin Protection: Wear oil impervious gloves and protective clothing to avoid contact. Respiratory Protection: No respiratory protection for normal work condition in case of adequate ventilation. Use certified/ approved breathing equipment (SCBA) in case of fire or for similar emergency conditions.
Handling And Storage Precaution:	Store in tightly closed containers in cool, well ventilated area and isolated area away from heat, sources of ignition and incompatibles. Ground storage vessel and lines to reduce the risk of accumulation of static charge. Use non-sparking tools and flame proof electric installations. Empty container or filled container head space can produce flammable atmosphere. Do not cut, drill or grind on or near to container. Monitor and maintain concentration well below LEL.

7. EMERGENCIES AND FIRE AID MEASURE:		
FIRE:	**Extinguish Media:**	Use Alcohol foam, dry chemical powder (DCP) or Carbon dioxide. Water may be ineffective and may actually spread fire. A water spray may be used to knock down vapors and for cooling effect.
	Special Procedure:	Isolate fire area. Use water spray to cool fire exposed containers. If a leak is not ignited, use water spray to disperse vapors & to protect persons attempting to stop leak. Fighters must use SCBA in case of fire in enclosed area.
	Unusual Hazard:	Irritating or toxic fumes/smoke may be emitted upon thermal decomposition. Danger of explosion if container is exposed to heat or direct flames. Run-off to sewer/drains may cause fire or explosion hazards.
EXPOSURE:	**First Aid Measures:**	Flush immediately the affected area with water and soap. Remove all contaminated clothing, including shoes. Do not induce vomiting due to possible aspiration of vomitus/chemical in to lungs. If not breathing administer respiratory aid/ CPR
	Antidotes/Dosages:	Not Known
SPILLS:	**Steps to be taken:**	Take immediate steps to stop spill. Isolate the area deny unwanted entry. Isolate it from any possible ignition source e.g. flare, spark or open flame. For small spills adsorb in sand or other fire retardant diatomaceous earth material. Place contaminated adsorbent in a safe container for later disposal as per the guidelines.
	Waste Disposal Procedures:	None Identified

8. ADDITIOAL INFORMATION:
Possible Human and suspected animal Carcinogen. IARC Cancer Review Group: 2A. IARC has determined that prolonged occupational exposures in refineries are possible carcinogen to Human. The target Organs: Eyes, Skin, Respiratory System, CNS. Work Place Hygiene Practices: Always wash hands thoroughly after using chemical; never bring food, drink, or smoking materials in to vicinity of chemicals.

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9. MANUFACTURING / SUPPLIER DATA				
Name of firm:				
Mailing Address:				
Contact Person in Emergency:				
Telephone/ Tele fax no.:		**Telegraphic Address:**		
Local Body Involved		**Standard Packing:**		
TREM Card details/ Reference:	TREM card shall be available in driver's cabin		**Others:**	

10. DISCAILMER:
Information contained in this material safety data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is up to the manufacture / seller to ensure that the information contained in the material safety data sheet is relevant to the product manufactured /handled or sold by him as the case may be. The DMI makes no warranties expressed or implied in respect of the adequacy of this document for any particular purpose.

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OFF-SITE

EMERGENCY

PLAN

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CHAPTER-22
OFF-SITE EMERGENCY PLAN

If an accident takes place at MUNPL and its effects are felt outside its premises, the situation thus created is called an Off-Site Emergency. In this situation it no longer remains the concern of the factory management alone but also becomes a concern for the general public living outside. To meet such situations, off-site emergency plans are to be prepared as stipulated and put into operation as and when required.

Off-Site Emergency Management Plan is to be prepared by the government authorities, not by the occupiers of MUNPL unit. It is mandatory under Rule 14 of the MS&IHC Rules 1989 for district authorities to prepare an Off-Site Emergency Management Plan in respect of industry involving hazardous chemicals or at locations where accidents are likely have an off-site adverse effect.

Under the Environmental Protection Act's, MS&IHC Rules 1989, the responsibility of preparation of Off-Site Emergency Plan lies with the State Government. The Collector/Deputy commissioner is generally made responsible by the State Government to plan off-site emergency plan.
This section of the plan details how emergency related to major accidents inside the plan should be dealt with, by the concerned district authorities. Wherever required the concerned district authority can consult the Management (Occupier/ Factory Manager) and/or other persons who would be concerned with the execution of emergency management plan. The management of MUNPL shall provide all the necessary information to the concerned district authorities related to its industrial activities under their respective control.

The following points should be noted by all concerned in respect of an off-site emergency plan:

- **a)** The industrial or storage units to be covered under the plan should provide all necessary information related to industrial activities under their respective control to the concerned authorities.
- **b)** In case of any new industrial activity proposed or set up in the area, an on-site emergency plan shall be prepared before the activity is commenced.

23.1 TYPES OF ACCIDENTS

The following conditions can constitute and should be noted by all concerned in respect of the accidents which can demand involvement of outside agencies:

- **a)** Heavy release of chlorine, resulting in its spread to neighbouring areas.
- **b)** Major fire involving combustible materials like LDO/LSHS Storages and/or Coal.

23.1.1 Emergency due to Chlorine Tonner failure

There can be the following type of chlorine tonner failure maximum credibility scenarios:

- **a)** Catastrophic Failure of the single Chlorine Tonner.
- **b)** Large or Medium or Small Leak from the Vapour Space.
- **c)** Large or Medium or Small Leak from the Liquid Space.

23.1.2 Emergency due to storage of flammable chemicals

- **a)** Major Fire in the storage tanks of LSHS/LDO
- **b)** Major Fire in the Coal Handling Plant

Note: The outside agencies will be involved for the emergency situations which has potential to cause impacts beyond the plant premises. The hydrogen used in turbo generator coolers is stored and/or handled in small quantities. Thus the emergency situations due to hydrogen storage or handling have not been considered for the involvement of any outside agencies.

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It is not uncommon for a valve of Chlorine tonner to rapture. It is assumed that such rapture would release chlorine into the atmosphere instantaneously. Remaining chlorine will come out relatively slowly and in about 20 minutes the cylinder may empty out. If the chlorine supplier overfills the tonner and if such a tonner is kept in the open, the pressure inside the tonner will increase with heat due to the sun. Due to this increase in pressure, tonner can rapture. It is not possible to predict the nature of rapture and its size. At the minimum, it can be assumed to be equivalent to the complete breaking of valve of tonner. At the worst, total failure of tonner can be taken. In this case the whole of the contents will get released instantaneously to the atmosphere.
Another very extreme case could be sudden rapture of all or most of the stored full chlorine tonners due to fire / explosion. In such case it can be assumed that there will be a maximum release of chlorine.

23.2 RESPONSIBILITY OF THE OUTSIDE AGENCIES

The effective response to an emergency situation requires cooperation among the responders. The very first thing to do is to know the persons responsible for various activities. This understanding facilitates smooth personal interaction and close working in i.e. design of and updating an emergency management plan. Therefore, the very first responsibility of the concerned agency is to nominate persons for the formation of the crisis management group.

The possible composition of this crisis management group which can be called for the management of On-site and Off-site emergency has been described in The Chemical Accidents (Emergency Planning, Preparedness & Response) Rules 1996 (CAEPPR-1996) of Environment (Protection) Act, 1986.

The CAEPPR-1996 seeks to achieve partnership among different stakeholders through the creation of District and Local Crisis Groups. These crisis groups have been given the responsibility of management of chemical accidents in a given industrial area.

The MUNPL comes under the district Prayagraj, U.P. Accordingly as per the Schedule-7 and Schedule-8 of the CAEPPR-1996, the composition of these two crisis groups is detailed below.
The MUNPL may take the help of these two crisis groups during the emergency situation.

COMPOSITION OF THE DISTRICT CRISIS GROUP (DCG) FOR MUNPL

i.	District Collector	Chair Person
ii.	Dy. Director / Asst. Director of Factories	Member Secretary
iii.	District Emergency Officer	Member
iv.	Chief Fire Officer	Member
v.	District Information Officer	Member
vi.	Controller of Explosives	Member
vii.	Chief Civil Defence	Member
viii.	One Representative of Trade Unions (To be nominated by the District Collector)	Member
ix.	Deputy Superintendent of Police	Member
x.	District Health Officer/Chief Medical Officer	Member
xi.	Commissioner, Municipal Corporations	Member
xii.	Representative of the Department of Public Health Engineering	Member
xiii.	Four Experts (Industrial Safety and Health) (To be nominated by the District Collector)	Member
xiv.	Commissioner (Transport)	Member
xv.	One Representative of Industry (To be nominated by the District Collector)	Member
xvi.	Chair-person/Member Secretary of Local Crisis Groups	Member

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COMPOSITION OF LOCAL CRISIS GROUP (LCG) MUNPL

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i.	Sub-Divisional Magistrate / District Emergency Authority	Chair Person
ii.	Dy. Director / Asst. Director of Factories	Member Secretary
iii.	Occupier-MUNL/ Factory Manager	Member
iv.	Transporters of Hazardous Chemicals (2 numbers)	Member
v.	Chief Fire Officer (Prayagraj)	Member
vi.	Fire Officer NTPC-Meja	Member
vii.	SP (Rural)	Member
viii.	Station House Officer, Police Station, Meja	Member
ix.	Station House Officer, Police Choki, Kodhar	Member
x.	Block Development Officer	Member
xi.	DG Civil Defence or its representative	Member
xii.	Primary Health Officers	Member
xiii.	Chief Medical Officer- MUNPL	Member
xiv.	Editor of Local News Paper	Member
xv.	Community Leader, Community leader/ Sarpanch/ Village Pradhan nominated by Chair-person	Member
xvi.	One Representative of Non-government Organisation (NGO) (To be nominated by the Chair-person)	Member
xvii.	Two doctors eminent in local area (To be nominated by the Chairperson)	Member
xviii.	Two Social Workers to be nominated by the Chair-person	Member

23.2.1 FOLLOWING MEMBERS SHOULD BE PART OF THE TEAM

Planning Team Members:

- Collector / Dy. Collector
- ***District authorities in charge of :***
  - Fire Services
  - Police
  - Medical Services
  - Factory Inspectorate
  - Pollution Control Board
  - Nearby Industries &
  - Transport Authorities

Co-opted Members on need basis:

- District authorities concerned
- Civil Defence
- Publicity Department
- Municipality / Notified Area
- Non-officials such as elected representatives
- MPs / MLAs and Voluntary Organizations

The District Collector or his nominated representative would be the team leader, who shall conduct the planning in a systematic manner.

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23.2.2 NUMBER & TYPE OF INDUSTRIES TO BE COVERED UNDER THIS PLAN

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A list of chemicals with the threshold quantities for which Off-site emergency plan is required to be prepared is given in schedule 2 and 3 of Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989.The Off-site plans are also to be prepared in Case of Transit Depots, Warehousing Corporation and for transportation of Hazardous Chemicals.

23.2.3 COMPLETION OF GEOGRAPHIC, DEMOGRAPHIC, METEOROLOGICAL AND SESMIC INFORMATION

Details of public transport network including information of local conditions around the hazardous industries are required for preparation of Off-Site Emergency Plan.

The information required includes:

i. Geographic information

Public transport network details including conditions of road, width, traffic load and connecting roads with industries and the rail networks are to be collected and shown on map.

ii. Pipeline network

Details of pipeline network carrying flammable and toxic materials are to be shown in the map to indicate possible impact.

- Land use plan in the vicinity of the hazardous industries would require in-depth analysis to determine the likely effect of any spill in the area.
- Water supply

23.3.0 DEMOGRAPHIC INFORMATION

The population of the industry as well as the neighbouring areas is a key factor for this type of planning. ***The information to be collected in this regard is:-***

- Neighbouring population
- Housing colonies of industries
- Sensitive institutions i.e. Schools, Hospitals
- Type of Housing
- Cattle / Live stock

23.3.1 METEOROLOGICAL INFORMATION

Meteorological data for a period of 10 years related to wind speed / direction, humidity and temperature immersion is essential for preparation of dispersion models for toxic gas release.

23.3.2 SESMIC DATA

Information regarding seismic zone and record of earthquake is considered to be an important input in Off-site planning.

23.4.0 ELEMENTS OF OFF-SITE PLANNING

A typical Off-site emergency plan should have the following important components:

- Plan pre-requisite (Background information as given earlier)
- Plan requirement (Aims and objectives of the plan)
- Planning team
- Hazard analysis and quantification
- Scenario development
- Assessment of capabilities

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23.5 PLAN DEVELOPMENT

- Incident information
- Authority for the responding
- Basic assumption
- Operation of the plan
- Co-ordination with other plans

23.6 EMERGENCY ASSISTANCE

- Names & Address of key personnel
- Telephone numbers

23.7 RESPONSE FUNCTIONS

- Initial Notification
- Control Rooms
- Access
- Direction & Control
- Communication amongst responders
- Warning system / Emergency notification
- Public information
- Resources Mobilization & Management
- Health & Medical response
- Public protection including evacuation
- Fire & Rescue
- Law & Order
- On-going Incident Assessment

Beside the above, other elements of Off-site planning are containment, clean up and disposal, documentation and investigation, plan testing and updating, community awareness, preparedness and training.

For development of an offsite plan of a particular locality, the elements of relevance to the plan should be carefully selected. The elements would be based on locational situations, hazards present, existence of vulnerable area in the vicinity and resource available etc.

The pre-requisite of an Off-Site Emergency Plan is to define and lay down the clear cut objectives & requirements. As stated earlier, a planning team representing local industries, response agencies and other bodies should be formed. The plan should be based on a systematic hazard analysis of the units in the area and scenario based thereon. This should be done by the units and made available for updating the plan. Resource planning has to be based on the assessment of capabilities in the area.

Plan development should clearly indicate the format to be used for reporting information related to accidents, basic assumptions in preparing the plans, plan operation and detailing with the other plans. The plan should include the names and contact telephone numbers of persons responsible for emergency assistance. Complete detailing of the response functions is the most important part of the plan. The plan should cover details about Central Control Room (CCR) access to and from the incident area, direction and control of emergency public information, resources management, and communication during emergencies, response personnel, safety, on-going incident assessment, etc.

Specific roles of the Police, Fire fighting & Medical personnel should be worked out in the plan. The aspect of containment, clean-up and disposal should also be covered in the plan. If it is not done properly, there could be secondary effect from the accident. Testing and up-dating of the plan needs lot of preparatory work in the form of training of teams, developing assessment mechanisms using observers and mobilization of resources. The role of adjacent communities during emergencies and building community awareness are also important aspect of the plan.

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23.8.0 OFF-SITE CONTROL ROOM

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The control of crisis during major accident is to be exercised through a control room, to be established by Govt. at an easily accessible central location in the area. This control room should be capable of functioning on being required to be activated at any time. The control room for Off-site plan is thus over and above the control room set up by each unit in its On-site emergency plan.

The Control Room shall:

- **a)** Act as a local point of emergency management
- **b)** Keep records of all messages
- **c)** Inform operation officer on receipt of first information relating to accident
- **d)** Monitor implementation of mutual aid
- **e)** Serve as the focal point for meeting of Crisis Management Group(CMG)

In order to operate the control room round the clock, man-power& transport are required on shift basis. The control room should be equipped with proper communication system, data processing network and should be a storehouse of information to combat emergencies.

23.9 KEY PERSONNEL & THEIR DUTIES

The ultimate responsibility for management of major emergencies rests on the District Collector / Dy. Collector.

He will be assisted by representatives from all concerned organizations, departments and services at the District level. This group of officials forms the District Crisis Management Group (CMG).

The member of the group may vary according to the District and local conditions.

The CMG will:

- **a)** Control all emergency operations
- **b)** Guide on matters related to policy issues
- **c)** Provide official information and instructions to the general public

An Operation Response Group (ORG) will have to be put to implement the directions of the CMG.

The duties of the Operation Response Group (ORG) are as under:

- **a)** To develop an integrated response strategy based on the available information.
- **b)** To plan deployment of field units to ensure the availability of appropriate force to deal with the situation
- **c)** To co-ordinate the function of the various agencies
- **d)** To deal with crisis and implement decisions of CMG
- **e)** To monitor the progress, till the crisis ends and keep the CMG informed with the development.

23.10 COMMUNICATION NETWORK SYSTEM

An efficient and reliable communication system is required for the success of the Off-site emergency plan. The efficient communication system is required to alert –

- **a)** Off-site emergency authorities and services.
- **b)** Neighboring factories in the area and public in the vulnerable zone.

A communication network of the following type may be helpful –

- **a)** Radio / T.V communication between Control Rooms to unit C.Rs of the industrial unit and respondents outside the area.
- **b)** Hotlines between C.R to Industrial units, emergency services, meteorological station and the media.
- **c)** Mobile telephone
- **d)** P&T telephone lines
- **e)** Data processing network hooked to the computers.

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A communication flow chart is prepared and kept in the control room. An updated telephone directory of Key Personnel concerned with the emergency is to be available at all the times.

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In co-ordination of the communication system efficiently, there would be a communication officer in control room to ensure that all modes of communication are functional round the clock. All communication operators shall maintain a log book for the messages received in / out and actions taken.

23.11. WARNING SYSTEM

In an Off-Site Management Plan, one of the most important pre-requisite is a good "WARNING SYSTEM". An efficient warning system will save lives, prevents injuries and reduce losses. Emergency commander will decide the appropriate warning system and implement it. The Commissioner of Police will be responsible for implementation of the Warning System.

The type of warning systems are as follows:-

- **a)** Disaster warning (maximum credible loss scenario) shall be decided by State Govt. authorities.
- **b)** Fire / Toxic release shall be decided by State Govt. authorities.
- **c)** All clear shall be decided by State Govt. authorities.

Depending upon the nature of hazards and the area affected, other methods of warning may be used by State Govt., which are as follows :-

- **a.** Outdoor warning sirens
- **b.** Public address system with Police
- **c.** Sirens
- **d.** Mass media
- **e.** Door to door visit by Civil Defense personnel
- **f.** Telephonic contact with schools and other organizations/Public institutions
- **g.** Information to be provided at common gathering places such as canteens shops etc.

23.12 PUBLIC INFORMATION SYSTEM

During the crisis, following an accident/incident, the people of the area and large number of media representatives would like to know about the situation from time to time and the response of the District Authority to the crisis. It is important to give timely information to the public in order to prevent panic and rumor mongering. The emergency public information could be carried out in three phases.

A. Before the Crisis

This will include the safety procedure to be followed during an emergency through posters, talks, and mass media in different languages including local language. Leaflets containing DO's/DON'Ts should be circulated to educate the people in the vicinity. Under the Factories Act 1948, this responsibility lies with the Government.

B. During the Crisis

Dissemination of information about the nature of incidents, action taken and instruction to the public about protective measures to be taken. Evacuation is the important steps during this phase.

C. After the Crisis

Attentions should be focused on information concerning restriction of essential services, travel restrictions etc. Various task of the public information system could include -

- **a)** Quick dissemination of emergency instructions to the public
- **b)** To receive all calls from media/public regarding emergency situations and respond meticulously
- **c)** Obtain current information from the Central Control Room
- **d)** Prepare news release
- **e)** Maintain contact with hospital and get information about the casualties.

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23.13 FIRE FIGHTING SYSTEM

The industrial areas having major accident prone, hazardous installations should have special fire fighting arrangements. In MUNPL- Meja, LDO, LSHS are potential for risk of fire and explosion. In order to tackle such possible situations, it is ensured constant preparedness to mobilize all available fire fighting and toxicity control resources in minimum time. There shall be an Emergency Control Center to have control on all fire fighting resources in the affected areas under the overall charge of Asst. Commandant/ Inspector, CISF (Fire). The operational response will be coordinated from the CCR.

The planning for firefighting should be done by Govt. as follows:

A. Before the Crisis

- **a.** Proper road and means of escape are to be identified
- **b.** Considering the possible hazards, adequate water supply is to be maintained.
- **c.** Training of the personnel in fire fighting duties in the industry is to be organized regularly.
- **d.** Provision of adequate and proper arrangement of fire fighting vehicles is to be made.

B. During the Crisis

Immediate response to an emergency should be co-ordinate by the Govt. control room by matching all the resources. In a major emergency having wide off-site implications, more than one industry may be affected necessitating concurrent fire fighting operation at number of places. In this case, the whole area may be divided in different fire zones.

The task of fire zone commanders should be as under:

- **a.** Command & control of fire fighting resources in the respective fire zones.
- **b.** Development of additional fire resource allocated by Control Room.
- **c.** Co-ordination of fire fighting institutes.

23.14 MUTUAL AID

Although no industries are there in the vicinity of MUNPL but as per Mutual aid arrangement, for the affected areas for getting / extending help in fire fighting facilities, special fire fighting agents, trained manpower, etc. has been made available at MUNPL- Meja. The Control Room will allocate additional resources to fire zone including protective equipments, kept centrally at a pool. The Government should also make necessary arrangement in this regard.

23.15 SERVICES SUPPORTING SYSTEM

A major off-site emergency is an area that may affect a number of units and the surrounding colonies resulting in more causality. The medical response plan has to cater for immediate pooling of all available medical resource and provide emergency medical treatment to the victims of the incident. A co-ordinated utilization of all available local medical resource in the incident area as well as the additional resources should be mobilized under the overall charge of the District Health Department. The operation response should be coordinated by the Chief Medical Officer from the Control Room.

Before the crisis, the following actions should be carried out:

- **a)** Special training of doctors relating to chemical hazards
- **b)** Block grouping of all employees working in the industrial units
- **c)** Maintenance of list of blood donors group wise
- **d)** Arrangement of adequate buffer stock of essential medicines
- **e)** Stock of anti-dotes and special medicines for hazardous substances
- **f)** Planning of additional capacity in the base hospital for large scale casualties.

During the crisis, medical plan in terms of manpower, transport and equipment as per organizational response be implemented.

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The organizational response structure should be set up as under:

a) First Aid Post
b) Casualty Response Center
c) Base Hospital

It is essential to guide medical relief and establish public health measures like sanitation, immunization, etc. In the absence of proper information about the chemical exposure, their symptoms, first and treatment, the physicians attending such emergencies are generally faced with great problems.

23.16 TRANSPORTATION

A large number of ambulances would be necessary to transport causalities to the Causality Response Center and Base Hospital. For this purpose, all type of vehicles which can be converted as ambulance at short notice should be kept at the unit, the Control Room and other places as deemed necessary by the Govt.

23.17 SECURITY & POLICE

Security, protection of life and property, traffic control and maintenance of Law & Order are the traditional and statutory function of the police.

During an emergency, duties and responsibilities of the police may be:

a) Cordoning off the incident area
b) Warning public about the hazards
c) Traffic control
d) Assist fire fighting services
e) Assist first aid and medical teams
f) Assist evacuation and ensure protection of property in evacuated area.

Control of security operation in the area should be exercised by the Dy. Supdt. Of Police.

Different phase of emergency management practices would be as under:

A. Before the Crisis

Contingency plan of the manpower, transport and communication network to co-ordinate possible incident areas and to regulate traffic should be made for each industry in the area.

B. During the Crisis

The Security Commander of the area will set in motion the relevant contingency plan to control the operation.

C. After the Crisis

Protect property in the evacuated area.

23.18 MEDIA

The control room should release up-to-date information to the media.

23.19 EVACUATION

In a disaster situation, evacuation is the movement of the people from the place of danger to a place of relative safety. It is most effective action to protect people. A comprehensive and coordinated planning is necessary to implement orderly evacuation of population.

The process of evacuation should be based on the nature of treat, possibility of spreading of toxic gases and weather conditions. In this case, the hazard analysis in maximum credible loss scenario would help in planning of evacuation. The people of area should be advised to leave the threatened area and to take shelter in the nearest rehabilitation/ reception centers. The whole process is required to be completed within quickest possible time. The command and control of the evacuation should be under the supervision of the District Development Officer.

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The evacuation process should be carried out in three phases:

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A. Before the Crisis

- **i.** The public should be informed and educated properly for Chemical hazards. Local police should warn the people in this regard and install the siren in the vulnerable places.
- **ii.** The probable affected area should be divided in several evacuation centers which are entirely site specific.
- **iii.** Detailed contingency plan of evacuation of various scenarios should be prepared.
- **iv.** Availability of all transport resources needs to be ensured.
- **v.** Planning of adequate reception centers including accommodation, food, water supply and sanitary arrangement for the affected population should be done.

B. During the Crisis

Implementation of the plan should be done in quickest possible time.

C. After the Crisis

Once the crisis is over, the affected people should be rehabilitated and the follow up measures should be taken up.

23.20 RELIEF TO THE VICTIMS

POST EMERGENCY ACTIVITIES INCLUDING THE RELIEF TO THE VICTIMS – The Public Liability Insurance Act, 1991 provides for the owner who has control over handling hazardous substances to pay specified amount of money to the victim as interim relief by taking insurance policy for this purpose. The District Collector has definite role in implementation of the PLI Act, 1991. After the assessment of the incident, he shall invite applications for relief, conduct an enquiry into the claims and arrange payment of the relief amount to the victims.

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CHAPTER-23
DISTRIBUTION LIST

Director of Factories		
01.	Director of Factories	Kanpur
02.	Dy. Director of Factories	Prayagraj
03.	Asst. Director of Factories (Prayagraj Region)	Prayagraj
District Authorities		
04.	District Magistrate	Prayagraj, U.P.
05.	Addl. District Magistrate	Prayagraj, U.P.
06.	Supdt. Of Police	Prayagraj, U.P.
07.	D.L.C.	Prayagraj,U.P.
NTPC Authorities		
08.	Chairman & Managing Director	New Delhi
09.	Director (HR)	New Delhi
10.	Director (Operation)	New Delhi
	Director (Projects)	New Delhi
11.	Director (Technical)	New Delhi
12.	Executive Director (RED)	Lucknow
13.	General Manager(Safety), CC	Noida
14.	All key personnel & team members of DMP	MUNPL-Meja
15.	All Executives	MUNPL-Meja
Others		
16.	Public Representatives	Meja, Prayagraj (U.P.)

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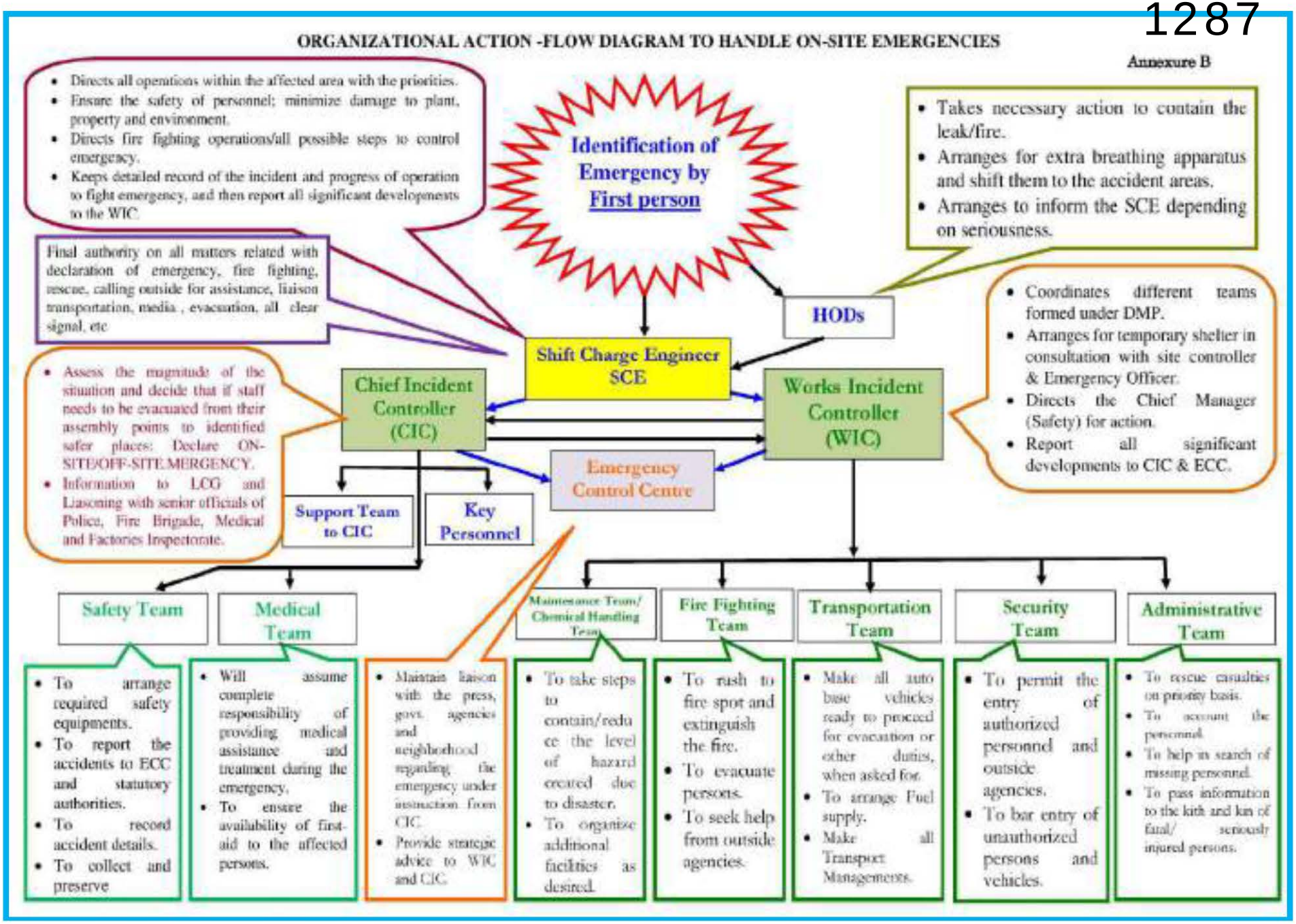
EMERGENCY PREPAREDNESS & RESPONSE PROCEDURE
ASH DYKE BREACH

Source Of Hazard	Escape of Ash Slurry into adjacent land
Area & location where it is being handled	Below the land of the ash dyke
Cause of emergency	Breach of Ash Dyke
Emergency Response	
Procedure to tackle	Inform to the Shift-in-Charge Engineer & Fire Station about the breach as soon as it is observed. - Inform higher authority about the incident. - Ask for help from Maintenance Staff & O&M - Civil deptt. To stop the flow of Ash Slurry to outside the dyke. - Attend to the failed area
Personal Safety	First -Aid Kit available **i.** Operation Control Room **ii.** CHP Control Room **iii.** First aid Centre (Plant) **iv.** CISF Control Room **First aid Centre (Plant) –** Alongside Main Plant Road Towards Gate No.-01 **Ambulance:** Stationed at Hospital & First Aid Centre. **Hospital :** Round the clock medical aid available in township hospital and FAC.
Mitigation	Divert the discharge into other ponds or lower the slurry level. If required lower the invert of water escape structure. Spilled ash around Ash Dyke shall be collected and put back into the Ash Dyke. At least 400-500 sand/ash filled bags shall be kept in readiness at site. A truck/tractor shall always be available. At any point of time, availability of local labour of 100 members should be kept in readiness in case of any emergency exists. The annual maintenance contractor/AHP contractor's should also be available in case of emergency
Immediate Measure for plugging	Plug the breach section by dumping ash bags. Once breach is plugged, the section shall be restored to original section of dyke By proper keying the new construction with existing construction.
Testing Requirement	Round the clock inspection by Ash Handling Maintenance.
Frequency	Yearly by O &M - Civil / Ash Handling Maintenance in association with Operation, Safety & Fire
Record	**a.** Mock drill report available with Safety, Fire and respective HODs. **b.** Actual occurrence report available with respective HODs **c.** Records as per testing requirement available with respective HODs
Copy holders	DRs of Operation, Civil & AHP Maintenance, Safety & IMS Coordinator

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ORGANIZATIONAL ACTION -FLOW DIAGRAM TO HANDLE ON-SITE EMERGENCIES

Annexure B



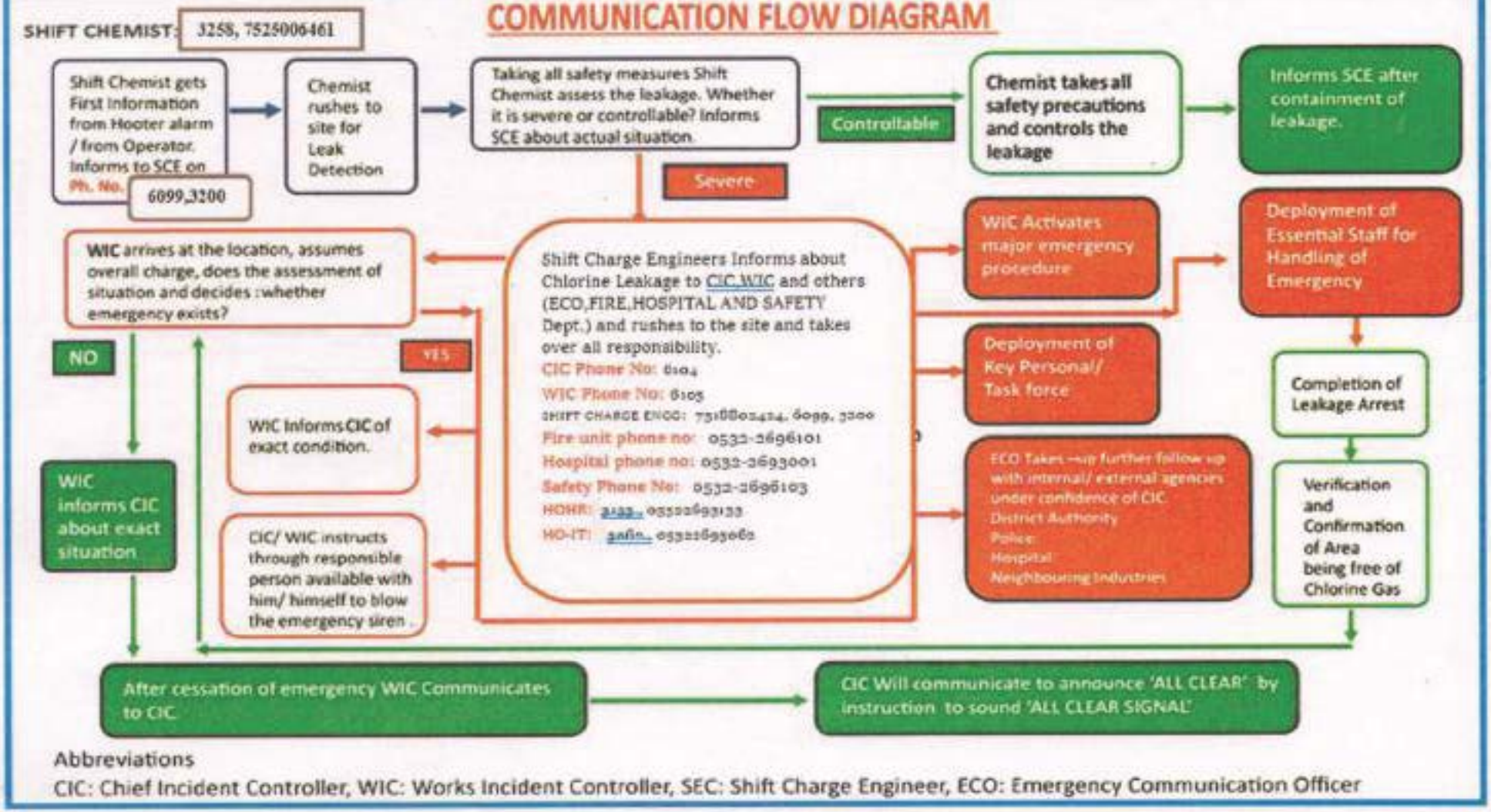
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Annexure C

एनटीपीसी NTPC

EMERGENCY RESPONSE PLAN DURING CHLORINE LEAKAGE

COMMUNICATION FLOW DIAGRAM



Abbreviations

CIC: Chief Incident Controller, WIC: Works Incident Controller, SEC: Shift Charge Engineer, ECO: Emergency Communication Officer

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ANNEXURE-21 CSR Policy of MUNPL

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CSR Policy of MUNPL



March 2023

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Contents

1. Introduction
2. Preamble
3. Purpose
4. Applicability
5. Scope
6. Guiding principles
7. Governance
8. CSR Programme – Selection, Design, Delivery and Monitoring

    8.1 Focus Areas
    8.2 Criteria for selection of CSR Activities
    8.3 Delivery Mechanism & Programme Implementation
    8.4 Monitoring & Evaluation

9. Fund Allocation & Expenditure
10. Reporting and Communication
11. Review

Annexure-I-A: Linkage between MUNPL Corporate Social Responsibility Focus Areas and Sch. VII activities

Annexure-I-B: Indicative list of CSR projects/programs/activities

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1. Introduction

Meja Urja Nigam Private Limited (MUNPL) is a Joint Venture between NTPC Limited (*A Maharatna CPSE under the aegis of Ministry of Power, Government of India*) and Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited was registered under the Companies' Act, 1956 on 2nd April, 2008.

The Company has its maiden project of 1320 MW (2x660 MW) capacity located at Village Kohdar, P.O. NTPC-Kohdar, Tehsil Meja, Prayagraj (U.P.), at around 55 kms from the district headquarter. Both the units are super-critical with the state-of-the-art technology and are presently under commercial operation. The chief beneficiary of the power generated from the Plant is UP (approx. 80%), while the rest of the electricity is distributed among Uttarakhand, Rajasthan, Punjab, J&K, MP, Chandigarh, Haryana.

2. Preamble

The CSR objectives of MUNPL are:

- To deliver business and environmental values through the Company and its Project(s) that is aligned towards economic growth and holistic development of the larger ecosystem.
- To ensure sustainable power generation by ensuring minimal wastage across operations.
- To actively contribute towards socio-economic development of the communities in the vicinity of Company.
- To be a leader in the areas of resettlement and rehabilitation and environment protection including effective ash-utilization, peripheral development, and energy conservation practices.

MUNPL has adopted the following policies of NTPC (*Promoter company of MUNPL*) to actualize its community development & social welfare objectives:

1. Initial Community Development Policy (ICD) - 2009
2. Resettlement and Rehabilitation Policy (R&R) – 2017
3. NTPC Policy for CSR – 2022 Revision

The CSR Policy-2022 has been formulated with the intent to have greater strategic orientation, establishing a deeper connection with the stakeholders and to facilitate an outcome-centric approach.

This CSR Policy is intended to be in conformity with the provisions of Companies Act 2013 and applicable DPE Guidelines on CSR. However, new statutory provisions shall be deemed incorporated in the Policy, as

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may be issued from time to time.

3. Purpose

The purpose of this policy is to drive the alignment of CSR activities so that they are:

- Focused on the broad areas of Schedule-VII (under Section-135 of the Companies Act 2013) such as Education, Water, Health & Nutrition, Sanitation, Skill Development, Environmental Sustainability and bringing maximum values to the society and organization.
- Outcome-centric, rather than activity based.
- Monitored in terms of impact and opportunity for improvement.
- Useful in instilling confidence in stakeholders through effective communication and sustainable development.

4. Applicability

This MUNPL CSR Policy is applicable to:

- All MUNPL location(s) in India.
- Formulation, implementation, monitoring, evaluation, documentation, and reporting of CSR activities taken up by MUNPL anywhere in India.

5. Scope

- MUNPL CSR efforts are focused on the immediate vicinity of its station(s)/location(s).
- The Geographical limits of a district & adjacent area within 10 km where MUNPL has its presence shall be considered as “local area” for CSR activities. In addition to the CSR activities in the local areas, MUNPL shall also undertake CSR activities outside it. The indicative ratio of CSR spends between the local area and outside would be approximately 70:30. However, projects/activities executed under the directives of GoI or of foremost concern in the National Development agenda will be outside the purview of this ratio.
- The CSR Committee is authorized to approve any project, irrespective of

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the amount involved, which is beyond the above ratio.

- Geographical area to be considered for CSR activities in each location is broadly within the district where the particular unit of the Company operates.

- MUNPL may take up CSR activities in areas beyond the district depending on specific requirements like natural calamity, requirements of key communities, type and nature of projects, directives received from the Central/ State Governments or JV partners of MUNPL, etc.

6. Guiding principles

The following principles guide the design of our CSR activities:

Self-Supported and Sustainable

- During planning and selection, thrust shall be given on long-term viability of activities which remain viable upon disengagement at the end of the project period. This will ensure that communities can operate and maintain the assets and systems created.

Low Cost - High Impact

- To adopt appropriate solutions to make the CSR activities more effective, cost-efficient and impactful.

Long lasting & enduring in nature

- Priority to be given to projects which will bring long-term, sustainable and lasting benefits to the community.

Strategic alignment to core business

- In order to fully exploit the core competency and mobilize the resource capabilities in implementation of CSR activities, preference shall be given to the CSR models requiring/supporting MUNPL's strengths, capabilities and knowledge in a specific area.

Measurement and feedback- based outcome centric

- All CSR activities will have well-defined measures to assess impacts on target groups. For high impact projects, there may be an independent, third- party assessment and feedback will be a key input for redesign and/or rollout of further initiatives.

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7. Governance

Board level CSR Committee ensures the operating system and monitoring mechanism for development and implementation of CSR activities. CSR committee in MUNPL shall comprise of:

- Chairman, MUNPL
- Two other MUNPL Board members, one each from NTPC and UPRVUNL
- CEO-MUNPL shall be the co-ordinator of the committee.

To support the Board level committee, MUNPL has set-up a Station Level sub-committee that shall be responsible for the planning, implementation, monitoring, documentation and reporting on CSR projects. The broad role and responsibility of this sub-committee shall be as under:

Station Level Sub-Committee	Responsibility
To be headed by an executive at the level of General Manager and consisting of members at HOHR/HOF level	• Planning and budgeting of CSR Projects • The manner of execution of such CSR Projects • The modality of utilization of CSR fund • Selection, Monitoring, Evaluation, Documentation/MIS and Reporting of CSR Projects • Details of Need and Impact Assessment of CSR Projects • Capability Development of MUNPL CSR professionals

Based on requirement, the MUNPL CSR sub-committee may also take guidance and advice from the NTPC-Corporate CSR group from time to time. Head of Finance, MUNPL shall certify that the CSR funds are utilized in accordance with the guidelines approved by the Company's Board.

8. CSR Programme – Selection, Design, Delivery and Monitoring

8.1. Focus Areas

MUNPL shall undertake activities in core areas as mentioned in Clause-3 (*i.e., Purpose*) above. The linkage of these areas to the activities mentioned in Schedule-VII, Section 135 of Companies Act is mapped in Annexure-I (A). List of activities mapped to Schedule-VII; Section 135 is enclosed at Annexure-I (B). Majority of CSR programs taken up, shall be tailored to bring wide reaching,

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long lasting and impactful contribution to these focus areas.

8.2. Criteria for selection of CSR Activities

MUNPL shall undertake the CSR activities conforming to any of the following:

1. Activities identified through need assessment survey periodically and/or inputs from Panchayat, District Administration, neighborhood community, various stakeholders including public representatives, Village Development Advisory Committee (VDAC) and other participatory forums/bodies like interaction with senior management etc.

2. Identified activities should be in line with the list of activities specified in Schedule VII of the Companies Act 2013 & rules made there under.

3. Any other activity for the benefit of community at large.

8.3. Delivery Mechanism& Programme Implementation

1. The Board shall ensure that the CSR activities are undertaken by the Company itself or through –

a. a company established under section 8 of the Act, or a registered public trust or a registered society, exempted under sub-clauses (iv), (v), (vi) or (via) of clause (23C) of section 10 or registered under section 12A and approved under 80G of the Income Tax Act, 1961 (43 of 1961), established by the company, either singly or along with any other company; or

b. a Company established under section 8 of the Act or a registered trust or a registered society, established by the Central Government or State Government; or

c. any entity established under an Act of Parliament or a State legislature; or

(Explanation- For the purpose of clause (c), the term "entity" shall mean a statutory body constituted under an Act of Parliament or State legislature to undertake activities covered in Schedule VII of the Act.'); or

d. a company established under section 8 of the Act, or a registered public trust or a registered society, exempted under sub-clauses (iv), (v), (vi) or (via) of clause (23C) of section 10 or registered under section 12A and

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approved under 80G of the Income Tax Act, 1961, and having an established track record of at least three years in undertaking similar activities.

2. A company may engage international organization for designing, monitoring & evaluation of the CSR projects or programmes as per its CSR Policy as well as for capacity building of their own personnel for CSR.

3. A company may also collaborate with other Corporations/Companies/PSUs for undertaking projects or programmes or CSR activities in such a manner that the CSR committees of respective companies are in a position to report separately on such projects or programmes in accordance with Companies (CSR) rules. All the related requirements/provisions of the Companies Act 2013 in this regard shall be applicable.

4. **Employee Voluntary Organization for Initiatives in Community Engagement (EVOICE)**

MUNPL encourages volunteering by its employees and their family members under the banner "Employee Voluntary Organization for Initiatives in Community Engagement (EVOICE)". It also facilitates planning and implementation of the identified CSR projects, complementing the CSR initiatives of the Company.

As far as possible every effort is made to ensure that approved CSR activities are implemented within the ambit of Schedule-VII, Section 135 of Companies Act and SDGs.

8.4. Monitoring & Evaluation

1. The Monitoring and Review will be done at Unit and at Senior Management level. The Station level CSR group shall do local reviews, disseminate MIS and generate exception report.

2. Effectiveness of CSR programme will be assessed through both internal and external evaluation.

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3. Progress will be measured against the findings of a need-assessment/ baseline survey (conducted prior to start of the project), wherever required.

4. Internal audits will be carried out to verify effectiveness of implementation.

5. Social Impact Evaluation (SIE) will be done through credible external agencies for gauging impact of CSR initiatives. Findings of SIE form the basis for initiating corrective actions and formulating future schemes/ plans.

6. Success of large CSR projects will be assessed with improvement in developmental indicators.

7. The average CSR obligation of 10.00 crore or more in pursuance of sub section (5) of section 135 of the Act in the three immediately preceeding financial years and CSR projects completed in last one year having outlay of Rs.1.0 crore or more shall undertake impact assessment study by an independent agency. Impact assessment shall be put-up before Board, MUNPL and shall be annexed to Annual Report of the Company. The expenditure on impact assessment shall be considered as CSR expenditure subject to 2% of total CSR expenditure for that FY or fifty lakh rupees, whichever is higher.

8. All capital asset created/acquired out of CSR funds shall be held by a company established under section 8 of the Companies Act, 2013, or a Registered Society having charitable objectives and CSR Registration Number, or beneficiaries of the said project, in the form of self- help groups, collectives, entities or a Public Authority.

Fund Allocation & Expenditure

a. Fund allocation shall follow the GoI/NTPC stipulated guidelines as issued from time to time. Surplus arising out of any CSR projects/activities shall not form part of business profit of MUNPL. Funds allocated or earmarked for CSR activities must be approved

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by Board level CSR Committee. Any amount remaining unspent will be dealt with as per provisions of the Companies' Act.

b. MUNPL shall spend, minimum two percent (2%) of the average net profits made during the three immediately preceding financial years, for CSR activities.

c. Major portion of the CSR budget will be allocated for activities in the vicinity of MUNPL station(s)/locations as mentioned in Clause-5 of this document.

d. The Board shall ensure that the administrative overheads shall not exceed five percent (5%) of total CSR expenditure of the company for the financial year.

e. In an event, where CSR expenditure is in excess of requirement as per section 135 of Companies Act, 2013, such excess amount may be set-off against the requirement to spend as per Section 135 of Act, up to immediate succeeding three financial years subject to the condition that:
   - This excess amount shall not include any surplus arising out of CSR projects; and
   - Board of MUNPL shall pass a resolution to this effect.

f. In the event, that amount mandated above is not spent in its entirely in that Financial Year, unspent amount shall be accounted for as per the provisions of the extant statute.

9. Reporting and Communication

MUNPL will communicate CSR related information including efforts, achievements etc. to stakeholders through:

- Submission of Annual Report of CSR to be annexed along with the Board's Report of Company.
- Local/National print & visual media, conferences, workshops, and other forums.

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- Internal workshops, training, news bulletins, brochures, intranet, etc. are extensively used to create awareness about CSR initiatives, among internal stakeholders.
- Display of CSR activities on its Website: The Board of Directors of the Company shall mandatorily disclose the composition of the CSR committee, the CSR Policy and Projects approved by the Board on their website, if any, for public access.

11. Review

- Any new provision arising out of amendments to the Companies Act 2013 in the Companies (CSR Policy) Rules as amended and framed there under, shall be construed to be a part of this policy.

- In case of any contradiction between the policy and the CSR provisions of Companies (CSR Policy) Rules 2014 as amended, under Companies Act, 2013, the latter shall prevail.

- The policy shall be reviewed every five years or sooner if necessitated by changes in business, Govt. guidelines and regulatory framework.

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Annexure-I (A)

Linkage between MUNPL Corporate Social Responsibility Focus Areas and Sch. VII activities

Activities in Sch.-VII		Focus Area			
		Education	Health	Sanitation	Water
i.	Eradicating hunger, poverty, and malnutrition, promoting preventive healthcare and sanitation and making available safe drinking water		Y	Y	Y
ii.	Promotion of education; including special education and employment enhancing vocation skills especially among children, women, elderly, and the differently abled and livelihood enhancement projects	Y			
iii.	Promoting gender equality, empowering women; setting up homes and hostels for women and orphans, setting up old age homes, day care centres, and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups	Y			
iv.	Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining of quality of soil, air and water				Y
v.	Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up of public libraries; promotion and development of traditional arts and handicrafts	Y			
vi.	Measures for the benefit of armed forces veterans, warwidows and their dependents				
vii.	Training to promote rural sports, nationally recognized sports, and Paralympics sports and Olympic sports		Y		
viii.	Contribution to the Prime Minister's National Relief Fund (PM CARES Fund) or any other fund set up by the Central Government or the State Governments for socio- economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women	Y			

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ix.	**A)** Contributions to incubators or research and development projects in the field of science, technology, engineering, and medicine, funded by Central Government or State Government or PSU or any other agency of the Central Government or State Government **B)** Contributions to public funded Universities; Indian Institute of Technology (IITs); National Laboratories and autonomous bodies established under Department of Atomic Energy (DAE); Department of Biotechnology (DBT); Department of Science and Technology (DST); Department of Pharmaceuticals; Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH); Ministry of Electronics and Information Technology and other bodies, namely Defense Research and Development Organization (DRDO); Indian Council of Agricultural Research (ICAR); Indian Council of Medical Research (ICMR) and Council of Scientific and Industrial Research (CSIR), engaged in conducting research in science, technology, engineering and medicine aimed at promoting Sustainable Development Goals (SDGs).	Y			
x.	Rural development projects	Y	Y	Y	Y
xi.	Slum area development*	Y	Y	Y	Y
xii.	Disaster management, including relief, rehabilitation, and reconstruction activities		Y	Y	Y

*Explanation: For the purposes of this item, the term 'slum area' shall mean any area declared as such by the Central Government or any other State Government or any other competent authority under any law for the time being in force.

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Annexure-IB (Contd.)

Indicative list of CSR projects/ programs/ activities

Activities in Sch.-VII	CSR projects/ programs/ activities
(i) Eradicating extreme hunger and poverty and malnutrition, promoting preventive healthcare and sanitation, and making available safe drinking water	• In the area of healthcare activities to: – Promote good health through Yoga, Lifestyle Changes and Awareness Creation on health-related issues etc. – Prevent disease through fogging/ spraying/ distribution of mosquito nets etc. – Making primary health care accessible, affordable, andinclusive through: ♦ Health camps ♦ Outreach Services through Mobile Medical Unit – Partnering with GoI in Revised National Tuberculosis Control by providing Designated Microscopy Centres (DMC) and Directly Observed Treatment (DOT) in the surrounding areas of MUNPL's operations. – Augmenting and strengthening healthcare infrastructure - primary, secondary, and tertiary • In the area of water activities to: – Augment water availability - watershed management, check dams, deepening of ponds etc. – Improve access to water - bore wells/ tube wells/ hand pumps/ piped water etc. • In the area of sanitation activities to: – Improve sanitation facilities by: ♦ Construction of individual toilets ♦ Construction of community/ public toilets ♦ Construction of drains ♦ Installation of sanitary napkin vending machines with incinerators ♦ Setting up low-cost sanitary napkin manufacturing units through women self-help groups – Improve awareness about sanitation • Mainstreaming physically challenged persons by: – Providing them with aids and appliances

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	– Operating Disability Rehabilitation Centres for assessment and provision/ fitment of assistive devices to persons with disability.
(ii) Promotion of education; including special education and employment enhancing vocation skills especially among children, woman, elderly and the differently abled and livelihood enhancement projects	• In the area of education activities like: – Providing basic educational supplies to school children essential to the fulfilment of their right to education, – Making education inclusive by providing scholarships, – Providing coaching for competitive examinations, – Improving learning levels, – Holistic education of girls, – Augment and strengthen educational infrastructure, – Providing various assets to schools. • In the area of vocational training and livelihood enhancement activities like: – Training to youth to make them Employable, Enterprising and Entrepreneurial – Capacity building of farmers through training, demonstration, exposure visits, hand holding – Enhancing milk production by improving cattle breed through artificial insemination, improved feed and fodder practices, making available on farm veterinary services etc. – Supporting the Government of India's scheme for upgradation of ITIs under PPP mode – Setting up Industrial Training Institutes
(iii) Promoting gender equality and empowering women; setting up homes and hostels for women and orphans, setting up old age homes, day care centres, and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups	• Providing training to women to make them Employable, Enterprising and Entrepreneurial. • Augmenting and strengthening infrastructure and providing assets for old age homes/ hostels for women/ orphanages etc. • Other measures for reducing inequalities faced by socially and economically backward groups.
(iv) Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal	• Activities for protecting & maintaining environment (Air, Soil and Water). • Initiate & support measures to conserve

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welfare, agroforestry, conservation of natural resources and maintaining of quality of soil, air and water	natural resources (by reduction, reuse, and recycling), optimize usage of renewable energy, increase energy efficiency, and reduce GHG emissions. • Activities for Biodiversity Conservation, protection of Fauna & Flora & restoring ecological balance. • Promoting Animal Welfare & Agro Forestry. • Awareness / training programs / workshops / seminars on sustainable development
(v) Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up of public libraries; promotion and development of traditional arts and handicrafts	• Promoting rural art and culture - rural cultural programmes, performing arts, festivals & melas. • Programs for Protection of national heritage including restoration of buildings and sites of historical importance. • Protection, promotion, and development of traditional arts & culture, handicrafts etc.
(vi) Measures for the benefit of armed forces veterans, war widows and their dependents	Activities for the benefit of armed forces veterans, warwidows and their dependents.
(vii) Training to promote rural sports, nationally recognized sports, and Paralympics sports and Olympic sports	Support for rural and national sports - talent scouting, training, sports infrastructure, sports equipment, leagues, and tournaments.
(viii) Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the State Governments for socio- economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities, and women;	• Relief to victims of Natural Calamities like earthquake, cyclone, drought, fire & flood. • Activities for support to welfare of the Scheduled Castes, the Scheduled Tribes, backward classes, minorities, and women.
(ix) **A)** Contributions to incubators or research and development projects in the field of science, technology, engineering, and medicine, funded by Central Government or State Government or PSU or any other agency of the Central Government or State Government **B)** Contributions to public funded Universities; Indian Institute of Technology (IITs); National Laboratories and autonomous bodies established under Department of Atomic Energy (DAE); Department of Biotechnology (DBT); Department of Science and Technology (DST); Department of Pharmaceuticals; Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH); Ministry of Electronics and Information Technology and other bodies, namely Defence	Support for technology incubators

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Research and Development Organization (DRDO); Indian Council of Agricultural Research (ICAR); Indian Council of Medical Research (ICMR) and Council of Scientific and Industrial Research (CSIR), engaged in conducting research in science, technology, engineering and medicine aimed at promoting Sustainable Development Goals (SDGs).	
(x) Rural development projects	Projects for improvement in health, education, sanitation, andwater etc. in rural areas.
(xi) Slum area development	Projects for improvement in health, education, sanitation, andwater etc. in slum areas.
(xii) Disaster management, including relief, rehabilitation, and reconstruction activities	Various activities for relief, rehabilitation, and reconstruction etc. for disaster affected areas.

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ANNEXURE-22 DFO Certification of Existing plantation carried by MUNPL, Meja Stage-I

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कार्यालय प्रभागीय निदेशक, सामाजिक वानिकी प्रभाग,प्रयागराज।

पत्रांक 574 /5–3, दिनांक, प्रयागराज, अगस्त, 23 2024।

सेवा में,

मुख्य कार्यकारी अधिकारी,(सी.ई.ओ.),
मेजा ऊर्जा निगम प्रा0लिमिटेड,
प्रयागराज।

विषयः–मेजा ऊर्जा निगम प्रा0 लिमिटेड के द्वारा कराये गये वृक्षारोपण की सफलता प्रतिशत के सम्बंध में।

संदर्भः–आपके द्वारा प्रेषित ईमेल दिनांक 07.11.2024 एवं उप प्रभागीय वनाधिकारी, प्रयागराज का पत्रांक–68/5–3, दिनांक 23.06.2024 तथा क्षेत्रीय वन अधिकारी, मेजा का पत्रांक–59/5–3, दिनांक 21.06.2024।

महोदय,

उपरोक्त संदर्भित पत्र के क्रम में मांगी गयी बिन्दु सं0–3 की सूचना निम्न प्रारूप में प्रेषित है–

क्र0 सं0	परियोजना का विवरण	वृक्षारोपण वर्ष	रोपित पौधों की संख्या	जीवित पौधों की संख्या	वर्तमान सफलता प्रतिशत	शासनादेश सं0 554–14–5–2003 (5)(10)/93, दिनांक 10.07.03 के अनुसार सफलता प्रतिशत का मानक
1	2	3	4	5	6	7
1	94000 पौधरोपण	2011–12	94000	70500	75	40
2	100000 पौधरोपण	2015–16	100000	78000	78	48
3	14160 पौधरोपण	2019–20	14160	11611	82	61
4	40000 पौधरोपण	2020–21	40000	34000	85	66
5	30000 पौधरोपण मियांवाकी पद्धति	2023–24	30000	30000	100	100
6	90000 पौधरोपण (मेजा ऊर्जा निगम द्वारा)	2011 से 2023 तक	90000	76500	85	66

नोट– मेजा ऊर्जा निगम प्लान्ट परिसर का क्षेत्र विन्ध्य क्षेत्र का पठारी भाग है। उपरोक्त वृक्षारोपण मेजा ऊर्जा निगम द्वारा वित्त पोषण से मेजा रैंज की पठारी/पथरीली भूमि पर वृक्षारोपण कार्य कराया गया है। शासनादेश के अनुसार वृक्षारोपण की सफलता की सारणी संलग्न है।

संलग्नकः–उपरोक्तानुसार।

भवदीय,

(अरविन्द कुमार यादव)
प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
प्रयागराज।

पत्रांक /समदिनांकित।

प्रतिलिपि उप प्रभागीय वनाधिकारी, प्रयागराज को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

प्रतिलिपि क्षेत्रीय वन अधिकारी, मेजा को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

(अरविन्द कुमार यादव)
प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
प्रयागराज।

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संख्या-554-चौदह-5-2003-(5) 1309

प्रेषक,

खंजन लाल,
प्रमुख सचिव, वन
उत्तर प्रदेश, शासन।

सेवा में,

1. समस्त प्रमुख वन संरक्षक उ0प्र0।
2. अपर प्रमुख वन संरक्षक, प्रशासन, उ0प्र0, लखनऊ।
3. समस्त मुख्य वन संरक्षक, उ0प्र0।
4. समस्त वन संरक्षक, उ0प्र0।
5. समस्त उप वन संरक्षक, उ0प्र0।
6. समस्त प्रभागीय वनाधिकारी/प्रभागीय निदेशक, उ0प्र0।

वन अनुभाग-5 लखनऊ दिनांक 10 जुलाई 2003

विषय : वृक्षारोपण से संबंधित मानकों का निर्धारण।

महोदय,

वृक्षारोपण कार्यों से संबंधित कतिपय मानकों का निर्धारण शासनादेश संख्या 90/14-प0मू0 वि0/94 दिनांक 07.01.94 द्वारा किया गया था। समय-समय पर शासनादेश में उल्लिखित कई मानकों के संशोधन हेतु प्रमुख वन संरक्षक द्वारा प्रस्ताव भेजे गये। सम्यक विचारोपरान्त उक्त शासनादेश के कतिपय मानकों को तकनीकी आधार पर संशोधित करने का निर्णय लिया गया है। इस क्रम में मुझे कहने का निर्देश हुआ है कि आगामी सत्र से वृक्षारोपण कार्य कराये जाने हेतु निम्न मानकों का निर्धारण किया जाता है :-

वृक्षारोपण का वित्त -

1. वर्षा को ध्यान में रखते हुए रोपण कार्य सामान्यतया 31 जुलाई तक अवश्य पूर्ण कर लिया जाय।
2. वृक्षारोपण कार्य अनिवार्यतः रोपावनी प्रभारी या उससे उच्च स्तर के कर्मचारी की उपस्थिति में ही किया जाय।
3. सामान्यतया वृक्षारोपण की सफलता बढ़ाये जाने के उद्देश्य से शासनादेश संख्या 2292/14-प0मू0वि0/2001-15(1)/96 दिनांक 22.01.2002 जारी किया जा चुका है। इस शासनादेश को तालिका का शीर्षक परिवर्तित कर वृक्षारोपण के कार्यों के सम्पादन हेतु उत्तरदायित्व तालिका किया जाता है। अधीनस्थों के विरूद्ध उत्तरदायित्व निर्धारण करते समय यह सुनिश्चित कर लिया जाय कि नियंत्रक अधिकारियों द्वारा भी अपनी भूमिका ठीक तरह से निभा ली गयी है।
4. अपने क्षेत्र के रोपित पौधों की सुरक्षा व्यवस्था के लिये मुख्यतया वन रक्षक जिम्मेदार होंगे। अपने स्थानान्तरण पर जाते समय वे लिखित सूचना द्वारा सफलता दर्शाते हुए वृक्षारोपण नये वन रक्षक को हस्तान्तरित करेगें। यदि किसी रोपावनी की सफलता निर्धारित मानक से कम होती है तो उसकी जांच प्रभागीय वनाधिकारी/प्रभागीय निदेशक, करेगें तथा व्यय के दुरूपयोग के लिये जिम्मेदारी का निर्धारण करेगें। प्रभागीय वनाधिकारी द्वारा अपने इस दायित्व का निर्वाहन न किये जाने की दशा में संबंधित वन संरक्षक, उनका भी दायित्व निर्धारित करेगें।

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पौधों की ऊँचाई :-

1. रोपण के समय पौधों की न्यूनतम ऊँचाई तालिका-1 के अनुरूप होगी।

क्षतिपूर्ति (बीटिंग अप) रोपण

1. वृक्षारोपण की अगली बरसात में मृत पौधों के स्थान पर विभिन्न कृषि जलवायु क्षेत्र के लिए निर्धारित सीमा के अनुरूप अधिकतम 10 प्रतिशत तक पौध लगाकर बीटिंग अप कार्य किया जायेगा।
2. बीटिंग अप के सफल होने का पूर्ण दायित्व वन क्षेत्राधिकारी तथा सहायक वन संरक्षक का होगा। वे यह सुनिश्चित करेगें कि बीटिंग अप में व्यय होने वाली धनराशि का दुरूपयोग न हो। बीटिंग अप किये जाने के समय वृक्षारोपण की औसत ऊँचाई से कम नही होनी चाहिए। बीटिंग अप कार्य पौधरोपण काल के प्रारम्भ में ही कर लिया जाय।
3. असामान्य परिस्थितियों यथा अग्नि, बाढ़, सूखा एवं महामारी से वृक्षारोपण असफल होने की दशा में निर्धारित सीमा तक अनुमन्य बीटिंग अप से अधिक क्षतिपूर्ति रोपण कार्य किये जाने के लिए प्रभागीय वनाधिकारी द्वारा निरीक्षणोपरान्त वन संरक्षक को लिखित प्रमाण पत्र दिये जाने पर ही व्यय अनुमन्य होगा। बाढ़ अथवा सूखा जैसे आपदा जिलाधिकारी द्वारा घोषित विज्ञप्ति के आधार पर मान्य होगी।

वृक्षारोपण सफलता प्रतिशत :

1. वृक्षारोपण की सफलता निर्धारित करने के लिये वनीकरण की दृष्टि से प्रदेश के विभिन्न जलवायु क्षेत्रों के लिए ब्लाक वृक्षारोपण की न्यूनतम सफलता मानक तालिका-2 के अनुसार निर्धारित किया जाता है। पटरी वृक्षारोपण के लिए भी मानक यही होगा, परन्तु ट्री-गार्ड में रोपित पौधों की सफलता लगभग 100 प्रतिशत होगी। वृक्षारोपण की आयु के आगणना के लिए रोपण वर्षावधि 31 जुलाई से 30 जून तक मानी जायेगी। प्रदेश के विभिन्न कृषि जलवायु क्षेत्रों में पड़ने वाले वन प्रभागों का विवरण तालिका-3 में दिया गया है। किसी वन प्रभाग में एक से अधिक क्षेत्र का निर्धारण वनाधिकारी द्वारा रेंजवार किया जायेगा।

रोपण दूरी एवं पौध संख्या :-

1. विभिन्न प्रजातियों के रोपण में पौधों के आपस की दूरी तथा प्रति हेक्टेयर पौध संख्या तालिका-4 के अनुरूप होगी।

ढुलान एवं पौधशाला क्षति :-

1. वृक्षारोपण की गुणवत्ता बढ़ाये जाने के उद्देश्य से पौधशाला क्षति (पिण्डी बनाना, जड़ कटी करना, शिफ्टिंग व ग्रेडिंग करना) अधिकतम 2 प्रतिशत तथा ढुलान क्षति अधिकतम 3 प्रतिशत अनुमन्य होगी।

कलिंग अनुमन्यता :

1. कलिंग की अनुमन्यता सिर्फ प्रकाष्ठ प्रजातियों में अधिकतम 20 प्रतिशत होगी। कलिंग का यह कार्य उन्हीं प्रकाष्ठ प्रजातियों के पौधों में किया जायेगा, जिनके बीज का श्रोत बीज उत्पादन क्षेत्र (एस0पी0ए0) तथा अभ्यर्थी धनात्मक वृक्ष (सी0पी0टी0) होगा। क्लोनल एवं प्लस ट्री के बीज से तैयार पौधों के लिए कलिंग अनुमन्य नहीं होगा।
2. कलिंग का कार्य सहायक वन संरक्षक की उपस्थिति में किया जायेगा एवं उनके द्वारा इस आशय का प्रमाण पत्र अपने उच्चाधिकारी को प्रस्तुत करने पर ही व्यय अनुमन्य होगा।

थैली क्षति अनुमन्यता :

1. पौधशाला में मिट्टी भरान के समय होने वाली क्षति को ध्यान में रखते हुये यह सुनिश्चित किया जायेगा कि थैली अच्छी गुणवत्ता एवं उचित गेज की हो, मिट्टी भरान के समय थैली क्षति की अनुमन्यता अधिकतम 3 प्रतिशत होगी।

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प्रमाणिक बीज प्रयोग :

1. प्रदेश में उच्च गुणवत्ता की पौध तैयार करने का निर्णय लिया गया है। इसके लिए अनुसंधान इकाई द्वारा आपूर्ति किए गए प्रमाणिक बीजों/क्लोनल पौधों का प्रयोग किया जायेगा। प्रमाणिक बीजों अथवा क्लोनल पौधों की आपूर्ति सुनिश्चित करने के लिए अनुसंधान इकाई को केन्द्रीय रूप से एक मुक्त आवश्यक धनराशि प्रमुख वन संरक्षक, उ0प्र0 द्वारा उपलब्ध करायी जायेगी।

उपर्युक्त मानकों का निर्धारण अनुसंधान शाखा के तकनीकी परामर्श एवं वरिष्ठ वनाधिकारियों के अनुभवों के अनुक्रम में किया गया है, तथापि अनुसंधान पर आधारित भिन्न परिणाम प्राप्त होने की दशा में उन मानकों का पुर्ननिर्धारण समय-समय पर किया जा सकेगा।

भवदीय

ह0/-

संलग्न : तालिका परिशिष्ट

(खंजन लाल)

प्रमुख सचिव

संख्या-554(1)/चौदह-5-2003 तद्दिनांकित।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

1. कृषि उत्पादन, आयुक्त, उत्तर प्रदेश शासन।
2. प्रमुख सचिव, ग्राम्य विकास विभाग, उत्तर प्रदेश, शासन।
3. समस्त मण्डलायुक्त, उत्तर प्रदेश।
4. समस्त जिलाधिकारी, उत्तर प्रदेश।
5. महालेखाकार, इलाहाबाद, उत्तर प्रदेश।

आज्ञा से

ह0/-

(डा0 के0के0 झा)

विशेष कार्याधिकारी

कार्यालय प्रमुख वन संरक्षक, उत्तर प्रदेश, लखनऊ।

पत्रांक टीटी-पी196/36-6 दिनांक लखनऊ अगस्त 06, 2003

प्रतिलिपि मय संलग्नक सहित समस्त उप वन संरक्षक, समस्त प्रभागीय वनाधिकारी/प्रभागीय निदेशक, उ0प्र0 को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

संलग्नक : यथोपरि।

ह0/-

(खंजन लाल)

प्रमुख सचिव

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सफलता मानक तालिका (वर्षवार)

वर्ष	पश्चिमी क्षेत्र	गांगेय	पूर्वी गांगेय क्षेत्र		तराई क्षेत्र		विन्ध्य एवं बुन्देलखण्ड क्षेत्र	
	क्षतिपूर्ति रहित	10 प्रतिशत क्षतिपूर्ति	क्षतिपूर्ति रहित	10 प्रतिशत क्षतिपूर्ति	क्षतिपूर्ति रहित	10 प्रतिशत क्षतिपूर्ति	क्षतिपूर्ति रहित	10 प्रतिशत क्षतिपूर्ति
0	95	95	95	95	95	95	95	95
1	79	88	90	99	91	100	75	84
2	68	75	83	91	83	91	69	77
3	59	65	76	83	75	82	64	71
4.	51	56	70	76	68	74	60	66
5.	46	50	65	70	60	68	56	61
6.	42	45	61	65	53	57	53	57
7.	40	42	57	60	46	49	50	53
8.	40	42	54	56	40	42	49	51
9.	40	42	52	53	34	35	47	48
10.	40	42	51	52	20	29	47	40

तराई क्षेत्र में सुरक्षा व्यवस्था बढ़ाकर इसकी सफलता प्रतिशत 3 से 10 वर्षों के लिए पूर्वी गांगेय क्षेत्र के समतुल्य किया जाय।

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ANNEXURE-23 DFO Certified Action Plan for Greenbelt Development for MUNPL

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कार्यालय प्रभागीय निदेशक, सामाजिक वानिकी प्रभाग,प्रयागराज।
पत्रांक 576 /5–3, दिनांक, प्रयागराज, अगस्त, 23, 2024।

सेवा में,
मुख्य कार्यकारी अधिकारी,(सी.ई.ओ.),
मेजा ऊर्जा निगम प्रा0लिमिटेड,
प्रयागराज।

विषयः–मेजा ऊर्जा निगम प्रा0 लिमिटेड के हरित पट्टी की परियोजना का एक्शन प्लान के सम्बंध में।
संदर्भः–आपके द्वारा प्रेषित ईमेल दिनांक 07.11.2024।
महोदय,

उपरोक्त संदर्भित पत्र के क्रम में मांगी गयी बिन्दु सं0–3 के क्रम में आपके साथ दिनांक 29.07.2024 को अधोहस्ताक्षरी के साथ आपके विचार–विमर्श के उपरान्त मेजा ऊर्जा निगम के एवं आस–पास के आरक्षित अवनत वन क्षेत्र पर वृक्षारोपण कराये जाने हेतु 10 वर्ष का एक्शन प्लान तैयार किया गया है। जिसमें परियोजना वर्ष 2024–25 से वर्ष 2033–34 तक का एक्शन प्लान प्रस्तावित किया गया है। वृक्षारोपण की 10 वर्ष की परियोजना का एक्शन प्लान की प्रति संलग्न है।

संलग्नकः–उपरोक्तानुसार।

भवदीय,

(अरविन्द कुमार यादव)
प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
प्रयागराज।

पत्रांक /समदिनांकित।

प्रतिलिपि वन संरक्षक/क्षेत्रीय निदेशक, सामाजिक वानिकी वृत्त, उ0प्र0, प्रयागराज की सेवा में सूचनार्थ एवं अनुमोदनार्थ प्रेषित।

प्रतिलिपि क्षेत्रीय वन अधिकारी मेजा को इस निर्देश के साथ कि परियोजना की एक प्रति मेजा ऊर्जा निगम को उपलब्ध करावें।

(अरविन्द कुमार यादव)
प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
प्रयागराज।

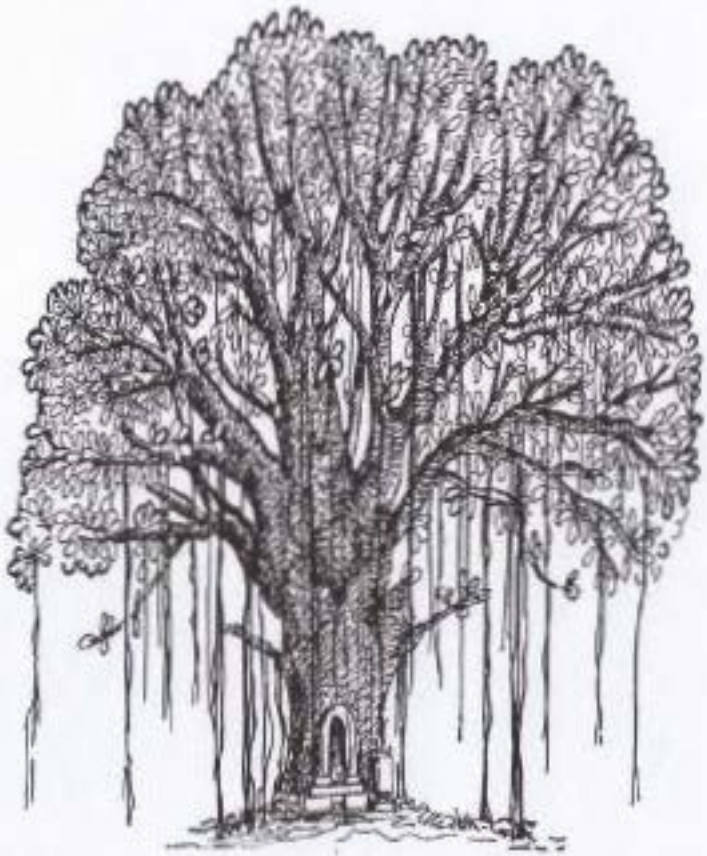
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1691

1315

मेजा ऊर्जा निगम प्रा0 लिमिटेड में प्रस्तावित वृक्षारोपण की परियोजना का एक्शन प्लान

रेंज – मेजा



योजना की अवधि वर्ष 2024–2025 से व वर्ष 2033–2034 तक

सामाजिक वानिकी वन प्रभाग, प्रयागराज

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1– प्रस्तावना

विकास के इस दौर में प्रतिदिन बड़े–बड़े कल कारखाने व उद्योग धंधे स्थापित हो रहे है। सड़कों के किनारे घनी आबादी बसती जा रही है । सड़कों पर ध्वनि प्रदूषण से पर्यावरणीय संतुलन बिगड़ रहा है। जनपद में विगत वर्षो में नये मार्गों का निर्माण तथा मार्ग चौड़ीकरण का कार्य होने के कारण मार्ग के किनारे लगे वृक्षों का पातन हुआ है । जनपद में रिक्त सड़क पटरियों के किनारे वृक्षारोपण की आवश्यकता है। मार्गों के किनारे घने वृक्षों को स्थापित करने के उद्देश्य से यह परियोजना प्रस्तावित की जा रही है।

2–योजना का उद्देश्य

1– पर्यावरण असंतुलन को कम करना ।

2– रेल पटरी के किनारे वृक्षावलियों को स्थापित कर स्थानीय ग्रामवासियों के लिए सुखद बनाना ।

3– रेल पटरी की सौन्दर्यवृद्वि

4– रेल पटरी के किनारे स्थित आबादी को रोजगार उपलब्ध कराना

5– भू–क्षरण पर नियंत्रण करना ।

3– परियोजना की अवधि

परियोजना की अवधि वर्ष 2024–2025 से 2033–2034 तक कुल 10 वर्षो की होगी ।

4– रोपण की सफलता

प्रमुख सचिव वन के शासनादेश संख्या–554/चौदह–5–2003–15(10)/93, दिनांक 10 जुलाई 2003 के अनुसार रोपण की सफलता वर्षवार निम्न प्रकार निर्धारित की गयी है। प्रथम वर्ष–95 प्रतिशत, द्वितीय वर्ष–84 प्रतिशत, तृतीय वर्ष–77 प्रतिशत है। परन्तु यह सफलता प्रतिशत मेजा ऊर्जा निगम द्वारा समयबद्व धनराशि की उपलब्धता पर भी निर्भर करेगी। दोनों विभागों द्वारा सफलता प्रतिशत का आंकलन संयुक्त रूप से

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किया जायेगा। यह प्रयास किया जाएगा कि रोपण की सफलता प्रत्येक वर्ष 100 प्रतिशत की रहे। इस हेतु बीटिंग अप प्रक्रिया के आधार पर मरे हुए पौधों को प्रत्येक वर्ष का व्यय में तीन वर्ष तक बदला जाएगा। परन्तु यह सीमा 10 प्रतिशत से अधिक किसी भी वर्ष में नही होगी।

5– कार्य प्रारम्भ करने हेतु अग्रिम

योजना की स्वीकृति मेजा ऊर्जा निगम से प्राप्त होने पर वित्तीय वर्ष हेतु प्रस्तावित व्यय की धनराशि अग्रिम के रूप में वन विभाग को मेजा ऊर्जा निगम द्वारा दी जायेगी तथा उक्त कार्य पूर्ण होने के पश्चात् वन विभाग तथा मेजा ऊर्जा निगम द्वारा संयुक्त निरीक्षण के उपरान्त अगले वित्तीय वर्ष में प्रस्तावित व्यय की धनराशि अवमुक्त की जायेगी।

6– रोपण हेतु प्रस्तावित प्रजातियां

प्रस्तावित क्षेत्र विन्ध्य क्षेत्र का पठारी भू–भाग अवनत वन भूमि है। मृदा की स्थिति के अनुसार मुख्यतः नीम, कंजी, कदम्ब, जंगल जलेबी, महुआ, इमली, सागौन, अमलतास, चिलबिल, बरगद, पाकड़, पीपल,, बांस, खैर, केसिया सेमिया, अर्रू, इत्यादि प्रजातियों का रोपण किया जायेगा ।

7– कार्यकारी संस्था एवं संस्थागत व्यवस्था

परियोजना में प्रस्तावित कार्य प्रभागीय निदेशक, सामाजिक वानिकी प्रभाग, प्रयागराज के निर्देशन एवं पर्यवेक्षण में संबंधित क्षेत्रीय वन अधिकारी, वनविद एवं वनरक्षक के द्वारा संपादित करवाया जायेगा तथा प्रशासनिक नियंत्रण निर्देशन एवं पर्यवेक्षण उप प्रभागीय, वनाधिकारी द्वारा किया जायेगा ।

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8–मेजा ऊर्जा निगम प्रा0 लिमिटेड के द्वारा वृक्षारोपण की परियोजना का एक्शन प्लान

क्र0सं0	वर्ष	वृक्षारोपण स्थल का नाम	वृक्षारोपण स्थल का क्षेत्रफल (हे0 में)	निर्धारित बजट (रू0 करोड़ में)
1	2024-2025	एम.यू.एन.पी.एल., मेजा (रेलवे लाइन के बगल में)	10	1.14
		कोहड़ार आरक्षित वन (अवनत वन क्षेत्र)	21.5	1.92
2	2025-2026	एम.यू.एन.पी.एल., मेजा (रेलवे लाइन के बगल में)	10	1.11
		कोहड़ार आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
3	2026-2027	एम.यू.एन.पी.एल., मेजा (रेलवे लाइन के बगल में)	10	1.11
		कोहड़ार आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
4	2027-2028	एम.यू.एन.पी.एल., मेजा (रेलवे लाइन के बगल में/एश डाइक के आस–पास)	10	1.11
		कोहड़ार/मुड़पेला आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
5	2028-2029	एम.यू.एन.पी.एल., मेजा (रेलवे लाइन के बगल में/एश डाइक के आस–पास)	20	2.22
		सलैया खुर्द/मुड़पेला आरक्षित वन (अवनत वन क्षेत्र)	20	1.79
6	2029-2030	एम.यू.एन.पी.एल., मेजा (एश डाइक के आस–पास)	10	1.11
		सलैया खुर्द/मुड़पेला आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
7	2030-2031	एम.यू.एन.पी.एल., मेजा (एश डाइक के आस–पास)	20	2.22
		मुड़पेला आरक्षित वन (अवनत वन क्षेत्र)	20	1.79
8	2031-2032	एम.यू.एन.पी.एल., मेजा (प्लान्ट एरिया के आस–पास)	10	1.11
		सिंहपुर खुर्द आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
9	2032-2033	एम.यू.एन.पी.एल., मेजा (प्लान्ट एरिया के आस–पास)	15	1.67

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		दरी/मुडपेला आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
10	2033-2034	एम.यू.एन.पी.एल., मेजा (प्लान्ट एरिया के आस–पास)	15	1.66
		दरी आरक्षित वन (अवनत वन क्षेत्र)	30	2.68
		योग	**401.50**	**38.72**

1. प्रस्तावित एक्शन प्लान में वृक्षारोपण का घनत्व, पठारी वृक्षारोपण मानक के अनुसार किया जायेगा। उपरोक्त अवधि की परियोजना में मौके की सुविधा के अनुसार परियोजना की अवधि में स्थल का परिवर्तन किया जा सकता है। अपितु प्रस्तावित अवधि का क्षेत्रफल वर्षवार, उपरोक्त तालिका में दिये गये क्षेत्रफल के समान ही रहेगा।

2. उपरोक्त व्यय अनुमान वित्तीय वर्षवार, वन विभाग के वर्तमान अनुसूची दर से लिया गया है। वन विभाग के अनुसूची दर में परिवर्तन होने से परियोजना की लागत में परिवर्तन किया जायेगा।

नोटः–कार्यो के सम्पादन हेतु व्यय की जाने वाली धनराशि वित्तीय वर्ष में अग्रिम के रूप में मेजा ऊर्जा निगम द्वारा उपलब्ध करायी जायेगी। उपरोक्त व्यय अनुमान वित्तीय वर्षवार रू0 230.00 प्रति मानव दिवस के दर से आंकलित किया गया है। श्रमिक दरों में यदि कोई बढोत्तरी होती है तो परियोजना के लागत में परिवर्तन होगी। शासन द्वारा श्रमिक दर की वृद्वि होने पर वृद्वि की धनराशि को मेजा ऊर्जा निगम द्वारा दिया जायेगा।

क्षेत्रीय वन अधिकारी मेजा रेंज।	उप प्रभागीय वनाधिकारी, प्रयागराज।	प्रभागीय निदेशक, सामाजिक वानिकी प्रभाग, प्रयागराज।

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ANNEXURE-24 Plantation Plan in Neighbouring Schools

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KASTOORBA GANDHI SCHOOL





SCHOOL JHADHIYAHI





SCHOOL KOHDAR – 2



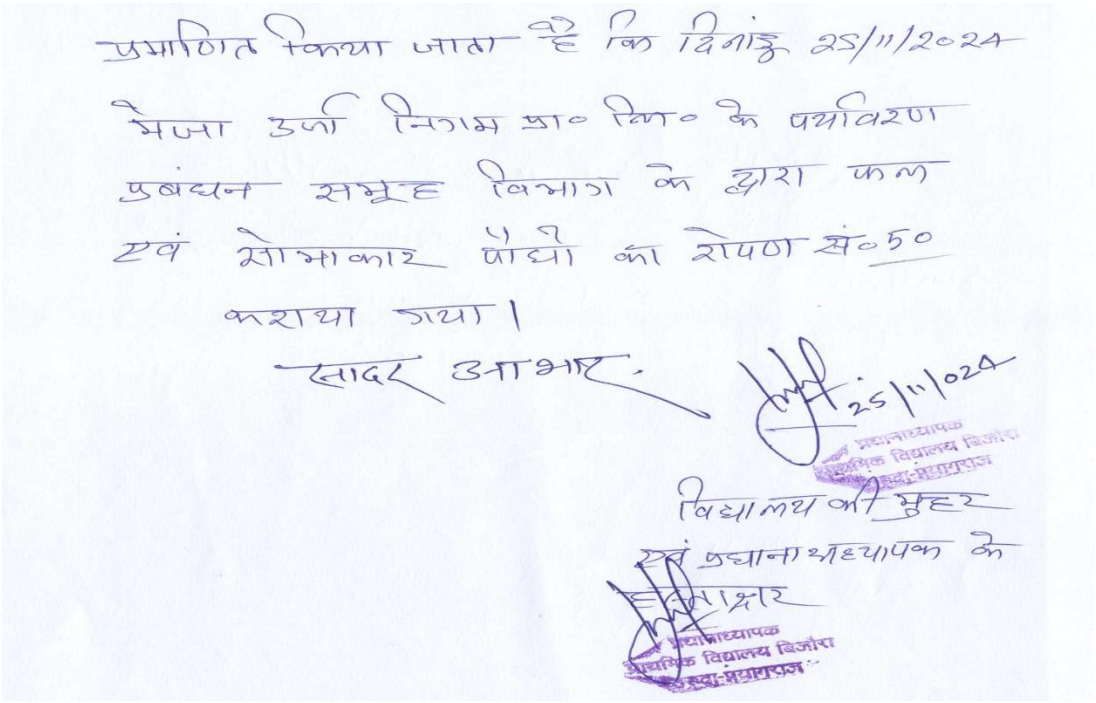


SCHOOL KOHDAR – 1



SCHOOL PATAI DANDI

Few letters from Schools regarding plantation carried by MUNPL



प्रमाणित किया जाता है कि दिनांक 25/11/2024 मेजा ऊर्जा निगम प्रा० लि० के पर्यावरण प्रबंधन समूह विभाग के द्वारा फल एवं सोमाकार पौधो का रोपण सं० 50 कराया गया।

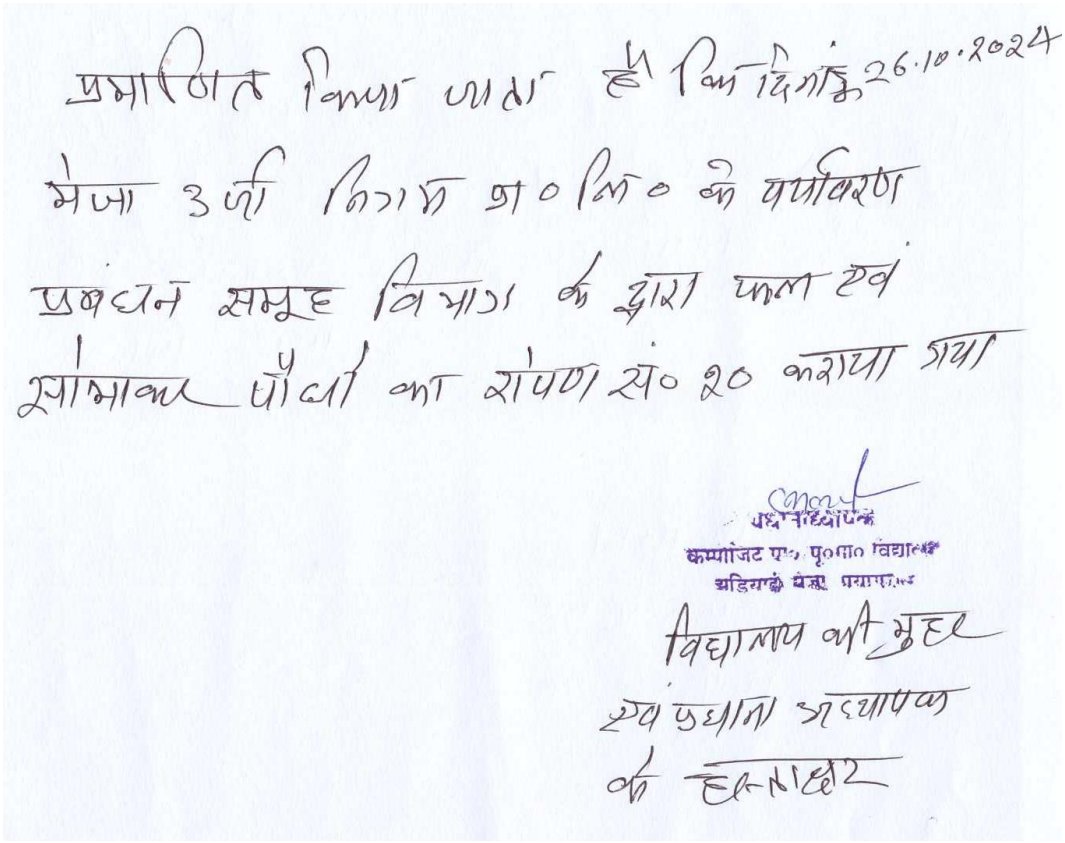
सादर आभार

25/11/2024

प्रधानाध्यापक
प्राथमिक विद्यालय बिजौरा
इला-प्रयागराज

विद्यालय की मुहर
एवं प्रधानाध्यापक के
हस्ताक्षर

Bijaura School



प्रमाणित किया जाता है कि दिनांक 26.10.2024 मेजा ऊर्जा निगम प्रा० लि० के पर्यावरण प्रबंधन समूह विभाग के द्वारा फल एवं सोमाकार पौधो का रोपण सं० 20 कराया गया

प्रधानाध्यापक
कम्पोजिट पी० पू० प्रा० विद्यालय
झडियाही मेजा प्रयागराज

विद्यालय की मुहर
एवं प्रधान अध्यापक
के हस्ताक्षर

Jhadhiyahi School

प्रमाणित किया जाता है कि दिनांक 12/11/2024
मेजा ऊर्जा निगम प्रा० लिमिटेड के पर्यावरण
प्रबंधन समूह विभाग के द्वारा फल एवं छायादार
पौधों का रोपण सं० 150 कराया गया

(सीतान्जली गुप्ता)
वार्डेन
के० जा० बो० विद्यालय मेजा
प्रयागराज

विद्यालय की मुहर
एवं प्रधानाध्यापक
के हस्ताक्षर

Kastoorba Gandhi School

प्रमाणित किया जाता है कि दिनांक 23.10.2024
मेजा ऊर्जा निगम प्रा० लि० के पर्यावरण प्रबंधन
समूह विभाग के द्वारा फल एवं छायादार
पौधों का रोपण सं० 50 कराया गया

प्रधानाध्यापक
राजकीय विद्यालय कोहंदार (प्रयाग)
ब्लॉक मेजा
जनपद-इलाहाबाद

विद्यालय की मुहर
एवं प्रधानाध्यापक
के हस्ताक्षर

Kohdar School-1

मेजा ऊर्जा निगम (प्रा.) लिमिटेड

(एनटीपीसी लि एवं उ.प्र.रा.वि.उ.नि.लि. का संयुक्त उपक्रम)

MEJA URJA NIGAM PVT. LIMITED

(A joint venture of NTPC Ltd. & UPRVUNL)

संदर्भ : MUNPL/CSR/2024-25/001

दिनांक: 13-08-2024

सेवा में,

ग्राम प्रधान :- श्रीमती नीरज निषाद / श्री दिनेश प्रसाद

ग्राम – इलौटा, पलाई बाड़ी

तहसील:- मेजा, जिला :- प्रयागराज

विषय: सामुदायिक भवन परिसर /अन्य उपयुक्त स्थानों पर वृक्षारोपण हेतु मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सहयोग के संबंध में

आदरणीय महोदय/महोदया,

जैसा कि आपको विदित है, मेजा ऊर्जा निगम प्राइवेट लिमिटेड (MUNPL), NTPC लिमिटेड और उत्तर प्रदेश राज्य विद्युत उत्पादन निगम एक 50:50 संयुक्त उद्यम है। वर्तमान में कंपनी का 2x660 मेगावाट क्षमता का कोयला आधारित थर्मल पावर प्लांट है, जो गांव कोहड़ार, मेजा तहसील, प्रयागराज (उत्तर प्रदेश) में स्थित है। सामाजिक दायित्व (CSR) के तहत, मेजा ऊर्जा निगम प्राइवेट लिमिटेड (MUNPL) क्षेत्रीय समुदायों और पर्यावरण के प्रति अपनी जिम्मेदारियों को पूरा करने के लिए विभिन्न पहलें कर रही है।

इस क्रम में, हम ग्राम [illegible] के सामुदायिक भवन परिसर /अन्य उपयुक्त स्थानों पर वृक्षारोपण हेतु सहयोग करना चाहते हैं। इस अभियान का उद्देश्य समस्त समुदाय के लिए एक हरित और स्वस्थ वातावरण बनाना है। अतः आपसे अनुरोध है कि इस अभियान हेतु पौधों की आवश्यकता एवं वृक्षारोपण कार्यक्रम की उपयुक्त तिथि इत्यादि के बारे में हमें सूचित करें जिससे अग्रिम कार्यवाही की जा सके।

आपके समर्थन और इस महत्वपूर्ण पहल के प्रति प्रतिबद्धता के लिए धन्यवाद।

1) वृक्षारोपण कार्यक्रम की उपयुक्त तिथि:- 16/8/2024

2) पौधों की संख्या:- 5000/

प्रधान
ग्राम पंचायत इलौटा
वि० क्ष० मेजा
प्रयागराज

13/08/2024

(नैगम सामाजिक दायित्व विभाग)
कृते मेजा ऊर्जा निगम (प्रा.) लिमिटेड,
कोहड़ार, मेजा, प्रयागराज।

13 Aug 2024, 7:19 pm

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मेजा ऊर्जा निगम (प्रा.) लिमिटेड
(जनरेशनी कि एव उ.प्र.रा.वि.उ.नि.लि. का संयुक्त उद्यम)
MEJA URJA NIGAM PVT. LIMITED
(A Joint venture of NTPC Ltd. & UPRVUNL)

संदर्भ : MUNPL/CSR/2024-25/001

दिनांक: 13-08-2024

सेवा में,
ग्राम प्रधान :- श्री [illegible]
ग्राम :- [illegible]
तहसील:- मेजा,
जिला:- प्रयागराज

विषय: सामुदायिक भवन परिसर / अन्य उपयुक्त स्थानों पर वृक्षारोपण हेतु मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सहयोग के संबंध में

आदरणीय महोदय/महोदया,

जैसा कि आपको विदित है, मेजा ऊर्जा निगम प्राइवेट लिमिटेड (MUNPL), NTPC लिमिटेड और उत्तर प्रदेश राज्य विद्युत उत्पादन निगम एक 50:50 संयुक्त उद्यम है। वर्तमान में कंपनी का 2x660 मेगावाट क्षमता का कोयला आधारित थर्मल पावर प्लांट है, जो गांव कोहड़ार, मेजा तहसील, प्रयागराज (उत्तर प्रदेश) में स्थित है। सामाजिक दायित्व (CSR) के तहत, मेजा ऊर्जा निगम प्राइवेट लिमिटेड (MUNPL) क्षेत्रीय समुदायों और पर्यावरण के प्रति अपनी जिम्मेदारियों को पूरा करने के लिए विभिन्न पहलें कर रही है।

इस क्रम में, हम ग्राम [illegible] के सामुदायिक भवन परिसर /अन्य उपयुक्त स्थानों पर वृक्षारोपण हेतु सहयोग करना चाहते हैं। इस अभियान का उद्देश्य समग्र समुदाय के लिए एक हरित और स्वस्थ वातावरण बनाना है। अतः आपसे अनुरोध है कि इस अभियान हेतु पौधों की आवश्यकता एवं वृक्षारोपण कार्यक्रम की उपयुक्त तिथि इत्यादि के बारे में हमें सूचित करें जिससे अग्रिम कार्यवाही की जा सके।

आपके समर्थन और इस महत्वपूर्ण पहल के प्रति प्रतिबद्धता के लिए धन्यवाद।

१) वृक्षारोपण कार्यक्रम की उपयुक्त तिथि:- 15/8/2024
२) पौधों की संख्या:- 500 पौधे

13/08/2024
(नैगम सामाजिक दायित्व विभाग)
मेजा ऊर्जा निगम (प्रा.) लिमिटेड,
कोहड़ार, मेजा, प्रयागराज।

13 Aug 2024, 7:19 pm

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मेजा ऊर्जा निगम (प्रा.) लिमिटेड

(एनटीपीसी लि. एवं उ.प्र.रा.वि.उ.नि.लि. का संयुक्त उद्यम)

MEJA URJA NIGAM PVT. LIMITED

(A joint venture of NTPC Ltd. & UPRVUNL)

संदर्भ : MUNPL/CSR/2024-25/001

दिनांक: 13-08-2024

सेवा में,

ग्राम प्रधान :- श्री सुरेश कुमार

ग्राम :- झरैया खुर्द

तहसील :- मेजा, जिला :- प्रयागराज

विषय: सामुदायिक भवन परिसर /अन्य उपयुक्त स्थानों पर वृक्षारोपण हेतु मेजा ऊर्जा निगम प्राइवेट लिमिटेड द्वारा सहयोग के संबंध में

आदरणीय महोदय/महोदया,

जैसा कि आपको विदित है, मेजा ऊर्जा निगम प्राइवेट लिमिटेड (MUNPL), NTPC लिमिटेड और उत्तर प्रदेश राज्य विद्युत उत्पादन निगम एक 50:50 संयुक्त उद्यम है। वर्तमान में कंपनी का 2x660 मेगावाट क्षमता का कोयला आधारित थर्मल पावर प्लांट है, जो गांव कोहड़ार, मेजा तहसील, प्रयागराज (उत्तर प्रदेश) में स्थित है। सामाजिक दायित्व (CSR) के तहत, मेजा ऊर्जा निगम प्राइवेट लिमिटेड (MUNPL) क्षेत्रीय समुदायों और पर्यावरण के प्रति अपनी जिम्मेदारियों को पूरा करने के लिए विभिन्न पहलें कर रही है।

इस क्रम में, हम ग्राम झरैया खुर्द के सामुदायिक भवन परिसर /अन्य उपयुक्त स्थानों पर वृक्षारोपण हेतु सहयोग करना चाहते हैं। इस अभियान का उद्देश्य समग्र समुदाय के लिए एक हरित और स्वस्थ वातावरण बनाना है। अतः आपसे अनुरोध है कि इस अभियान हेतु पौधों की आवश्यकता एवं वृक्षारोपण कार्यक्रम की उपयुक्त तिथि इत्यादि के बारे में हमें सूचित करें जिससे अग्रिम कार्यवाही की जा सके।

आपके समर्थन और इस महत्वपूर्ण पहल के प्रति प्रतिबद्धता के लिए धन्यवाद।

१) वृक्षारोपण कार्यक्रम की उपयुक्त तिथि:- 16-09-2024

२) पौधों की संख्या:- 25,00 (ढाई सौ)

ग्राम प्रधान झरैया खुर्द

विकास खण्ड मेजा, प्रयागराज

13/08/2024

(निगम सामाजिक दायित्व विभाग)

कृते मेजा ऊर्जा निगम (प्रा.) लिमिटेड,

कोहड़ार, मेजा, [illegible] 7:19 pm

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ANNEXURE-25 NIH Roorkee – Rain Water Harvesting Study

//True Copy//

1707

No. CS-219/SWHD/2021-2023

1331

Report

on

Rain water harvesting assessment potential in Meja, Prayagraj, UP



Meja Urja Nigam Private Limited
Meja village, Prayagraj district, Uttar Pradesh

Submitted by

National Institute of Hydrology
(An ISO-9001:2015 Certified Organization)
Roorkee – 247667, UK

August, 2024

//True Copy//

PROJECT TEAM

Dr. A.K. Lohani	**Scientist 'G' & Head, Surfacewater Hydrology Division**
Dr. Gopal Krishan	**Scientist 'E', Hydrological Investigations Division**

//True Copy//

1. Rain water harvesting potential

1.1 General

Rainwater harvesting (RWH) and conservation is process of collecting, storing and preserving rain water for different purposes and for the future needs as well. **There are two main techniques of rain water harvesting, first is storage of rainwater for future use and second is recharge to groundwater.** Rainwater water harvesting can be done using primarily the following two methods:

i. S**urface Run-off Rainwater Harvesting System: The** rainwater that flows off in the urban, agricultural, forested and other land type can be collected and stored to recharge the groundwater level or the aquifer. For this purpose, a number of methods can be adopted such as recharge pits, recharge soak pits, bunds, gabions, trenches, check dams, ponds, recharge shafts, etc.

ii. **Rooftop Rainwater Harvesting:** Rooftop rainwater harvesting structure directly collects rainwater from the roof of buildings and transports either into a tank or an artificial aquifer through properly designed filter or recharge pit to recharge the aquifer and to help restore the groundwater levels.

1.2 Benefits of Rainwater Harvesting

- Rainwater harvesting helps to recharge the aquifers and restoring the groundwater level.
- It helps in preventing urban flooding due to excess rain.
- The stored water can be used for irrigation practices in farming region.
- The water can be used for domestic consumption and other purposes in residential areas.

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- Rainwater harvesting can be highly beneficial for towns and cities to control further declining groundwater table and help to mitigate the impacts of drought and water scarcity.
- It is very helpful in arid and dry regions.

1.3 Disadvantages of Rainwater Harvesting

In addition to the great advantages, the RWH system has a few disadvantages also like unpredictable rainfall, unavailability of the proper storage system, etc. Following are some of the few disadvantages of the RWH process:

- Regular maintenance is required.
- Requires some technical skills for installation.
- Limited and no rainfall can limit the supply of rainwater.
- If not installed correctly, it may attract mosquitoes and other waterborne diseases.
- One of the significant drawbacks of the rainwater harvesting system is storage limits.

1.4 Components of RWH system

There are three main components of RWH system:

1) Catchment; 2) Conveyance system (Transporting rainwater through pipes or drains) and 3) Storage in tanks for reuse or recharge.

1.4.1 Catchments

The catchment of a water harvesting system is the surface that directly receives the rainfall and provides water to the system. It can be a paved area like a terrace or courtyard of a building, or an unpaved area like a lawn or open ground. A roof made of reinforced cement concrete (RCC), galvanized (GI) iron sheets, corrugated sheets, aluminum, clay tiles, asbestos or concrete can also be used for water harvesting.

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1.4.2 Conveyance System:

Gutters:

Guttering is intended to protect the building by collecting the water running of the roof and direct it, via a downpipe, to the storage tank. Gutter is provided along the edge of the roof. Channels all around the edge of a sloping roof to collect and transport rainwater to the storage tank. It is fixed with a gentle slope towards downpipe, which is meant for free flow of water to the storage tank. This may be made up of plain GI sheet (20 to 22 gauges), folded to require shapes or any other locally available material. It can be semi-circular or rectangular. The size of the gutter should be according to the flow during the highest intensity rain. It is advisable to make them 10 to 15 % oversize. Gutters need to be supported so they do not sag or fall off when loaded with water. The way in which gutters are fixed depends on the construction of the house; it is possible to fix iron or timber brackets into the walls, but for houses having wider eaves, some method of attachment to the rafters is necessary. The gutter size may be worked out using any standard formula of hydraulics. The downpipe used should be at least 100 mm diameter and be provided with a 20 mesh wire screen at the inlet to prevent dry leaves and other debris from entering it**.**

*First-flushing***:**

A first flush device is a valve that ensures that runoff from the first spell of rain is flushed out and does not enter the system. For all tanks having roof catchment, the first runoff of rainwater from the roof should be discarded. This helps keep the water potable because this first flush contains large quantities of dust, leaves and other impurities. This can also be prevented by installation of a gate valve at the end of down pipe at ground level.

*Conduits***:**

Conduits are pipelines or drains that carry rainwater from the catchment or rooftop area to the harvesting system. Conduits can be of any material like polyvinyl chloride (PVC) or GI, materials that are commonly available.

Size of pipes for different rainfalls is given in Table 1.1.

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Table 1.1: Size of pipes for different rainfalls

Diameter of Pipe (in mm)	Roof area (m2)					
	50	75	100	125	150	200
	Average Rate of Rainfall in mm/hour					
50	13.4	8.9	6.6	5.3	4.4	3.3
65	24.1	16.0	12.0	9.6	8.0	6.0
75	40.8	27.0	20.4	16.3	13.6	10.2
100	85.4	57.0	42.7	34.2	28.5	21.3
125			80.5	64.3	53.5	40.0
					83.6	62.7

Sizing of rainwater pipe for roof drainage (Source: National Building Code)

Filter:
The filter is used to remove suspended pollutants from rainwater collected over roof. A filter unit is a chamber filled with filtering media such as fiber, coarse sand and gravel layers to remove debris and dirt from water before it enters the storage tank or recharge structure.

1.4.3 Storage Facility and Recharge Structures

Storage tanks may be constructed with respect to the shape, size and the material of construction either underground or above ground. Rainwater may be charged into the groundwater aquifers through any suitable structures like dug wells, bore wells, recharge trenches and recharge pits. The underground tank may be of masonry or RCC structure suitably lined with water proofing materials. The surface tank may be of GI Sheet, RCC, Plastic/HDP or Ferrocement Tank placed at elevation on a raised platform. Choice of the tank depends on locally available materials and space available. When the tank is constructed underground, at least 30 cm of the tank should remain above ground. For example, a free-standing cylindrical tank can be built in sizes between 10 m3 and 30 m3, while a capacity of up to 200 m3 is possible with sub-surface covered tanks.

1.5 Systems of Rainwater Harvesting

In general, CGWB norm suggest not to artificially recharging if water table is less than 5m. Also, recharging is not recommended for aquifers with TDS levels higher than 4000 mg/L or high levels of chemical composition like Nitrate, Fluoride, and Arsenic, etc. Rainwater can be harvesting through following systems:

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Macro-catchment systems

These are characterized by external small catchments. The storage methods can include groundwater recharge, soil moisture, and RWH techniques such as tanks, ponds, and dams. The water gathered can be used for different purposes.

Micro-catchment systems

This group applies in-field catchments (assumed as an in-situ RWH system). Techniques such as bunds and trenches for planting are considered to be storage methods. The harvested water can be used for multiple purposes. Besides, it can be used to increase soil moisture and small groundwater recharge applications. Recommended in areas where the annual rainfall varies from 200 mm to 800 mm.

Rooftop water harvesting

This is considered to be the process most often adopted for gardening (irrigation), domestic use, and drinking purposes. It can be applied based on the roofs of houses, commercial buildings, and compacted and paved surfaces with a desirable slope. The harvested water can be stored in small tanks.

Floodwater harvesting:

This is characterized by external catchments on a large scale and suitable groundwater recharge storage. The harvested water can be used for different purposes. This group is recommended in areas where rainfall is less than the evaporation rate. Furthermore, the water can be collected during the flood season to be used efficiently in the future.

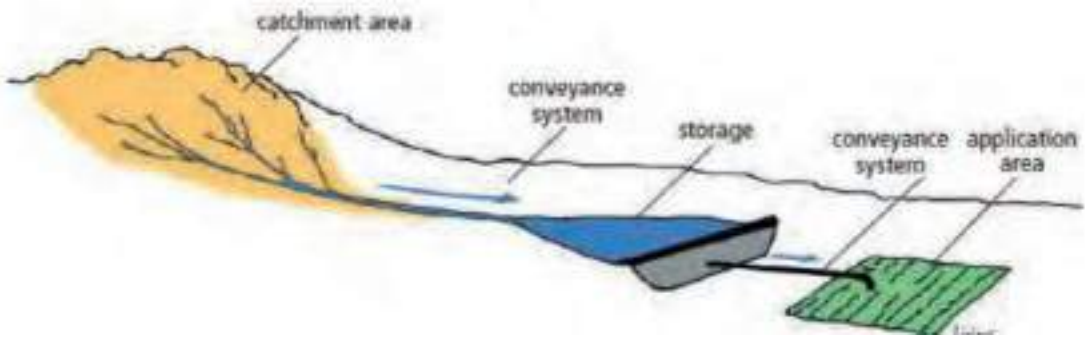


Figure 1.1. RWH System Components

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1.6 Factors affecting rainwater harvesting

Several factors play a vital role in the amount of water harvested. Some of these factors are:

- The quantum of runoff
- Features of the catchments
- Impact on the environment
- Availability of the technology
- The capacity of the storage tanks
- Types of the roof, its slope and its materials
- The frequency, quantity and the quality of the rainfall
- The speed and ease with which the rainwater penetrates through the subsoil to recharge the groundwater.

1.7 General Proposed Rainwater Harvesting Structures

1.7.1 Ponds

Earthen Ponds play very significant role in water harvesting and conservation of water. It helps to augment groundwater recharge in the area. Large open water ponds are either excavated or in created in an area of land surrounded by a bank. Broadly ponds can be categorized into two type i.e. embankment type and excavated or dugout type. These type ponds are constructed across the stream or water course and consist of an earthen dam. In MEJA campus topography does not permit the embankment type of pond as elevation difference is not much to provide sufficient natural depth which may results in large water spread area. Thus dugout ponds are suggested in the MEJA campus. Earthen ponds will not only help to harvest rainwater but also to make the

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campus beautiful and improve ambiance. Some of the sample pictures of water harvesting ponds are given in Figure 1.2.



Figure 1.2. Snapshots of water harvesting ponds

1.7.2 Recharge Pits

A recharge pit allows the rainwater to replenish groundwater by recharging the underground aquifers. It can be built to recharge a bore-well or just to help the water infiltration in an area. The water percolates slowly because there is no hydrostatic pressure in the pit. The GVK campus has mostly sandy silt and clayey silt type of soil and aquifer is shallow thus rain water harvesting can be done through the recharge pits. This technique is suitable for harvesting water collected from buildings having a rooftop area more than 1000 sq.ft and also to harvest rainwater collected from land surface in the form of runoff.

Recharge Pits may be of any shape and size. They are generally constructed 1 to 2 m wide and 2 to 3 m deep. The pits are filled with boulders (5-20 cm), gravels (5-10 mm) and coarse sand (1.5- 2 mm) in graded form. Boulders at the bottom, gravels in between and coarse sand at the top so that the silt content that will come with runoff water will be trapped on the top of the coarse sand layer and can easily be removed. For smaller rooftop area, pit may be filled with broken bricks/ cobbles. A desilting or collection chamber may also be provided at the ground to arrest the flow of finer particles in the recharge pit. The top layer of sand should be cleaned periodically to maintain the recharge rate. By-pass arrangement is to be provided before the collection chamber to reject the first rain. Samples of typical Recharge Pit structures are shown in Figure 1.3 and design of rainwater harvesting with recharge pit is shown in Figure 1.4.

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Figure 1.3. Pictures of Recharge Pit structure.

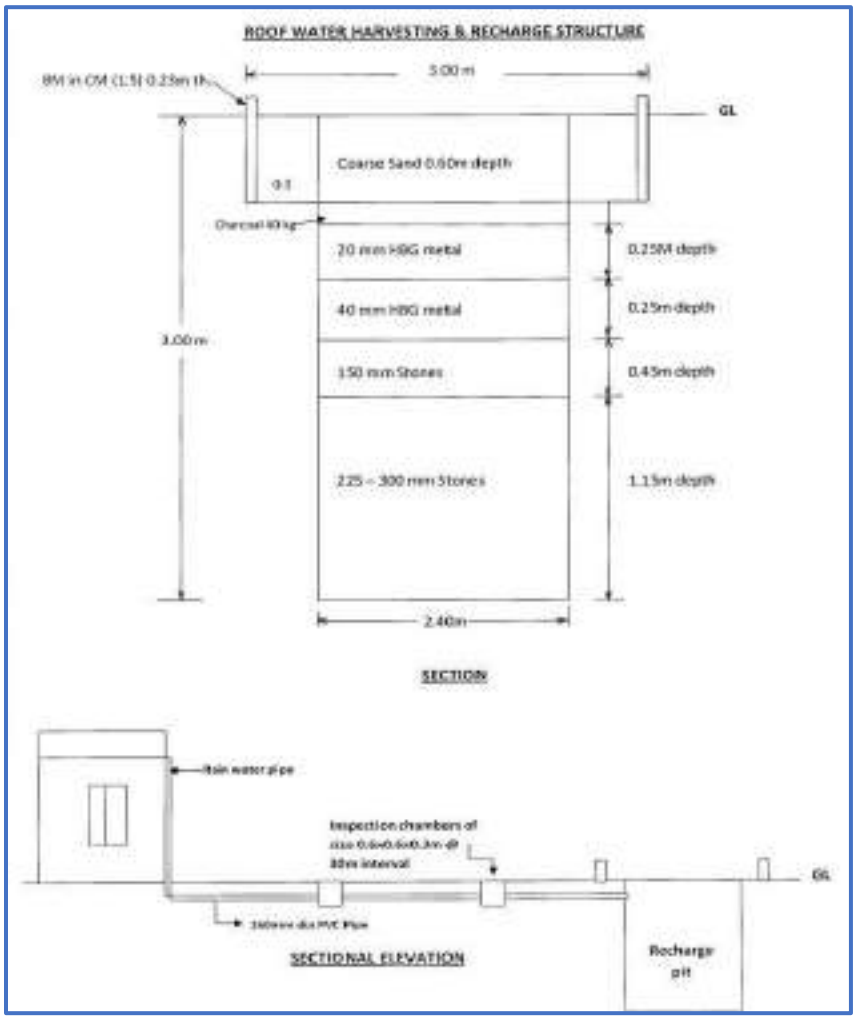


Figure 1.4. Typical design of recharge pit.

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1.8 Rainwater harvesting in MEJA Campus

The water demand in the MEJA campus is fully met from the Ganga river water supply and supply from groundwater in the campus is nil. Considering the groundwater status, water supply and water demand in the MEJA campus, rainwater harvesting in the campus has been planned for direct injection technique by combination of surface and sub-surface techniques like conservation ponds and recharge pits. The conservation ponds are existing in the open area of the campus which harvest rain water from sub-catchments and will help to improve groundwater recharge in the area. The recharge pits are the rainwater harvesting structures to be constructed to harvest rain water from relatively small sub-catchments and large rooftops of the buildings. Ponds, rooftop rainwater harvesting structures and recharge pits proposed in the MEJA campus will help to improve groundwater recharge in the area. Estimation of rain water harvesting potential, site selection and recommendations with standard design for rain water harvesting system at the MEJA Plant campus is presented as per the work elements given below:

1.8.1 Work Elements for RWH in the MEJA Plant Campus

- Data used: Monthly rainfall data
- Groundwater level information
- Google layers, master plan, DEM, slope map of the MEJA campus
- Demarcation of sub-catchments in the MEJA campus and delineation of drainage network
- Site selection for rainwater water harvesting structures
- Runoff estimation in sub-catchments in the MEJA campus using Barlow's Table
- Estimation of 75% dependable runoff from sub-catchments
- Design and estimation of rainwater harvesting potential in the MEJA campus
- Conservation ponds for rainwater harvesting

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- Recharge pit for rainwater harvesting from open ground and building rooftops

1.9 Planning and Design of RWHS in the MEJA Campus

1.9.1 Demarcation of sub-catchments in the Meja campus and delineation of drainage network

To begin with, for planning and design of rainwater harvesting it is imperative to identify sub-catchments, their outlet locations, area of catchments and drainage network in the area. It is important to derive the quantity of water available for harvesting at desired location and runoff estimation from each of the sub-catchment for planning and design of appropriate harvesting, recharge and conservation structure.

Depending upon the location, size of sub-catchments in the MEJA plant and existing settlements, plant buildings, ash pond and open area in the MEJA, six possible sites are identified for Rainwater Water Harvesting structures. All proposed pond and recharge pits in the MEJA campus are shown in Figure 1.5 and their catchment areas of 805.4 ha are given in Table 1.2. Apart from this, rainwater from buildings in main plant area having large rooftop area will be harvested through rooftop water harvesting structure with recharge pit. Thus, the recharge pits will receive water harvested from the open land surface area and rooftop area as well.

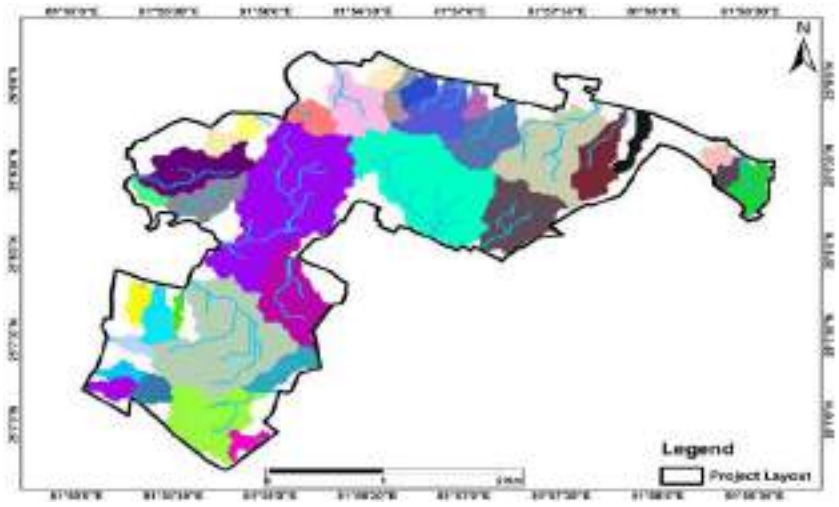


Figure 1.5. Demarcated sub-catchments within the Meja campus

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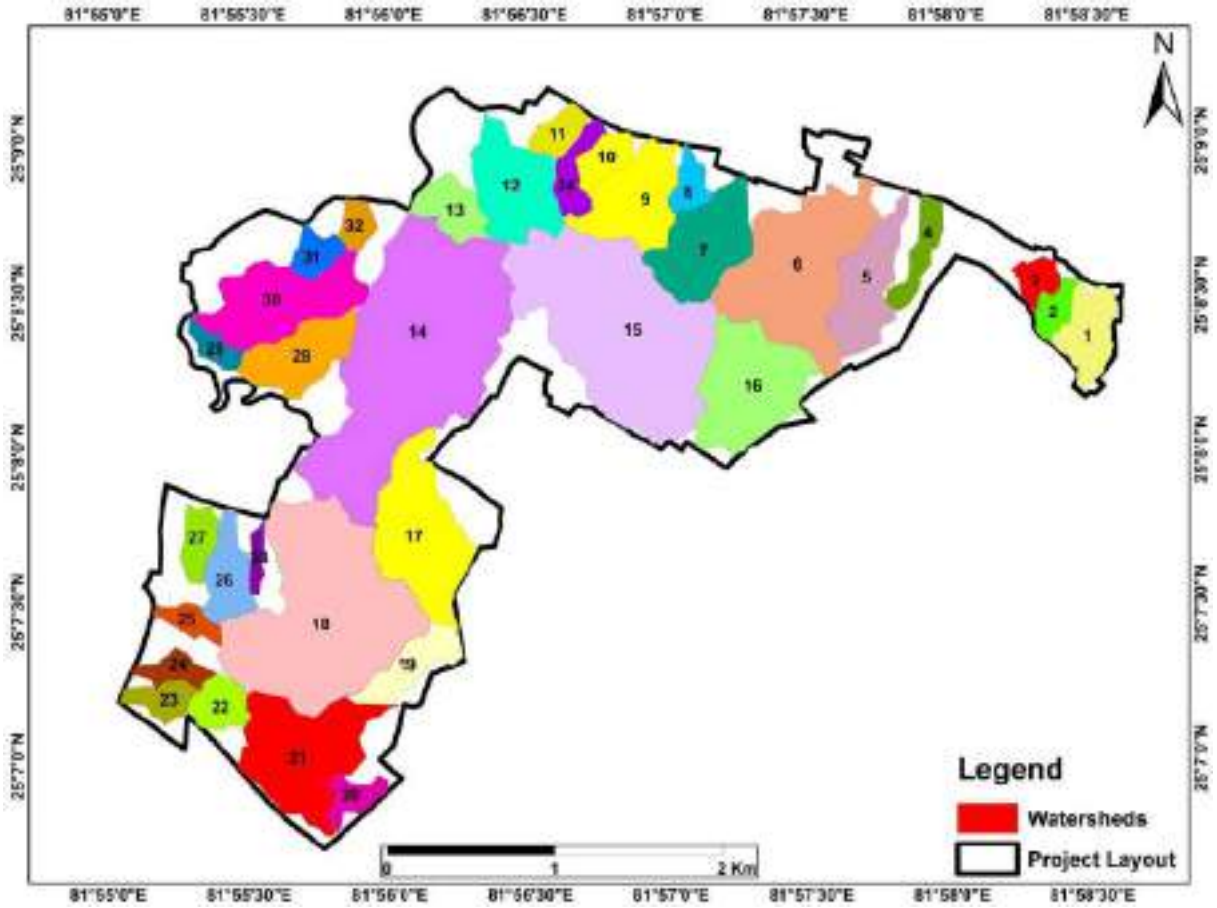


Figure 1.6. Demarcated sub-catchments with codes within the Meja campus

Table 1.2. Area of various sub-catchments within the Meja campus

Catchment Number	Area (m^2)
1	146445
2	56974.1
3	56001.2
4	87083.7
5	238552
6	591598
7	286489
8	59632.9
9	258084

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10	75329.1
11	68068.1
12	276825
13	114459
14	1211200
15	983882
16	388601
17	402330
18	954743
19	13574
20	62913.9
21	421792
22	89350.5
23	70940.1
24	60007.9
25	53389
26	134667
27	75321.3
28	205451
29	46740.8
30	337896
31	63176.1
32	49940.9
33	29959.7
34	82589.5
Total	8054007

1.9.2 Site Selection for Rainwater Water Harvesting Structures

Depending upon the location, size of sub-catchments in the Meja plant and existing settlements, plant buildings, ash pond and open area in the Meja, six possible sites are identified for Rainwater Water Harvesting structures. All proposed pond and recharge pits in the Meja campus are shown in Figure 9.7 and their catchment areas are given in Table 9.2. Apart from this, rainwater from buildings in main plant area having large rooftop area will be harvested through

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rooftop water harvesting structure with recharge pit. Thus the recharge pits will receive water harvested from the open land surface area and rooftop area as well.

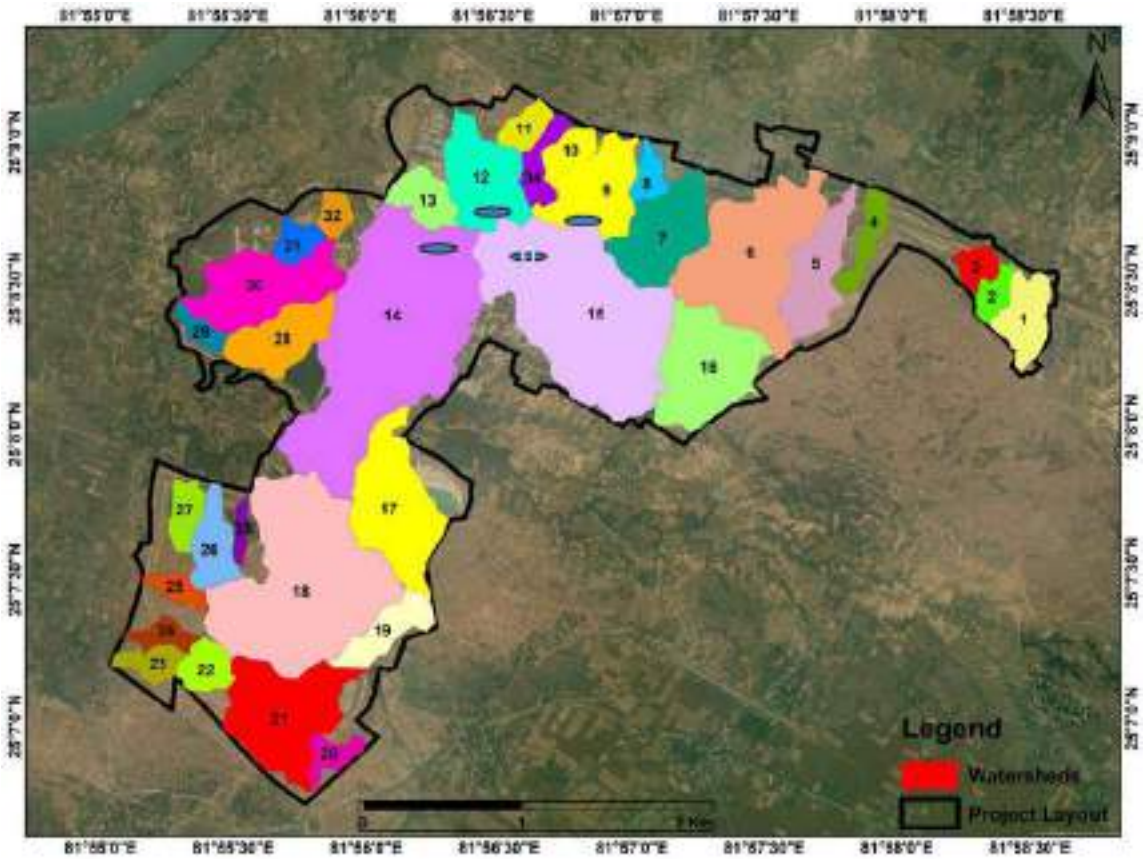


Figure 1.7. Selected sites for ponds and recharge pits in the Meja campus.

- Pond 01: This pond is proposed at the common outlet of sub-catchments no. 1,2, 3 having a total catchment area of 25.94 hectares.
- Pond 02: This pond is proposed at the outlet of sub-catchment no. 11,12,13 having catchment area of 45.94 hectares.
- Pond 03: This pond is proposed at the outlet of catchment no. 18,19,20,21 having catchment area of 145.3 hectares as shown by yellow colour boundary in Figure 1.8

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Figure 1.8. Catchment area for Ponds 01,02, 03.



Figure 1.9. Catchment area of the recharge pit.

- Recharge pit (RP 01) is proposed at the outlet of sub-catchment no. 15 and 16 having catchment area of 10.64 hectares which harvest water from the factory area.

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Figure 1.10. Rooftops area of residential colony.

- The main plant area has a number of buildings having large rooftop area more than 1000 sq.ft. These individual buildings can have their own rooftop water harvesting structures with individual recharge pit to harvested rainwater. These building are marked by the red color boundary as shown in Figure 1.10.

1.9.4 Rooftop Water Harvesting

Rooftop Water Harvesting System (RWHS) is a technique through which rain water is captured from the roof area and stored in reservoirs or directly transferred to the shallow or deep aquifer through Recharge Pits. The main objective of rooftop rain water harvesting is to make water available for future use. Rooftop rainwater harvesting system provides high quality water, soft and low in minerals. It improves the quality of groundwater through dilution when recharged to groundwater. Rooftop rainwater harvesting systems are simple, easy to construct, operate and maintain.

1.9.4.1 Precautions to be taken

- The roof or terraces used for harvesting should be clean
- Do not store chemicals, rusting iron, manure or detergent on the roof
- Avoid using terraces for toilet

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- Provide gratings at mouth of each drainpipe on terraces to trap debris and floating materials
- Prevent storage system from contamination
- Provision of first rain separator should be made to flush first rain

1.9.4.2 Collection Efficiency

Collection efficiency depends upon how efficiently the rainfall can be collected. Collection efficiencies of 80% are often used depending on the specific design.

$$V = RTA * P * n$$

Where,

V = Total quantity of water to be collected

RTA = Rooftop area

P = Average monsoon rainfall

n = collection efficiency (generally taken as 0.85)

Different surfaces have different runoff generating capacities. Different runoff coefficients are, therefore, used for different land uses or different types of surfaces to estimate runoff. Runoff coefficients

The commonly used runoff coefficients (compiled from available literature) is presented in ***Table 1.3.***

Table 1.3: Run-off Coefficients for Various Catchment Surfaces

Type of Surfaces	Run-off Coefficients
Vegetation	0.2
Parks and Farms	0.05-0.3
Road surface	0.8-0.9
Residential	0.3-0.5
Water bodies	1

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1.9.4.3 Components of Rooftop water harvesting System

The system mainly constitutes of following sub components:

- Catchment - Rooftop Area
- Transportation - PVC pipes, gutters, bend, Tee, Catch water drains
- First flush - Valve assembly
- Filter - sand gravel filter

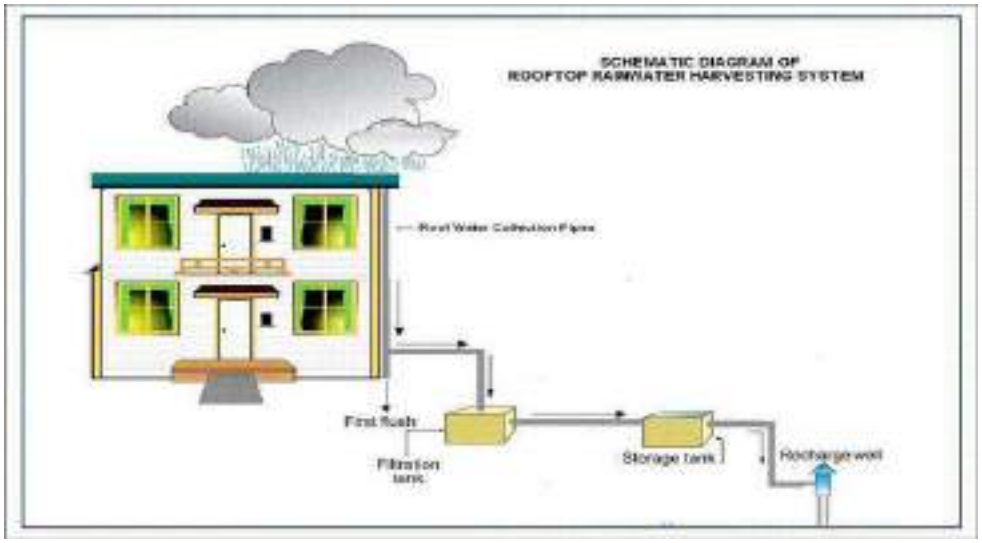


Figure 1.11. Schematic diagram of a typical rooftop rainwater harvesting system.

Rainfall data was used for the period of 1985-2021. The gridded rainfall data for the study area are collected from the India Meteorological Department (IMD), Pune. Long series of gridded (0.25^o x 0.25^o) daily rainfall records of 36 years from 1985 to 2021 for the study area grids 24.75^o to 25.00^o N latitude and 74.00^o to 74.25^o E longitude from the IMD are used in the analyses. The annual rainfall of different years from 1985 to 2021 depicts that the rainfall varied from year to year that ranges between 379. mm to 1300 mm with an average of 858 mm.

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Commonly used Terms

Catchment

The surface that receives rainfall directly is the catchment. Sloping roof or flat roof.

Transportation

Rainwater from rooftop should be carried through down take water pipes or drains to storage/harvesting system. Water pipes should be UV resistant (ISI HDPE/ PVC pipes) of required capacity.

First Flush

First flush is a device used to flush off the water received in first shower. Provisions of first rain separator should be made at outlet of each drainpipe.

Filtration

Roof water can be filtered before its entry in to the well using different types of filters or combination of filters as given below.

- Sand gravel filter
- Charcoal filter
- PVC –Pipe filter
- Sponge filter

1.10 Roof Water Harvesting System (RWHS) in MUNPL.

MUNPL, Plant and residential area uses the water from Ganga river to provide water to administrative block, residential quarters and guest houses etc. located in the Meja campus. Looking in to the increasing water demand due to expansion of residential facility and development of gardens around the residential area it was planned to install Rain Water Harvesting Systems (RWHS) at residential areas to recharge the groundwater which can be the source of water. The RWHS will also be used for demonstration purpose to create awareness towards artificial water recharge amongst the trainees.

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The RWHS layout and water filter arrangement is shown in Figures below.

1.10.1 Estimation of runoff potential

Table 1.4: Estimated runoff from plant as well residential area

Type		Area (m^2)	Runoff Coefficient	Average Annual Rainfall (m)	Total Runoff Volume (m^3)
Plant	Paving area	270000	0.85	0.858	196911
	Non-paving area	580000	0.20	0.858	99528
Residential	Paving area	1930000	0.85	0.858	1407549
	Non-paving area	1350000	0.20	0.858	231660
Total Area		4130000	-	-	1935648

The total runoff potential from the study area comes out to be **1935648** m^3 i.e. **1.94** MCM. This is the total estimated rainwater harvesting potential of the whole area of MUNPL area.

1.10.2 Runoff estimation in the MEJA campus using Barlow's Table

The runoff to be produced in the MEJA Plant campus follow the natural path and drains towards the prevailing slope in the campus. As mentioned in the previous section, number of sub-catchments inside the MEJA campus are demarcated using DEM information in GIS. These sub-catchments are partly open area, constructed areas, factory area, gardens, ash dumping yard and other settlements. For designing of rainwater harvesting structures, an important task is to derive runoff hydrographs for the delineated sub-catchments contributing runoff to the structures. Runoff time series of any sub-catchment is an important input required for designing of harvesting structures. Runoff estimation in the MEJA campus has been carried out using the Barlow's Table, which can simulate runoff from the small sub-catchments with accuracy. The runoff time series for each sub-catchment was derived using the rainfall data of 10 years from 2010 to 2020 as discussed below:

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Barlow's Tables

Barlow, the first Chief Engineer of the Hydro-Electric Survey of India (1915), expressed runoff (R) on the basis of a study in a small catchment (area ~ 130 km^2) by the following equation:

$$R = K_b.P$$

Where, *Kb* is the runoff coefficient which depends upon the type of catchment and the nature of monsoon, *P* is the rainfall (mm), and Kb is the Barlow's Runoff Coefficient (%).

Table 1.5. Runoff coefficients (*Kb*) for various catchment conditions

Class	Description of catchment	*Kb* (percentage)		
		Season I	Season II	Season III
A	Flat, cultivated, and absorbent soil	7	10	15
B	Flat, partly cultivated, and stiff soil	12	15	18
C	Average catchment	16	20	32
D	Hills and plains with little cultivation	28	35	60
E	Very hilly, steep and no cultivation	36	45	81
Season I: Light rain, no heavy downpour Season II: Average or varying rainfall, no continuous downpour Season III: Continuous downpours				

Considering average catchment and season-II type due to average or little varying rainfall conditions having no continuous downpour in the MEJA campus, value of *Kb* is taken as 20% from

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the Barlow's Table (Table 1.6). The estimated annual runoff from the whole MEJA campus using Barlow's Table is given in Table.1.7.

Table 1.6. Estimated annual runoff from the MEJA campus

Year	Annual Rainfall (mm)	Annual Runoff (mm) = Kb * P
2010	697.00	139.4
2011	1319.00	263.8
2012	1089.00	217.8
2013	1063.00	212.6
2014	794.00	158.8
2015	697.00	139.4
2016	1049.00	209.8
2017	596.00	119.2
2018	936.00	187.2
2019	1312.00	262.4
2020	829.00	165.8
	Total	2076.2
	Average rainfall of 1985-2021= 858 mm Average number of rainy day= 65	

For planning of rainwater harvesting structure, 75% dependable runoff has been computed for the MEJA campus using Weibull's formula. The 75% dependable runoff depth has been obtained as 155.71 mm for the campus. Based on the area of each sub-catchment, the runoff volume generated from the selected four sub-catchments, where harvesting structures can be planned.

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Once the areas under different land uses were estimated, runoff volume from residential as well as Plant have been estimated using the rational method described earlier, Runoff coefficients for surfaces have been used in the present study. They are presented in ***Table 1.2.*** Thus, for roofs/terraces a value of 0.85 was used as runoff coefficient.

Table 1.7. Catchment area of the selected recharge structures

Water Harvesting Structure	Catchment Area (m^2)	75% Dependable Runoff (m^3)
Pond 01	146445	22802.95
Pond 02	56974.1	8871.437
Pond 03	56001.2	8719.947
Pond 04	87083.7	13559.8
Pond 05	238552	37144.93
Pond 06	591598	92117.72
Pond 07	286489	44609.2
Pond 08	59632.9	9285.439
Pond 09	258084	40186.26
Pond 10	75329.1	11729.49
Pond 11	68068.1	10598.88
Pond 12	276825	43104.42
Pond 13	114459	17822.41
Pond 14	1211200	188596
Pond 15	983882	153200.3
Pond 16	388601	60509.06
Pond 17	402330	62646.8
Pond 18	954743	148663
Pond 19	13574	2113.608
Pond 20	62913.9	9796.323
Pond 21	421792	65677.23
Pond 22	89350.5	13912.77
Pond 23	70940.1	11046.08
Pond 24	60007.9	9343.83
Pond 25	53389	8313.201
Pond 26	134667	20969

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Pond 27	75321.3	11728.28
Pond 28	205451	31990.78
Pond 29	46740.8	7278.01
Pond 30	337896	52613.79
Pond 31	63176.1	9837.151
Pond 32	49940.9	7776.298
Pond 33	29959.7	4665.025
Pond 34	82589.5	12860.01

1.10.3 Design and Estimation of Rainwater Harvesting Potential in the MUNPL Campus

On the basis of 75% dependable runoff estimated for all eighteen selected sub-catchments, the sizes of dug-out ponds are worked out. The runoff volume is to be harvested during monsoon season and considered to be accommodated in pond in 3 fillings. Thus the pond can have storage capacity which can accommodate runoff volume for one filling only. Based on single filling or storage capacity of the pond, its size viz. length, width and depth are estimated and given in Table. Looking into the loamy clay and silt clay soil type in the campus, the depth of the pond can be kept between 2.5 to 3 m as given in Table 1.8.

Table 1.8. Runoff volume and storage capacity estimation of ponds

Ponds name	Dependable runoff to be accommodated in 3 fillings (m^3)	Runoff Volume in 1 filling (m^3) (Storage Capacity)
Pond 01	22802.95	7600.984
Pond 02	8871.437	2957.146
Pond 03	8719.947	2906.649
Pond 04	13559.8	4519.934
Pond 05	37144.93	12381.64
Pond 06	92117.72	30705.91
Pond 07	44609.2	14869.73

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Pond 08	9285.439	3095.146
Pond 09	40186.26	13395.42
Pond 10	11729.49	3909.831
Pond 11	10598.88	3532.961
Pond 12	43104.42	14368.14
Pond 13	17822.41	5940.804
Pond 14	188596	62865.32
Pond 15	153200.3	51066.76
Pond 16	60509.06	20169.69
Pond 17	62646.8	20882.27
Pond 18	148663	49554.34
Pond 19	2113.608	704.5358
Pond 20	9796.323	3265.441
Pond 21	65677.23	21892.41
Pond 22	13912.77	4637.589
Pond 23	11046.08	3682.028
Pond 24	9343.83	3114.61
Pond 25	8313.201	2771.067
Pond 26	20969	6989.666
Pond 27	11728.28	3909.427
Pond 28	31990.78	10663.59
Pond 29	7278.01	2426.003
Pond 30	52613.79	17537.93
Pond 31	9837.151	3279.05
Pond 32	7776.298	2592.099
Pond 33	4665.025	1555.008
Pond 34	12860.01	4286.67
Total rainwater harvesting from Ponds	**12,54,089**	

Table 1.9. Design of pond size based on its storage capacity

Ponds Name	Area of Pond (m^2)	Depth of Pond (m)	Length (m)	Breadth (m)
Pond 01	2533.66	3	101	25

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Pond 02	985.72	3	33	30
Pond 03	968.88	3	32	30
Pond 04	1506.64	3	75	20
Pond 05	4127.21	3	103	40
Pond 06	10235.30	3	102	100
Pond 07	4956.58	3	110	45
Pond 08	1031.72	3	86	12
Pond 09	4465.14	3	106	42
Pond 10	1303.28	3	118	11
Pond 11	1177.65	3	107	11
Pond 12	4789.38	3	106	45
Pond 13	1980.27	3	99	20
Pond 14	20955.11	3	140	150
Pond 15	17022.25	3	142	120
Pond 16	6723.23	3	112	60
Pond 17	6960.76	3	116	60
Pond 18	16518.11	3	150	110
Pond 19	234.85	3	16	15
Pond 20	1088.48	3	36	30
Pond 21	7297.47	3	292	25
Pond 22	1545.86	3	44	35
Pond 23	1227.34	3	35	35
Pond 24	1038.20	3	35	30
Pond 25	923.69	3	31	30
Pond 26	2329.89	3	47	50
Pond 27	1303.14	3	43	30
Pond 28	3554.53	3	89	40
Pond 29	808.67	3	32	25
Pond 30	5845.98	3	106	55
Pond 31	1093.02	3	36	30
Pond 32	864.03	3	35	25
Pond 33	518.34	3	26	20
Pond 34	1428.89	3	41	35

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1.10.4 Existing Ponds

Ponds play a vital role in watershed management and planning, offering multiple benefits such as water storage, flood control, and groundwater recharge. By strategically placing ponds within a watershed, surface runoff can be captured, reducing the risk of downstream flooding and soil erosion. This stored water can then be used during dry seasons for agricultural irrigation, livestock, and even replenishing local aquifers, thus ensuring a stable water supply. Additionally, ponds enhance biodiversity by providing habitats for various aquatic and terrestrial species, contributing to the ecological balance of the watershed. Moreover, ponds can act as sediment traps, improving water quality by preventing sediment and pollutants from reaching larger water bodies. In planning watershed management, it is essential to consider the placement, size, and maintenance of ponds to maximize their benefits. Properly designed ponds can serve as key components in integrated water resources management, supporting both environmental sustainability and community needs. By incorporating ponds into watershed planning, long-term resilience against climate variability and water-related challenges can be significantly improved.

In the study, a total of eight ponds (Figure 1.12) were identified within the study area. These ponds are strategically positioned to collect water from smaller drainage channels, making them crucial for managing surface runoff. To enhance their effectiveness for watershed planning and management, it is recommended that these ponds undergo further excavation. This deepening will increase their water storage capacity, improving their ability to mitigate flooding, support groundwater recharge, and provide a more reliable water supply during dry periods. Enhanced pond capacity will also contribute to better sediment retention and improved water quality in the watershed.

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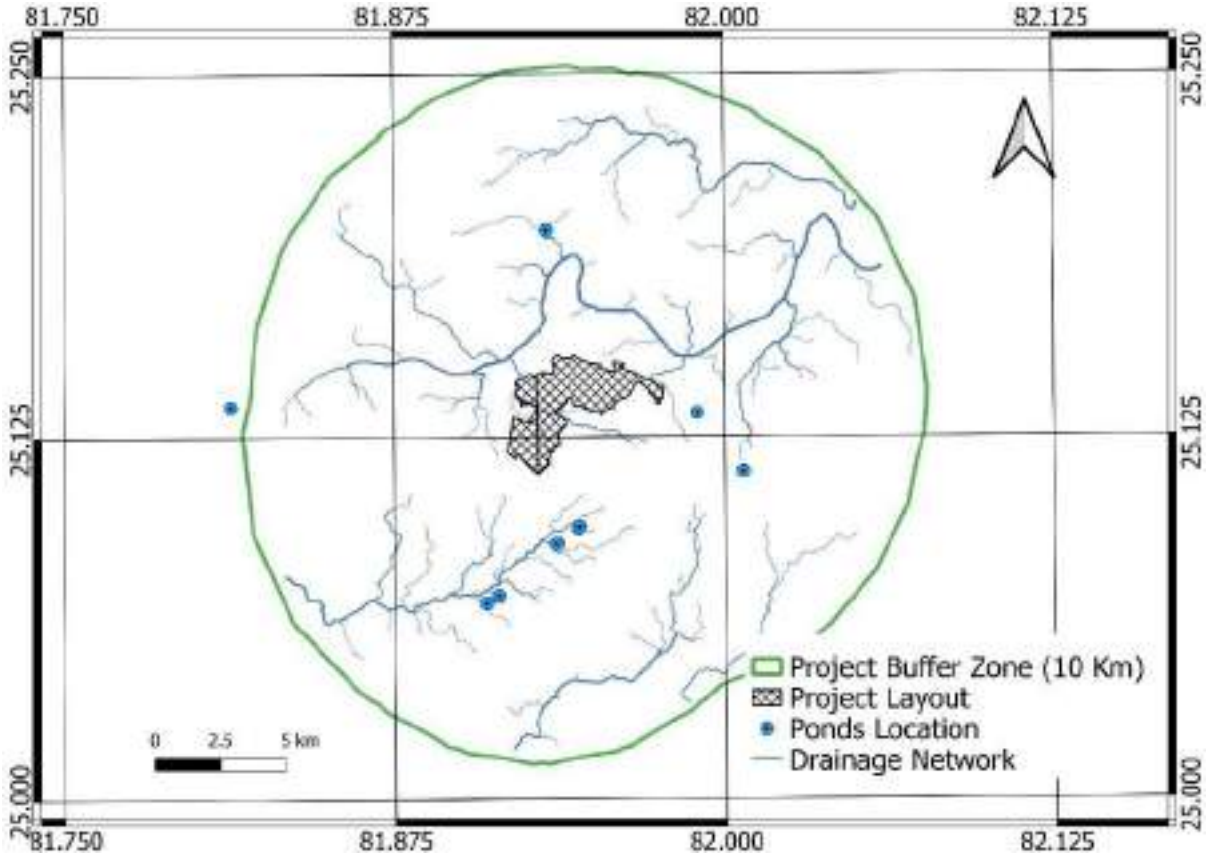


Figure 1.12. Location of exiting ponds in the study area.

1.10.5 Rainwater Harvesting Guidelines

Rainwater harvesting, in its broadest sense, is a technology used for collecting and storing rainwater for human use from rooftops, land surfaces or rock catchments using various techniques, from simple techniques such as jars and pots to complex engineered techniques for artificial recharge. The application of appropriate RWH technology is important for the utilization of rainwater as a water resource. Some guidelines are available regarding when and how to go for RWH. There are also guidelines in existence for undertaking artificial recharge. CPWD (2002) has suggested to collect and store rainwater under following circumstances:

i) Depth of ground water table is very deep.

ii) Quality of ground water is very poor and unfit for human consumption. Simultaneously, it is also assessed that recharge to the ground water reservoir is not likely to improve its quality due to the nature of sub soil strata.

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iii) Annual rainfall is far lower than the requirement of water for human consumption.

iv) Enough rooftop area or clean water collection system is available.

v) Sufficient rainwater storage capacity that could be provided either in the form of impervious surface or underground tank or ground surface storage system in the form of impervious check-dams, ponds, etc. RWH is generally done for artificial recharge of ground water.

As per CPWD (2002), artificial recharge can be resorted to under the following conditions:

i) Ground water table is continuously getting lowered in identical months of the year when compared with past.

ii) Source of supply is ground water drawn from tube wells or dug wells.

iii) Quality of ground water is poor and it needs to be improved by artificial recharge. This is also necessary where possibility of intrusion of saline water is there, as is the case in coastal regions.

iv) Permeable acquirer is available at shallow to moderate depth.

v) Depth of ground water table from the natural ground level from structural considerations is more than:

   a) 3 m in case of load bearing construction,

   b) 5 m in case of framed construction with single basement

   c) 8 m in case of framed constructions with double basement

vi) Sufficient depth of ground water table (more than 8 m) for sub surface storage is available.

vi) Where rate of evaporation is very high as is the case in dry and arid areas

vii) Adequate space for surface storage is not available, which is more common in urban areas.

Although, RWH technique (and in particular the roof water harvesting technique) is generally implemented for ground water recharge, it may not always be possible to implement artificial recharge projects in the entire area even though the need is established, due to various constraints such as lack of source water, shortage of funds for implementation of the projects etc.

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In such cases, it may be necessary to identify areas that require recharge augmentation most and to implement recharge projects accordingly. Furthermore, certain guidelines have been provided by CGWB, BIS and CPWD regarding suitability of ground water recharge techniques for RWH. According to BIS, roof top harvesting techniques can be used for ground water recharge in areas where natural recharge has diminished considerably. As per BIS, the areas having depth to water table greater than 8 m below the ground level and underlain by permeable strata are suitable for artificial recharge.

As per the CGWB Manual (2007) “Manual on Artificial Recharge of Ground Water”, Prioritization of areas for artificial recharge is normally done by overlaying postmonsoon depth to water level maps with maps depicting the long-term trend of ground water levels. From these maps, it is possible to demarcate areas with various combinations of depth to water levels and water level trends. Normally, areas having deeper water levels and declining water level trends are given higher priority identification of area feasible for artificial recharge. Areas having shallow water levels/rising water level trends are not considered for inclusion in artificial recharge plan. The scope of artificial recharge depends on the available sub surface space for recharge, water required for recharge and surplus water available for recharge. The volume of space available up to 3 m bgl or 5 m bgl, depending on the criteria adopted in different States, multiplied by the specific yield of the aquifers provides the space available for recharge. Considering an efficiency of 60% or 75% as deemed fit in different States, the water required for artificial recharge is worked out for each State. As per CGWBs (2020) “Master Plan for Artificial Recharge to Groundwater in India-2020” the types of structures are decided by the terrain conditions and the number of structures are decided by the source water availability. The different type of structures suitable for different terrain conditions and the use of different terminology for the similar structures in various States have resulted in more than 25 types of structures.

Various above guidelines have been considered for formulating the RWH strategy for the study area of NTPC MEJA.

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Ground Water Level Variation

No long term data on ground water levels in the study area are available with the NTPC, Meja. So, for the purpose of the present study, ground water level data pertaining to Prayagraj District and Meja block have been collected from CGWB report. These data have been collected from the CGWB web portal and CGWB reports. Recent ground water level variation in different districts of Uttar Pradesh including Prayagraj district for various seasons has been reported by CGWB (Table 1.10). About 22 wells in the district has been monitored by CGWB during different seasons.

Table 1.10: Water level of Pre & Post Monsoon-2019, Prayagraj District

Block	Location	Type of well	Lat.	Long.	Pre-19	Post-19	Fluctuation
Bahadurpur	Allahabad	Dugwell	25.45	81.98	7.59	3.47	4.12
Kaurihar	Atrampur	Dugwell	25.57	81.74	9.01	3.64	5.37
Shankargarh	Bairi	Dugwell	25.12	81.68	5.45	0.85	4.60
Jasra	Bara	Dugwell	25.25	81.72	4.51	1.98	2.53
Handia	Baraut1	Dugwell	25.34	82.28	1.32	0.86	0.46
Manda	Bawarikalaan	Dugwell	24.93	82.15	4.11	1.49	2.62
Shankargarh	Gadwa Fort	Dugwell	25.20	81.63	3.99	3.28	0.71
Jasra	Gauhania	Dugwell	25.32	81.83	7.84	2	5.84
Handia	Handia	Dugwell	25.37	82.19	3.82	0.55	3.27
Holagarh	Holagarh	Dugwell	25.64	81.77	6.23	3.31	2.92
Bahadurpur	Kasarua	Dugwell	25.47	81.97	20.36	14.52	5.84
Shankargarh	Khaptia Kheri	Dugwell	25.07	81.78	6.11	3.03	3.08
Karaon	Koraon	Dugwell	25.02	82.06	5.34	1.13	4.21
Karaon	Ladiri Bazar	Dugwell	25.00	81.93	5.66	1.44	4.22
Jasra	Lalpur	Dugwell	25.27	81.62	4.31	2.52	1.79
Phulpur	Mallhan	Dugwell	25.61	82.10	7.17	4.39	2.78
Meja	Meja	Dugwell	25.14	82.10	5.04	4.37	0.67
Chaka	Naini	Dugwell	25.35	81.88	15.56	10.81	4.75
Karaon	Pasna	Dugwell	25.05	82.10	8.43	2	6.43
Phulpur	Phulpur2	Dugwell	25.55	82.09	7.52	4.36	3.16
Manda	Rampur tulapur	Dugwell	25.04	82.20	6.98	4.44	2.54
Kaudhiyara	Saraon	Dugwell	25.27	81.84	7.63	3.09	4.54

Ground water occurs under phreatic to semi confined and confined conditions. The near surface aquifer is under unconfined / water table condition. The shallow phreatic aquifer is tapped

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by dugwells. The depth to water level of the CGWB monitoring stations ranges from 1.32 to 20.36 mbgl during pre-monsoon whereas it ranges from 0.59 to 15.69 mbgl in post monsoon. The pre & post monsoon water level fluctuation varies from 0.46 to 7.54 m. Depth to water level trend for long term for 10 years average water level rise 0.492 cm/year and fall 0.3658 cm/year during pre-monsoon and rise 0.5156 cm/year and fall 0.91cm/year during post-monsoon. Annual rise rate 0.3587cm/year and fall 0.7232 cm/yr.

Since the groundwater levels in the study area in May, 2021 was 4.94 mbgl, rise in ground water level observed in August, 2021 (1.35 mbgl); decreased to 3.86 mbgl in November, 2021 and slight rise was observed in January, 2022 (3.69 mbgl). Groundwater rise was found in pre monsoon was 0.1013 m/year and in post-monsoon was 0.0485 m/year (CGWB, 2022) with minimum water level fluctuation.

Recharge wells are the suitable water harvesting structures under water harvesting projects to augment groundwater levels. Total annual RWH potential is estimated is 1.94 MCM. However, it is not desirable to harvest all the RWH potential in any area, as it may cause environmental and hydrological impacts on the downstream area. Also, it may cause social impact on the downstream users. Although specific guidelines in this respect are missing, generally, 50% of the total RWH potential (generally recommended) can be harvested. All the drains/channels must be cleaned before the onset of every rainy season. Recharge wells are the suitable water harvesting structures under water harvesting projects to augment groundwater levels.

1.11 Summary

(i) The annual rainfall of different years from 1985 to 2021 depicts that the rainfall varied from year to year that ranges between 379. mm to 1300 mm with an average of 858 mm.

(ii) The total plant and residential area for rainwater harvesting potential is calculated as 4130000 sq. m

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(iii) The total runoff potential from the study area comes out to be **1935648** m^3 i.e. **1.94 MCM**. This is the total estimated rainwater harvesting potential of the whole area of MUNPL area.

(iv) Present water level around the study site is shallow (within 5m bgl) during post monsoon and showing rising trend therefore, artificial recharge is no more recommended as per CGWB norms. It is recommended to prefer surface storage with existing or by constructing suitable storage structures (e.g., Dugout Ponds or storage tank).

1.12 Recommendations

Feasibility study for RWH potential:

- Present ground water level around the site is less than 5 m below groundwater level during post-monsoon. Therefore, artificial ground recharge is not recommended in the project area either in Township or Plant area as per CGWB norms. However, it is recommended to prefer surface storage with existing or by constructing suitable storage structures (e.g., Dugout Ponds) and proper surface storage can be preferred to avoid water logging issues in the future.
- However, the depth of the dugout pond needs to be restricted and it is not recommended more than 1.8 m due to shallow water table in the project area.

RWH structures:

- By considering the limitations of the groundwater levels and space availability, it is recommended to utilize the presently available six ponds in study area for rainwater harvesting with its existing water storage capacity.
- The suggested plan is also in tune with the existing rainwater harvesting policy of NTPC also, which prefers surface storage structures over ground water recharge.
- While in plant area it is not recommended to design any surface storage structures due to water logging issue may be generated in the future.

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Planning, Design and Cost Estimates of RWH Structures:

- As it is not desirable to harvest all the RWH potential in any area, as it may cause environmental and hydrological impacts on the downstream area. Also, it may cause social impact on the downstream users. Although specific guidelines in this respect are missing, generally, 50% of the total RWH potential can be harvested. Hence, balance recommended RWH potential of the NTPC Meja (0.97 MCM) can be fruitfully harvested by constructing suitable storage structures at NTPC Meja.
- As Meja is on upstream, it may be noted that it is not desirable to harvest all the RWH potential in any area, as it may cause environmental and hydrological impacts on the downstream area. Also, it may cause social impact on the downstream users.
- Water collected from the roof water harvesting can be utilized for domestic activities, plantation and cleaning etc.
- Present ground water level around the site is less than 5 m below groundwater level during post-monsoon. Therefore, artificial ground recharge is not recommended in the project area either in Township or Plant area as per CGWB norms. However, it is recommended to prefer surface storage with existing or by constructing suitable storage structures (e.g., Dugout Ponds) and proper surface storage can be preferred to avoid water logging issues in the future.
- By considering the limitations of the groundwater levels and space availability, it is recommended to utilize the presently available ponds in township area for rainwater harvesting with its existing water storage capacity.
- While in plant area it is not recommended to design any surface storage structures due to water logging issue may be generated in the future.
- Seepage and evaporation losses from existing ponds shall create additional space for storing the runoff potential during the monsoon months. The evaporation losses and seepage losses shall cause decline in the water levels of the Ponds

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Annexure 26

Irrigation and Water Resources Department, Govt of UP, regarding HFL level of River Tons dt.10.01.2025

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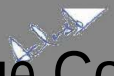
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Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
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TC-12780

ANNEXURE-3

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	*Benzo(a)* Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury ($\mu g/m3$)
1	Project Site (Meja TPP Main Entry Gate)	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
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Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

***** End of Report*****

7	Gadeva Village	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m³	1 ng/m³	1 ug/m³	20 ng/m³	6 ng/m³	-

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	November 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury ($\mu g/m3$)
1	Project Site (Meja TPP Main Entry Gate)	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	November 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

	Gadeva Village	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	18.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	18.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m³	1 ng/m³	1 ng/m³	20 ng/m³	6 ng/m³	-

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Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

7	Gadeva Village	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			*5 µg/m³*	*1 ng/m³*	*1 ug/m³*	*20 ng/m³*	*6 ng/m³*	-

***** End of Report*****

Gwalior

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/04/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	January 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

Test Result

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a)Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	ProjectSite(Meja TPP Main Entry Gate)	10.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
2	SalayaKalanear Ash Pond	10.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
3	PataiDandiVillage	10.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
4	RithaiyaVillage	10.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
5	SukathNearMeja Tehsil	13.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
6	SonBarsi	13.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/04/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	January 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	SampleLocation	Monitoring Date	Benzene (ug/m^3)	Benzo(a)Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
7	GadevaVillage	13.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
8	PiprauVillage	17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
9	KorharVillage	17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
10	Bhendewara Village	17.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.01.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
NAAQSLimits			5 µg/m^3	1 ng/m^3	1 ug/m^3	20ng/m^3	6 ng/m^3	-

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8 1378

Approved : by Occupational Health & Safety Management (ISO 45001:2018)

Approved : by National Accreditation Board for Testing and Calibration Laboratories

Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/04/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	February 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

Test Result

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a)\Pyrene(ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	ProjectSite(Meja TPP Main Entry Gate)	10.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
2	SalayaKalanear Ash Pond	10.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
3	PataiDandiVillage	10.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
4	RithaiyaVillage	10.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
5	SukathNearMeja Tehsil	13.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
6	SonBarsi	13.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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TEST REPORT

AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/04/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	February 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

TEST RESULT

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a)\Pyrene(ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury ($\mu g/m3$)
7	GadevaVillage	13.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
8	PiprauVillage	17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
9	KorharVillage	17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
10	Bhendewara Village	17.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.02.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
NAAQSLimits			5 $\mu g/m^3$	1 ng/m^3	1 ug/m^3	20ng/m^3	6 ng/m^3	-

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/04/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	March 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

Test Result

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a)Pyrene(ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	ProjectSite(Meja TPP Main Entry Gate)	12-.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
2	SalayaKalanear Ash Pond	11.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
3	PataiDandiVillage	10.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		20.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
4	RithaiyaVillage	10.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
5	SukathNearMeja Tehsil	13.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
6	SonBarsi	13.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/04/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	March 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

TEST RESULT

S.No.	Sample Location	Monitoring Date	Benzene (ug/m³)	Benzo(a)Pyrene(ng/m³)	Lead (ug/m³)	Nickel (ng/m³)	Arsenic (ng/m³)	Mercury (µg/m3)
7	GadevaVillage	11.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		20.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
8	PiprauVillage	16.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		25.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
9	KorharVillage	17.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		19.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
10	Bhendewara Village	17.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.03.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
NAAQSLimits			5 µg/m³	1 ng/m³	1 ug/m³	20ng/m³	6 ng/m³	-

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/05/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	April 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

Test Result

S.No.	Sample Location	Monitoring Date	Benzene(ug/m3)	Benzo(a)Pyrene(ng/m3)	Lead (ug/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	Mercury (µg/m3)
1	ProjectSite(Meja TPP Main Entry Gate)	12.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
2	SalayaKalanear Ash Pond	11.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
3	PataiDandiVillage	10.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		20.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
4	RithaiyaVillage	10.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
5	SukathNearMeja Tehsil	13.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
6	SonBarsi	13.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	16/05/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	April 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

TEST RESULT

S.No.	Sample Location	Monitoring Date	Benzene (ug/m3)	Benzo(a)Pyrene(ng/m3)	Lead (ug/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	Mercury (µg/m3)
7	GadevaVillage	11.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		20.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
8	PiprauVillage	16.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		25.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
9	KorharVillage	17.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		19.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
10	Bhendewara Village	17.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.04.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
NAAQSLimits			5 µg/m³	1 ng/m³	1 ug/m³	20ng/m³	6 ng/m³	-

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	15/06/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	May 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

TEST RESULT

S. No.	Sample Location	Monitoring Date	Benzene (ug/m3)	Benzo(a)Pyrene (ng/m3)	Lead (ug/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	Mercury (µg/m3)
7	GadevaVillage	11.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		20.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
8	PiprauVillage	16.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		25.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
9	KorharVillage	17.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		19.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
10	Bhendewara Village	17.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		26.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		27.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
NAAQSLimits			5 µg/m³	1 ng/m³	1 ug/m³	20ng/m³	6 ng/m³	-

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	15/06/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Protocol Used	CPCB Guidelines
Lab Code	ERDC240401-01		
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	May 2024	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

Test Result

S.No.	Sample Location	Monitoring Date	Benzene (ug/m3)	Benzo(a)Pyrene (ng/m3)	Lead (ug/m3)	Nickel (ng/m3)	Arsenic (ng/m3)	Mercury (µg/m3)
1	ProjectSite(Meja TPP Main Entry Gate)	12.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
2	SalayaKalanear Ash Pond	11.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
3	PataiDandiVillage	10.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		18.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		20.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
4	RithaiyaVillage	10.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		11.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		17.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
5	SukathNearMeja Tehsil	13.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
6	SonBarsi	13.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		14.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		23.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001
		24.05.2024	ND(<1.0)	ND(<1.0)	ND(<0.5)	ND(<15)	ND(<5.0)	<0.001

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3.10.1. *Comparison of Ambient Air Quality*

For the comparative analysis of ambient air quality, 10 locations were considered in the year 2023-24, while only 4 locations were assessed by the consultant in 2008. Out of these, 2 locations (Kohdar Village, Sonbarsi village) are matching with the earlier study. Hence comparative analysis of both the season were done for these two locations only. Ozone and mercury were not detected during the study period. Only PM_{10}, SO_2, and NOx were generated during 2008 hence only these three parameters were considered for the comparison. Data from both years, and the results for these locations are provided in **Table 3.34**

Table 3.34 : Comparative Ambient Air Quality Analysis

Location	PM_{10} (µg/m³) Period:2023 EIA Study				PM_{10} (µg/m³) : Period: 2008 EIA study			
	Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
Son Barsi	80	42	65	79	51	11	23.6	-
Kohdar Village	85	46	70	84	90	14	27.8	-

Table 3.34 : continued….

Location	SO2 (µg/m³) Period: 2023 EIA Study				SO2 (µg/m³) Period: 2008 EIA study			
	Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
Son Barsi	8.8	6.0	8.4	9.6	19	BDL	7.4	-
Kohdar Village	10.5	6.0	8.8	10.1	22	BDL	8.2	-

Table 3.34 : continued….

Location	NOx (µg/m³) Period: 2023 EIA Study				NOx (µg/m³) Period: 2008 EIA study			
	Max	Min	Mean	98 %tile	Max	Min	Mean	98 %tile
Son Barsi	8.8	6.0	8.4	9.6	27	5.0	11.7	-
Kohdar Village	13.5	9.8	11.6	13.5	32	6	14.5	-

Interpretation –

The concentration of PM10 in the air has slightly increase in current study that might be due to increase in traffic and operation of the plant. The mean NOX and SOx level is meeting the current ambient air quality while the maximum values were found slightly higher during the earlier study

3.10.2. *Comparison of Ambient Noise Quality*

For the comparative analysis of ambient noise quality, 10 locations were considered in the year 2023-24, while 10 locations were assessed by the consultant in 2008. Out of these only 2 locations

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(Project Site, Kohdar village) are matching hence the comparative noise analysis were done for these two locations only. Comparative analysis is presented in **Table 3.35** below:

Table 3.35 : Comparative Ambient Noise Quality Analysis

Location	Category	Day (dB(A) Leq)		Night (dB(A) Leq)	
		Result EIA Study 2023-24	Result EIA Study 2008	Result EIA Study 2023-24	Result EIA Study 2008
Project Site	Industrial	59.8	45.4	52.1	35.1
Kohdar village	Residential	52.0	51.1	41.7	42.5

Interpretation:
Compared to the data collected in 2008, the values for both day and nighttime are slightly high in 2023-24 due to plant operation. Overall, the noise monitoring shows that day and night-time noise levels are found well within the respective category standards.

3.10.3. *Comparative Water Quality*

To evaluate the water quality in the study area, six surface water samples and twelve groundwater samples were collected during 2023-24. In contrast, the 2008 EIA study by the consultant monitored only three surface water locations and three groundwater locations. Of the surface water sites, three locations align with those in the current study, while only one groundwater location matches. The results for both surface and groundwater are presented in Table3.30 and Table 3.36, respectively.

Table 3.36 : Surface Water Quality

S.No	Parameters	Unit	Tons U/s		Tons D/s		Ganga River	
			Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24
1	pH	-	7.5	7.58	7.7	7.3	7.7	7.89
2	Temperature	ºC	26.2	24.3	26.3	23.4	26.2	24.8
3	Conductivity	µmhos/cm	234	323	276	388	276	380
4	Chloride(as Cl)	mg/l	8	58	18	62	26	18
5	Total Alkalinity (as $CaCO_3$)	mg/l	89	104	62	116	119	144
6	Total Hardness(as CaCO3)	mg/l	96	108	101	124	151	120

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S.No	Parameters	Unit	Tons U/s		Tons D/s		Ganga River	
			Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24	Analysis result EIA Study 2008	Analysis result EIA Study 2023-24
7	Calcium (as Ca)	mg/l	25	26	29	30	39	28.9
8	Magnesium (as Mg)	mg/l	8	10	9	12	13	11.6
9	COD (as O2)	mg/l	13	13	14	12	6	13
10	BOD (3 days at 27^0C)	mg/l	4	2.9	5	2.7	2	3.0
11	Dissolve Oxygen	mg/l	7.2	6.3	8.6	6.4	8.8	6.4
12	Total Dissolved Solid	mg/l	137	170	163	186	171	240
13	Nitrite (as NO_2)	mg/l	0.8	2.8	1.1	2.9	1.1	3.1
14	Sulphate (SO4)	mg/l	12	28	14	34	12	16.2
15	Iron (as Fe)	mg/l	0.21	0.23	0.23	0.35	0.21	0.28
16	Nitrate (as NO_3)	mg/l	0.8	4.1	1.1	4.5	1.1	3.2
17	Total Chromium (as Cr)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Sodium (as Na)	mg/l	7.8	10	8.8	14	9.2	13,6
19	Potassium (as K)	mg/l	0.8	1.9	1.5	1.9	0.9	1.6
20	Arsenic (as As)	mg/l	<0.002	<0.01	<0.002	<0.01	<0.002	<0.01
21	Lead (as Pb)	mg/l	<0.05	<0.1	<0.05	<0.1	<0.05	<0.1
22	Copper (as Cu)	mg/l	<0.05	0.06	<0.05	<0.05	<0.05	<0.05
23	Zinc (as Zn)	mg/l	0.13	0.11	0.14	0.13	0.13	0.22

Interpretation – The comparative analysis results shows that there is marginal changes observed in the surface water with respect to previous results. No metallic contamination was observed in the surface water samples.

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Table 3.37 : Ground Water Quality

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Result EIA Study 2008	Result EIA Study 2023-24
1	pH value	-	6.5-8.5	-	7.3	6.91
2	Temperature	° C	-		26.6	24.2
3	Conductivity	µmhos/cm	-		387	477
4	Total dissolve solid (TDS)	mg/l	500	2000	223	320
5	Total Suspended solids (TSS)	mg/l	-		7	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	151	192
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	160	62
8	Chloride (as Cl)	mg/l	250	1000	32	68
9	Calcium (as Ca)	mg/l	75	200	43	46
10	Magnesium (as Mg)	mg/l	30	100	13	19
11	Fluoride (as F)	mg/l	1	1.5		0.56
12	Sulphate (as SO_4)	mg/l	200	400	13	20.5
13	Iron (as Fe)	mg/l	1	NR	0.24	0.15
14	Phosphate (as PO_4)	mg/l	0.03	0.2		<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.05	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	<4	NA
17	Bio- Chemical Oxygen Demands(for3Days27˚C)	mg/l	-	-	<1	NA
18	Dissolve Oxygen	mg/l	-	-	7.0	NA
19	Oil & Grease	mg/l	-	-	<0.01	<0.5
20	Sodium (as Na)	mg/l	-	-	12.0	37.5
21	Potassium (as K)	mg/l	-	-	2.0	3.1
22	Nitrate (as NO_3)	mg/l	45	NR	1.6	5.2
23	Selenium (as Se)	mg/l	0.01	NR	<0.05	<0.01
24	Copper (as Cu)		-		<0.05	<0.01
25	Zinc (as Zn)	mg/l	5.0	15	0.13	0.09
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01
32	Total Coliform	MPN	Absent/100 ml	-	Absent	Absent

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S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Result EIA Study 2008	Result EIA Study 2023-24
33	Fecal Coliform	MPN	Absent/100 ml	-	Absent	Absent

Interpretation–The pH of the drinking water is meeting the acceptable range. No major variation in electrical conductivity is observed. No biological and metallic contamination has been found in any of the ground water sample of the study area. Overall, the parameters in ground water sample were well within the permissible limit of Indian Standard IS: 10500-2012 at all locations.

3.11. Biological Environment

3.11.1. *Introduction*

A phased and consultative approach was followed to carry out baseline ecological assessment. Successive phases of the assessment include (i) Reconnaissance survey (ii)Secondary data collection through desktop review of available literature and (iii) Onsite data collection for determining vegetation and wildlife in the study area Methodology

The baseline study for existing ecological environment was carried out during study period. Field sampling efforts covered the proposed project site and its area of influence. Field surveys were conducted for vegetation, and wildlife. In addition, public consultations were also done in the communities around the site. A phased and consultative approach was followed to carry out ecological assessment. Successive phases of the assessment include (i) Secondary data collection through desktop review of available literature and (ii) Onsite data collection for determining vegetation and wildlife in the study area & Reconnaissance survey (iii) Public consultation.

Primary Data Collection & Reconnaissance survey: There are few patches of forest are present within the study area (10 km area around project site) hence, phytosocial study was conducted for tree, shrub and herb vegetation present in nearby forest areas. To know the vegetation pattern in study area primary survey was conducted to calculate the density, frequency and IVI of the vegetation. Sampling points were randomly selected at 10 different locations in the study area. Samples of plants that could not be identified in the field were collected, pressed and carried to the herbarium for further identification. The health status of the vegetation was visually determined. Wildlife observations were conducted during the day and at night to cover for diurnal and nocturnal animals. Binoculars were used to enable the study of birds and other far distant animals.

Secondary Data Collection: An extensive desktop review of available published literature (books, websites, scientific papers, articles etc.) was conducted. The Forest Working Plans of Forest Divisions was also referred for secondary information. Additional information was sourced from the project proponent, Divisional Forest Office, Forest range office, governmental institutions and local residents of the survey-area. Literature was sourced from the govt. sources like Forest

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ANNEXURE-5

Annexure 5: Monitoring Photographs

		
Rithaiya Village	**Son Barsi Village**	**Sukath Village**
		
Korhar Village	**Piprau Village**	**Salaiya Khurd Village**
		
Gadeva village	**Patai Dandi Village**	**Near Plant Site**

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ANNEXURE-6

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.92	7.43	7.54	7.29	7.57	7.78
2	Temperature	°C			21.1	21.5	22.2	21.4	22.4	20.5
3	Conductivity	µmhos/cm			490	543	1305	958	564	881
4	Total dissolve solid (TDS)	mg/l	500	2000	328	364	874	642	378	590
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	156	544	418	173	277
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	137	255	228	245	257
8	Chloride (as Cl)	mg/l	250	1000	67	53	64	273	133	157
9	Calcium (as Ca)	mg/l	75	200	47.5	37	14	77.5	44	42.6
10	Magnesium (as Mg)	mg/l	30	100	19.1	16	53	32	18	16.8
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.64	0.67	0.65	0.53	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.5	18.9	45	40	35.6	36.4
13	Iron (as Fe)	mg/l	0.3	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.8	27.3	51.2	27.9	52.1	152.1
21	Potassium (as K)	mg/l	-	-	3.8	11.4	0.39	3.8	1.71	0.66
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1

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TEST REPORT

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.15	7.38	6.95	7.5	7.31	7.13
2	Temperature	o C	-		22.1	22.4	21.4	21.6	22.5	21.8
3	Conductivity	µmhos/cm	-		1066	391	484	567	807	504
4	Total dissolve solid (TDS)	mg/l	500	2000	714	262	324	380	541	338
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	348	149	194	178	318	186
7	Alkalinity (asCaCO3)	mg/l	200	600	284	144	63	246	247	157
8	Chloride (as Cl)	mg/l	250	1000	311	42	69	133	172	73
9	Calcium (as Ca)	mg/l	75	200	51.2	36	46.8	43.8	75.6	44.6
10	Magnesium (as Mg)	mg/l	30	100	21	14.6	19.7	16.8	30.8	18.7
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.58	0.53	0.63	0.56
12	Sulphate (as SO4)	mg/l	200	400	47	16	20.8	36.4	37.5	28.6
13	Iron (as Fe)	mg/l	0.3	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	131.6	22.4	38.1	52.9	138.8	35.1
21	Potassium (as K)	mg/l	-	-	0.59	9.69	3.6	1.63	1.14	2.9
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.1	5.4	6.7	7.2	6.8

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TEST REPORT

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.91	7.44	7.53	7.28	7.58	7.77
2	Temperature	°C			22.5	21.8	22.5	22.4	23.5	22.4
3	Conductivity	µmhos/cm			486	391	1300	955	562	877
4	Total dissolve solid (TDS)	mg/l	500	2000	326	262	871	640	376	588
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	154	542	417	172	276
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	57	138	254	226	244	256
8	Chloride (as Cl)	mg/l	250	1000	66.5	52.5	64	272	132	156
9	Calcium (as Ca)	mg/l	75	200	47	36.5	13.5	77.1	43.8	42
10	Magnesium (as Mg)	mg/l	30	100	19.1	15.3	52.5	31.5	17.8	16.4
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.62	0.67	0.65	0.52	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.2	18.5	44.1	39.1	35.5	36.4
13	Iron (as Fe)	mg/l	0.3	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.1	26.1	50.8	27.1	51.5	151.2
21	Potassium (as K)	mg/l	-	-	3.5	11.2	0.38	3.4	1.69	0.64
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1

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Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.14	7.39	6.92	7.49	7.3	7.12
2	Temperature	o C	-		22.2	23.1	22.8	22.5	23.1	22.2
3	Conductivity	µmhos/cm	-		1062	388	481	565	809	503
4	Total dissolve solid (TDS)	mg/l	500	2000	712	260	322	379	540	337
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	346	149	193	177	317	185
7	Alkalinity (asCaCO3)	mg/l	200	600	285	143	62.5	245	246	156
8	Chloride (as Cl)	mg/l	250	1000	310	41	68.4	133	171	72.4
9	Calcium (as Ca)	mg/l	75	200	51	35.6	46.2	43.5	75.2	44.2
10	Magnesium (as Mg)	mg/l	30	100	20.5	14.2	19.2	16.8	30.5	18.4
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.57	0.52	0.62	0.56
12	Sulphate (as SO4)	mg/l	200	400	46.1	15.5	20.8	36.2	37.5	28.4
13	Iron (as Fe)	mg/l	0.3	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.9	20.8	37.9	52.8	138.4	34.8
21	Potassium (as K)	mg/l	-	-	0.58	9.53	3.4	1.61	1.13	2.8
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.1	5.3	6.7	7.2	6.7

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)

Approved : by National Accreditation Board for Testing and Calibration Laboratories

Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II

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Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com

TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

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Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.89	7.43	7.52	7.26	7.58	7.76
2	Temperature	°C			25.2	24.8	24.6	24.1	23.8	26.2
3	Conductivity	µmhos/cm			483	388	1298	952	555	874
4	Total dissolve solid (TDS)	mg/l	500	2000	324	260	870	638	372	586
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	192	152	540	416	170	275
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	138	252	225	245	254
8	Chloride (as Cl)	mg/l	250	1000	66	52	63	270	130	155
9	Calcium (as Ca)	mg/l	75	200	47	36	130	77	43	41
10	Magnesium (as Mg)	mg/l	30	100	19	15	52	31	17	16
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.61	0.68	0.66	0.51	0.48
12	Sulphate (as SO_4)	mg/l	200	400	21	18	44	38	34	36
13	Iron (as Fe)	mg/l	0.3	NR	0.15	0.13	0.1	0.14	0.48	0.12
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	38.1	25	50.1	26.6	50.2	150.2
21	Potassium (as K)	mg/l	-	-	3.2	11	0.38	3.1	1.68	0.62
22	Nitrate (as NO_3)	mg/l	45	NR	5.8	8.9	4.4	7.9	6.8	5.1

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com
TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN/100ml	Absent/100ml	NR	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN/100ml	Absent/100ml	NR	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1ZB

Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.13	7.38	6.91	7.48	7.29	7.11
2	Temperature	o C	-		24.6	24.8	24.2	24.6	24.0	24.7
3	Conductivity	µmhos/cm	-		1056	385	477	564	803	501
4	Total dissolve solid (TDS)	mg/l	500	2000	708	258	320	378	538	336
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	344	148	192	176	316	184
7	Alkalinity (asCaCO3)	mg/l	200	600	284	142	62	248	245	155
8	Chloride (as Cl)	mg/l	250	1000	309	40	68	132	170	72
9	Calcium (as Ca)	mg/l	75	200	50	35	46	43	75	44
10	Magnesium (as Mg)	mg/l	30	100	20	14	19	16.8	30	18
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.32	0.56	0.51	0.61	0.56
12	Sulphate (as SO4)	mg/l	200	400	46	15	20.5	36	35	28
13	Iron (as Fe)	mg/l	0.3	NR	0.12	0.12	0.15	0.49	0.14	0.14
14	Phosphate (as PO4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.1	20.1	37.5	52.1	138.1	34.2
21	Potassium (as K)	mg/l	-	-	0.57	9.52	3.1	1.58	1.12	2.8
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.2	5.2	6.8	7.1	6.6

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN/100ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN/100ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS

Approved: by Occupational Health &Safety Management (ISO45001:2018)
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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mal Khurd & Patel Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit Inland Surface W.	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madanaha Village	Tons/ River d/s of site near Dhadhuwa Village	Pond Dasauli Village	Pond near Khoder Pahari
1	pH	-	5.5 -9.0	7.89	7.89	7.6	7.28	7.58	7.49
2	Temperature	°C	N.S	23.0	23.5	21.7	20.5	21.1	21.3
3	Conductivity	µmhos/cm	N.S	354	388	330	304	682	231
4	Chloride(as Cl)	mg/l	600	18	20	30.2	44.2	29.1	22.8
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	145	149	105	118	88.8	80.8
6	Total Hardness(as $CaCO_3$)	mg/l	N.S	134	138	109	128	81	88.8
7	Calcium (as Ca)	mg/l	N.S	32.1	33.0	27.1	31.9	20.2	18.2
8	Magnesium (as Mg)	mg/l	N.S	12.0	12.8	11.8	16.8	7.9	8.8
9	COD (as O2)	mg/l	N.S	14	16	14	15	47	44
10	BOD (3 days at 27°C)	mg/l	3	2.7	3.1	2.6	2.9	5.9	7.0
11	Dissolve Oxygen	mg/l	4	6.1	6.2	6.1	6.8	4.8	4.4
12	Total Dissolved Solid	mg/l	1500	244	268	178	158	384	130
13	Total Suspended Solid	mg/l	N.S	4.2	4.4	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	2.2	2.2	2.8	2.8	2.8	2.5
15	Phosphate (as P)	mg/l	N.S	0.83	0.30	0.38	0.45	0.31	0.28
16	Fluoride (as F)	mg/l	1.5	0.33	0.38	0.67	0.7	0.52	0.43

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS

1405

Approved: by Occupational Health &Safety Management (ISO45001:2018)
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Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mal Khurd & Patni Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

17	Sulphate (SO_4)	mg/l	400	17.0	16.9	28.1	34.8	30.1	18.4
18	Iron (as Fe)	mg/l	50	0.55	0.29	0.53	0.28	0.14	0.19
19	Nitrate (as NO_3)	mg/l	45	3.3	3.1	4.4	4.5	3.5	3.5
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Sodium (as Na)	mg/l	45	13.4	14.1	10.5	14.9	37	5.5
23	Potassium (as K)	mg/l	45	1.7	1.5	1.9	1.9	6	2.3
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.06
27	Zinc (as Zn)	mg/l	15	0.24	0.28	0.11	0.12	0.19	0.25
28	Total Coliform	MPN	<5000	4580	4280	1580	1910	3610	2740

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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0751-3566867, 2232177
Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	18/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231118-02	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	17/11/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madarahe Village	Tons/ River d/s of site near Dhadhuva Village	Pond Daurati Village	Pond near Khodar Pahari
1	pH	-	6.5-8.5	7.70	7.24	7.89	7.58	7.84	7.48
2	Temperature	°C	N.S	22.2	22.7	22.1	20.2	22.1	22.1
3	Conductivity	µmhos/cm	N.S	367	374	388	368	369	389
4	Chloride(as Cl)	mg/l	600	18	17	19.8	18.1	20.1	18.8
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	138	142	105	117	64.8	49.2
6	Total Hardness(as $CaCO_3$)	mg/l	N.S	118	117	108.8	128	80.4	87.1
7	Calcium (as Ca)	mg/l	N.S	37.4	36.8	30.4	31.1	18.4	14.1
8	Magnesium (as Mg)	mg/l	N.S	12.4	13.1	11.1	13.4	7.9	8.9
9	COD (as O2)	mg/l	N.S	13	14	13	11	48	44
10	BOD (3 days at 27°C)	mg/l	3	5.7	5.0	5.5	5.8	5.0	7.6
11	Dissolve Oxygen	mg/l	4	6.2	6.4	6.2	6.1	4.6	4.8
12	Total Dissolved Solid	mg/l	1500	240	247	174	189	280	139
13	Total Suspended Solid	mg/l	N.S	4.5	4.7	4	5	11	8
14	Nitrite (as NO_2)	mg/l	N.S	3.4	3.5	3.7	3.5	3.6	3.5
15	Phosphate (as P)	mg/l	N.S	0.34	0.30	0.39	0.4	0.39	0.2
16	Fluoride (as F)	mg/l	1.5	0.34	0.38	0.37	0.38	0.8	0.49

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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0751-3566867, 2232177
Email:aelgwalior@gmail.comaetri2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetri.com

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patel Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231118-02	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	17/11/2023

TEST RESULT

17	Sulphate (SO_4)	mg/l	400	18.6	16.1	89.1	36.9	20.1	18.4
18	Iron (as Fe)	mg/l	50	0.36	0.37	0.33	0.26	0.14	0.19
19	Nitrate (as NO_3)	mg/l	N.S	3.0	2.2	4.2	4.8	2.4	2.7
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13.7	13.5	10	14	36	8
23	Potassium (as K)	mg/l	N.S	1.4	1.8	1.9	1.8	8	7.9
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.05
27	Zinc (as Zn)	mg/l	15	0.36	0.25	0.11	0.15	0.19	0.35
28	Total Coliform	MPN	<5000	4480	4330	1430	1660	3510	3660

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Advanced Environmental Testing And Research Lab P. Ltd.

1784

1408

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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Web: www.aetrl.com

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patni Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madamba Village	Tons/ River d/s of site near Dhadhuva Village	Pond Daraut Village	Pond near Khodar Pahari
1	pH	-	6.5 -8.5	7.89	7.80	7.82	7.3	7.5	7.4
2	Temperature	°C	N.S	24.5	24.1	24.3	23.4	23.4	23.9
3	Conductivity	µmhos/cm	N.S	280	282	282	288	540	285
4	Chloride(as Cl)	mg/l	600	18	18	58	62	78	28
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	144	148	104	118	94	48
6	Total Hardness(as $CaCO_3$)	mg/l	N.S	120	124	108	124	80	56
7	Calcium (as Ca)	mg/l	N.S	32.9	30.1	28	30	18	12.4
8	Magnesium (as Mg)	mg/l	N.S	11.6	12.4	10	12	7.8	5.4
9	COD (as Of)	mg/l	N.S	15	16	13	12	48	42
10	BOD (3 days at 27°C)	mg/l	3	2.0	2.0	2.0	2.7	3.1	7.2
11	Dissolve Oxygen	mg/l	4	5.4	6.6	5.5	5.4	4.4	4.6
12	Total Dissolved Solid	mg/l	1500	240	247	170	188	387	184
13	Total Suspended Solid	mg/l	N.S	4.5	4.6	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	2.1	2.2	2.2	2.1	2.4	2.1
15	Phosphate (as P)	mg/l	N.S	0.21	0.22	0.26	0.28	0.22	0.10
16	Fluoride (as F)	mg/l	1.5	0.36	0.36	0.36	0.66	0.51	0.41

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS 1409

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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Web: www.aetrl.com

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mal Khurd & Patel Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	EMDC231015-01	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

17	Sulphate (SO4)	mg/l	400	14.8	17.3	25	24	18	15
18	Iron (as Fe)	mg/l	40	0.89	0.84	0.82	0.26	0.14	0.19
19	Nitrate (as NO3)	mg/l	N.S	3.9	2.8	4.1	4.8	3.9	3.8
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13.0	14.3	10	14	30	8
23	Potassium (as K)	mg/l	N.S	1.6	1.7	1.9	1.8	5	7.8
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.09	<0.05	<0.05	0.08
27	Zinc (as Zn)	mg/l	15	0.22	0.28	0.11	0.15	0.19	0.26
28	Total Coliform	MPN	<5000	4230	4120	1460	1240	3450	2780

AUTHORIZED SIGNATORY

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QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

EQMS Global Pvt. Ltd. ***formerly known as EQMS India Pvt. Ltd.*****, New Delhi**

305, 3rd Floor, Plot No. 16, Rishabh Towers, Community Centre, Karkardooma, Delhi – 110 092

The organization is accredited as ***Category-A*** *under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast and underground both	1	1 (a) (i)	A
2.	River Valley projects	3	1 (c)	A
3.	Thermal power plants	4	1 (d)	A
4.	Metallurgical industries (ferrous only)	8	3 (a)	B
5.	Cement plants	9	3 (b)	B
6.	Petroleum refining industry	10	4 (a)	A
7.	Chemical fertilizers	16	5 (a)	A
8.	Pesticides industry and pesticide specific intermediates	17	5 (b)	A
9.	Petro-chemical complexes	18	5 (c)	A
10.	Synthetic organic chemicals industry	21	5 (f)	A
11.	Pulp & paper industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	24	5 (i)	A
12.	Isolated storage & handling of Hazardous chemicals	28	-	B
13.	Air ports	29	7 (a)	A
14.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones(SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
15.	Bio-medical waste facilities	32A	7 (d a)	A
16.	Ports, harbours, break waters and dredging	33	7 (e)	A
17.	Highways,	34	7 (f)	A
18.	Common Effluent Treatment Plants (CETPs)	36	7 (h)	B
19.	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
20.	Building and construction projects	38	8 (a)	B
21.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Aug 22, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2878 dated Sept 18, 2023. The accreditation needs to be renewed before the expiry date by EQMS Global Pvt. Ltd, New Delhi following due process of assessment.

Sr. Director, NABET
Dated: Sep 18, 2023

Certificate No.
NABET/EIA/2225/RA 0303

Valid up to
Nov 23, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

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National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

ADVANCED ENVIRONMENTAL TESTING AND RESEARCH LAB PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

63/1, KAILASH VIHAR, GWALIOR, MADHYA PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-12780

Issue Date: 19/12/2023 **Valid Until:** 18/12/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: ADVANCED ENVIRONMENTAL TESTING AND RESEARCH LAB PRIVATE LIMITED

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
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TC-12780

ANNEXURE-8

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Project Site (Meja TPP Main Entry Gate)
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	03.10.2023	81	53	10	16.2	<20	0.33	21.3
2	06.10.2023	65	33.1	13.9	12.3	<20	0.18	17.4
3	10.10.2023	75	35	11.4	15.2	<20	0.28	20.3
4	11.10.2023	51	23	7.7	10.8	<20	0.14	15.9
5	17.10.2023	58	25.1	9.7	11.9	<20	0.16	17
6	18.10.2023	66	36	10.3	11.2	<20	0.15	16.3
7	24.10.2023	72	51	9	16.9	<20	0.31	22
8	25.10.2023	80	52	11.2	14.1	<20	0.33	19.2
9	01.11.2023	58	24.7	8.7	11.2	<20	0.21	16.3
10	02.11.2023	91	50	13.1	14.9	<20	0.35	23.4
11	08.11.2023	74	38	12.2	16.7	<20	0.35	21.8
12	09.11.2023	80	41	10.7	13..2	<20	0.40	18.3
13	15.11.2023	93	48	10.1	14.4	<20	0.41	19.5
14	16.11.2023	75	35	9.4	15.7	<20	0.34	20.8
15	22.11.2023	87	51	12	16.9	<20	0.39	22
16	23.11.2023	71	45	11.5	15.9	<20	0.29	21
17	02.12.2023	93	52	10.7	16.2	<20	0.41	21.3
18	03.12.2023	65	28	12.2	10.9	<20	0.15	16
19	09.12.2023	80	49	10.4	16.1	<20	0.14	21.2
20	10.12.2023	71	54	11.5	17	<20	0.16	22.1

AUTHORIZED SIGNATORY

Subject to terms & conditions overleaf

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)
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Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com

TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Project Site (Meja TPP Main Entry Gate)
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	16.12.2023	77	43	10	15.2	<20	0.29	20.3
22	17.12.2023	90	51	12.1	14.2	<20	0.35	19.3
23	23.12.2023	94	54	13.9	17.3	<20	0.41	22.4
24	24.12.2023	69	42	11.4	11.2	<20	0.28	16.3
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	$100\mu g/m^3$

*** End of Report***

Gwalior

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
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Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Salaya Kala near Ash Pond
Lab Code	ERDC231029-02	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	03.10.2023	76	50	9.2	15.1	<20	0.32	19.8
2	04.10.2023	60	30.1	7.8	11.2	<20	0.17	15.9
3	10.10.2023	70	32	10.6	14.1	<20	0.27	18.8
4	11.10.2023	46	20	6.9	9.7	<20	0.13	14.4
5	17.10.2023	53	22.1	8.9	10.8	<20	0.15	15.5
6	18.10.2023	61	33	9.5	10.1	<20	0.14	14.8
7	24.10.2023	67	48	8.2	13.2	<20	0.19	17.9
8	25.10.2023	75	49	10.4	13	<20	0.32	17.7
9	01.11.2023	53	21.7	7.9	10.1	<20	0.20	14.8
10	02.11.2023	86	47	12.1	13.8	<20	0.34	18.5
11	08.11.2023	69	35	11.4	11.2	<20	0.14	15.9
12	09.11.2023	75	38	9.9	12.1	<20	0.21	16.8
13	15.11.2023	88	45	9.3	13.3	<20	0.29	18
14	16.11.2023	70	32	8.6	14.6	<20	0.33	19.3
15	22.11.2023	82	48	11.2	14.9	<20	0.31	19.6
16	23.11.2023	66	42	10.7	14.8	<20	0.28	19.5
17	02.12.2023	88	49	9.9	15.1	<20	0.31	19.8
18	03.12.2023	60	25	11.4	9.8	<20	0.14	14.5
19	09.12.2023	75	46	9.6	15	<20	0.13	19.7
20	10.12.2023	66	51	10.7	14.2	<20	0.15	18.9

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
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Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Salaya Kala near Ash Pond
Lab Code	ERDC231029-02	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	16.12.2023	72	40	9.2	14.1	<20	0.28	18.8
22	17.12.2023	85	48	11.3	13.1	<20	0.29	17.8
23	23.12.2023	88	51	12.2	15.5	24.0	0.34	20.2
24	24.12.2023	64	39	10.6	10.1	<20	0.27	14.8
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Patai Dandi Village
Lab Code	ERDC231029-03	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	05.10.2023	74	48	8.3	11.2	<20	0.19	15.3
2	07.10.2023	58	28.1	6.9	10.2	<20	0.14	14.3
3	10.10.2023	68	30	7.8	9.8	<20	0.14	13.9
4	11.10.2023	44	18	6	9.2	<20	0.10	13.3
5	17.10.2023	51	20.1	8	10.8	<20	0.12	14.9
6	18.10.2023	59	31	8.6	10.1	<20	0.11	14.2
7	24.10.2023	65	46	7.3	10.2	<20	0.16	14.3
8	25.10.2023	73	47	9.1	13	<20	0.21	17.1
9	01.11.2023	51	19.7	7	10.1	<20	0.17	14.2
10	02.11.2023	80	45	8.9	12.1	<20	0.22	16.2
11	08.11.2023	67	33	8.1	11.2	<20	0.11	15.3
12	09.11.2023	73	36	9	12.1	<20	0.22	16.2
13	15.11.2023	81	43	8.4	12.8	<20	0.16	16.9
14	16.11.2023	68	30	7.7	11.5	<20	0.17	15.6
15	22.11.2023	80	46	8.6	11.1	<20	0.18	15.2
16	23.11.2023	64	40	7.9	10.6	<20	0.15	14.7
17	02.12.2023	79	47	9	13.1	<20	0.20	17.2
18	03.12.2023	58	23	7.5	10.2	<20	0.11	14.3
19	09.12.2023	73	44	8.7	12.1	<20	0.10	16.2
20	10.12.2023	64	49	8.1	9.3	<20	0.12	13.4

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Patai Dandi Village
Lab Code	ERDC231029-03	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	16.12.2023	70	38	8.3	9.9	<20	0.19	14
22	17.12.2023	81	46	8.9	13.1	<20	0.21	17.2
23	23.12.2023	82	50	9.6	13.2	<20	0.23	17.3
24	24.12.2023	62	37	8.7	10.1	<20	0.18	14.2
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Rithaiya Village
Lab Code	ERDC231029-04	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	04.10.2023	76	47	8.7	11	<20	0.15	14.5
2	06.10.2023	60	27.1	7.3	10	<20	0.12	13.5
3	12.10.2023	70	29	8.2	9.6	<20	0.13	13.1
4	13.10.2023	42	17	6.4	9	<20	0.10	12.5
5	19.10.2023	53	19.1	8.4	10.6	<20	0.11	14.1
6	20.10.2023	61	30	9	9.9	<20	0.10	13.4
7	26.10.2023	67	45	7.7	10	<20	0.15	13.5
8	27.10.2023	75	46	9.5	12.8	<20	0.17	16.3
9	03.11.2023	53	18.7	7.4	9.9	<20	0.16	13.4
10	04.11.2023	82	44	9.3	11.9	<20	0.17	15.4
11	10.11.2023	69	32	8.5	11	<20	0.10	14.5
12	11.11.2023	75	35	9.4	11.9	<20	0.13	15.4
13	17.11.2023	83	42	8.8	12.6	<20	0.15	16.1
14	18.11.2023	70	29	8.1	11.3	<20	0.16	14.8
15	24.11.2023	82	45	9	10.9	<20	0.17	14.4
16	25.11.2023	66	39	8.3	10.4	<20	0.14	13.9
17	05.12.2023	81	46	9.4	12.4	<20	0.16	15.9
18	06.12.2023	60	22	7.9	10	<20	0.10	13.5
19	12.12.2023	75	43	9.1	11.9	<20	0.11	15.4
20	13.12.2023	66	48	8.5	9.1	<20	0.11	12.6

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Rithaiya Village
Lab Code	ERDC231029-04	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	19.12.2023	72	37	8.7	9.7	<20	0.18	13.2
22	20.12.2023	83	45	9.3	12.6	<20	0.17	16.1
23	26.12.2023	84	49	10.3	12.8	<20	0.18	18.4
24	27.12.2023	64	37	9.1	9.9	<20	0.17	13.4
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Sukath near Meja Tehsil
Lab Code	ERDC231029-05	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	05.10.2023	78	51	8.5	14.1	<20	0.20	15.8
2	06.10.2023	62	31.1	7.1	10.2	<20	0.15	11.9
3	12.10.2023	72	33	9.9	13.1	<20	0.12	14.8
4	13.10.2023	45	21	6.2	9.4	<20	0.11	11.1
5	19.10.2023	55	23.1	8.2	9.8	<20	0.13	11.5
6	20.10.2023	63	34	8.8	9.5	<20	0.12	11.2
7	26.10.2023	69	49	7.5	12.2	<20	0.17	13.9
8	27.10.2023	77	50	9.7	12	<20	0.16	13.7
9	03.11.2023	55	22.7	7.2	9.5	<20	0.18	11.2
10	04.11.2023	88	48	11.4	12.8	<20	0.12	14.5
11	10.11.2023	71	36	10.7	10.2	<20	0.12	11.9
12	11.11.2023	77	39	9.2	11.1	<20	0.19	12.8
13	17.11.2023	90	46	8.6	12.3	<20	0.17	14
14	18.11.2023	72	33	7.9	13.6	<20	0.13	15.3
15	24.11.2023	84	49	10.5	13.9	<20	0.12	15.6
16	25.11.2023	68	43	10	13.8	<20	0.16	15.5
17	05.12.2023	90	50	9.2	14.1	<20	0.18	15.8
18	06.12.2023	62	26	10.7	9.5	<20	0.12	11.2
19	12.12.2023	77	47	8.9	14	<20	0.11	15.7
20	13.12.2023	68	52	10	13.2	<20	0.13	14.9

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TEST REPORT
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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Meja
Lab Code	ERDC231029-05	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	19.12.2023	74	41	8.5	13.1	<20	0.18	14.8
22	20.12.2023	87	49	10.6	12.1	<20	0.21	13.8
23	26.12.2023	90	52	11.9	14.5	<20	0.22	16.2
24	27.12.2023	66	40	9.9	9.6	<20	0.18	11.3
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Son Barsi
Lab Code	ERDC231029-06	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	72	46	8.5	11.4	<20	0.15	11.3
2	08.10.2023	56	26.1	7.1	10.4	<20	0.10	10.3
3	12.10.2023	66	28	8	10	<20	0.10	9.9
4	13.10.2023	42	17	6	9	<20	0.08	8.9
5	19.10.2023	49	18.1	8.2	11	<20	0.08	10.9
6	20.10.2023	57	29	8.8	10.3	<20	0.10	10.2
7	26.10.2023	63	44	7.5	10.4	<20	0.12	10.3
8	27.10.2023	71	45	9.3	13.2	<20	0.17	13.1
9	03.11.2023	49	17.7	7.2	10.3	<20	0.13	10.2
10	04.11.2023	78	43	9.1	12.3	<20	0.18	12.2
11	10.11.2023	65	31	8.3	11.4	<20	0.11	11.3
12	11.11.2023	71	34	9.2	12.3	<20	0.18	12.2
13	17.11.2023	79	41	8.6	13	<20	0.12	12.9
14	18.11.2023	66	28	7.9	11.7	<20	0.13	11.6
15	24.11.2023	78	44	8.8	11.3	<20	0.14	11.2
16	25.11.2023	62	38	8.1	10.8	<20	0.11	10.7
17	05.12.2023	77	45	9.2	13.3	<20	0.16	13.2
18	06.12.2023	56	21	7.7	10.4	<20	0.13	10.3
19	12.12.2023	71	42	8.9	12.3	<20	0.09	12.2
20	13.12.2023	62	47	8.3	9.5	<20	0.08	9.4

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
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Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Son Barsi
Lab Code	ERDC231029-06	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	19.12.2023	68	36	8.5	10.1	<20	0.15	10
22	20.12.2023	79	44	9.1	13.3	<20	0.17	13.2
23	26.12.2023	80	48	9.8	13.4	<20	0.19	13.3
24	27.12.2023	60	35	8.9	10.3	<20	0.14	10.2
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Gadeva Village
Lab Code	ERDC231029-07	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	74	47	8.3	11.2	<20	0.13	12.7
2	08.10.2023	58	27.1	6.9	10.2	<20	0.11	11.7
3	14.10.2023	68	29	7.8	9.8	<20	0.12	11.3
4	15.10.2023	44	18	5.8	9.3	<20	0.10	10.8
5	21.10.2023	51	19.1	8	10.8	<20	0.14	12.3
6	22.10.2023	59	30	8.6	10.1	<20	0.12	11.6
7	28.10.2023	65	45	7.3	10.2	<20	0.10	11.7
8	29.10.2023	73	46	9.1	13	<20	0.15	14.5
9	07.11.2023	51	18.7	7	10.1	<20	0.11	11.6
10	08.11.2023	80	44	8.9	12.1	<20	0.11	13.6
11	14.11.2023	67	32	8.1	11.2	<20	0.13	12.7
12	15.11.2023	73	35	9	12.1	<20	0.13	13.6
13	21.11.2023	81	42	8.4	12.8	<20	0.10	14.3
14	22.11.2023	68	29	7.7	11.5	<20	0.11	13
15	28.11.2023	80	45	8.6	11.1	<20	0.12	12.6
16	29.11.2023	64	39	7.9	10.6	<20	0.10	12.1
17	07.12.2023	79	46	9	13.1	<20	0.14	14.6
18	08.12.2023	58	22	7.5	10.2	<20	0.11	11.7
19	14.12.2023	73	43	8.7	12.1	<20	0.11	13.6
20	15.12.2023	64	38	8.1	9.3	<20	0.12	10.8

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Gadeva Village
Lab Code	ERDC231029-07	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	70	37	8.3	9.9	<20	0.13	11.4
22	22.12.2023	80	45	8.9	13.1	<20	0.15	14.6
23	28.12.2023	81	47	9.6	13.2	<20	0.15	14.7
24	29.12.2023	62	36	8.7	10.1	<20	0.12	11.6
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	60$\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

***** End of Report*****

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Piprau Village
Lab Code	ERDC231029-08	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	72	47	8	10.8	<20	0.14	13.3
2	08.10.2023	56	27.1	6.6	9.8	<20	0.12	12.3
3	14.10.2023	66	29	7.5	9.4	<20	0.13	11.9
4	15.10.2023	42	17	5.4	9.1	<20	0.09	11.6
5	21.10.2023	49	19.1	7.7	10.4	<20	0.15	12.9
6	22.10.2023	57	30	8.3	9.7	<20	0.13	12.2
7	28.10.2023	63	45	7	9.8	<20	0.11	12.3
8	29.10.2023	71	46	8.8	12.6	<20	0.16	15.1
9	07.11.2023	49	18.7	6.7	9.7	<20	0.12	12.2
10	08.11.2023	78	44	8.6	11.7	<20	0.12	14.2
11	14.11.2023	65	32	7.8	10.8	<20	0.14	13.3
12	15.11.2023	71	35	8.7	11.7	<20	0.14	14.2
13	21.11.2023	79	42	8.1	12.4	<20	0.11	14.9
14	22.11.2023	66	29	7.4	11.1	<20	0.12	13.6
15	28.11.2023	78	45	8.3	10.7	<20	0.13	13.2
16	29.11.2023	62	39	7.6	10.2	<20	0.11	12.7
17	07.12.2023	77	46	8.7	12.7	<20	0.15	15.2
18	08.12.2023	56	22	7.2	9.8	<20	0.12	12.3
19	14.12.2023	71	43	8.4	11.7	<20	0.12	14.2
20	15.12.2023	62	48	7.8	9.5	<20	0.13	12

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Piprau Village
Lab Code	ERDC231029-08	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	68	37	8	9.6	<20	0.14	12.1
22	22.12.2023	79	45	8.6	12.7	<20	0.16	15.2
23	28.12.2023	83	50	9.3	12.8	<20	0.16	15.3
24	29.12.2023	60	36	8.4	9.7	<20	0.13	12.2
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

***** End of Report*****

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Korhar Village
Lab Code	ERDC231029-09	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	77	49	8.9	11.7	<20	0.09	14.3
2	08.10.2023	61	29.1	7.5	10.7	<20	0.11	13.3
3	14.10.2023	71	31	8.4	10.6	<20	0.10	13.2
4	15.10.2023	46	20	6	10.3	<20	0.08	12.9
5	21.10.2023	54	21.1	8.6	11.3	<20	0.12	13.9
6	22.10.2023	62	32	9.2	10.6	<20	0.11	13.2
7	28.10.2023	68	47	7.9	10.7	<20	0.09	13.3
8	29.10.2023	76	48	9.7	13.5	<20	0.11	16.1
9	07.11.2023	54	20.7	7.6	10.6	<20	0.10	13.2
10	08.11.2023	83	46	9.5	12.6	<20	0.11	15.2
11	14.11.2023	70	34	8.7	11.7	<20	0.12	14.3
12	15.11.2023	76	37	9.6	12.6	<20	0.10	15.2
13	21.11.2023	84	44	9	13.3	<20	0.09	15.9
14	22.11.2023	71	31	8.3	12.0	<20	0.10	14.6
15	28.11.2023	83	47	9.2	11.6	<20	0.11	14.2
16	29.11.2023	67	41	8.5	11.1	<20	0.08	13.7
17	07.12.2023	82	48	9.6	13.1	<20	0.10	15.7
18	08.12.2023	61	24	8.1	10.7	<20	0.11	13.3
19	14.12.2023	76	45	9.3	12.6	<20	0.09	15.2
20	15.12.2023	67	50	8.7	9.8	<20	0.11	12.4

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TEST REPORT
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Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Korhar Village
Lab Code	ERDC231029-09	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	73	39	8.9	10.4	<20	0.12	13.0
22	22.12.2023	84	47	9.5	13.3	<20	0.11	15.9
23	28.12.2023	85	51	10.5	13.5	<20	0.12	16.1
24	29.12.2023	65	39	9.3	10.6	<20	0.11	13.2
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Bhendewara Village
Lab Code	ERDC231029-10	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Monitoring Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)	CO(mg/m3)	Ozone (O3) (µg/m³)
		IS :5182(Part-23)	IS :5182(Part-24)	IS :5182(Part-2)	IS :5182(Part-6)	IS :5182(Part-25)	IS :5182(Part-10)	IS :5182(Part-09)
1	07.10.2023	74	42	8.3	10.9	<20	0.12	13.1
2	08.10.2023	58	27.1	6.9	9.9	<20	0.14	12.1
3	14.10.2023	68	29	7.8	10.1	<20	0.13	12.3
4	15.10.2023	43	18	5.9	9.9	<20	0.08	12.1
5	21.10.2023	51	19.1	8	10.5	<20	0.15	12.7
6	22.10.2023	59	30	8.6	10.2	<20	0.14	12.4
7	28.10.2023	65	39	7.3	9.9	<20	0.12	12.1
8	29.10.2023	73	41	9.1	12.7	<20	0.14	14.9
9	07.11.2023	51	18.7	7	9.9	<20	0.13	12.1
10	08.11.2023	80	44	8.9	11.8	<20	0.14	14.0
11	14.11.2023	67	32	8.1	10.9	<20	0.15	13.1
12	15.11.2023	73	35	9	11.8	<20	0.13	14.0
13	21.11.2023	81	42	8.4	12.5	<20	0.12	14.7
14	22.11.2023	68	29	7.7	11.2	<20	0.13	13.4
15	28.11.2023	80	44	8.6	10.8	<20	0.14	13.0
16	29.11.2023	64	39	7.9	10.3	<20	0.11	12.5
17	07.12.2023	79	36	9	12.3	<20	0.13	14.5
18	08.12.2023	58	22	7.5	9.9	<20	0.14	12.1
19	14.12.2023	73	43	8.7	11.8	<20	0.12	14.0
20	15.12.2023	64	38	8.1	9.9	<20	0.14	12.1

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Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Location	Korhar Village
Lab Code	ERDC231029-10	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023 to December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

21	21.12.2023	70	37	8.3	10.2	<20	0.15	12.4
22	22.12.2023	81	43	8.9	12.5	<20	0.14	14.7
23	28.12.2023	82	44	9.9	12.7	<20	0.15	14.9
24	29.12.2023	62	37	8.7	10.2	<20	0.14	12.4
NAAQS For 24 hourly monitoring (except CO for 8 hour		**100** $\mu g/m^3$	$60\mu g/m^3$	**80** $\mu g/m^3$	**80** $\mu g/m^3$	**400** $\mu g/m^3$	**2** mg/m^3	100 $\mu g/m^3$

***** End of Report*****

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TC-12780

TEST REPORT

	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

TEST RESULT

Sl. No.	Parameters		Unit	Sampling location				
				Project Site (Meja TPP Main Entry Gate)	Salaya Kala near Ash pond	Patai Dandi village	Rithaiya village	Sukath Near Meja
1	pH		-	7.59	7.87	7.78	7.61	7.64
2	Electrical Conductivity at 25° C (1:5suspension.)		µmhos/cm	340	389	440	472	360
3	Sodium (as Na)		(mg/kg)	126	117	155	145	123
4	Water holding capacity		(%) by mass	29.8	27.9	30.2	28.28	29
5	Potassium (as K)		(kg/ha)	178	165	176	180	165
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	57.5	56.5	56.9	55.2	56.2
		Clay	(%) by mass)	27.1	28.1	28.5	27.1	29.8
		Silt	(%) by mass)	15.4	15.4	14.6	17.7	14
7	Calcium (as Ca)		(mg/kg)	1451	1477	1877	1426.9	1086
8	Magnesium (as Mg)		(mg/kg)	154.1	398	521	502.2	420.1
9	Sodium Absorption Ration (SAR)		-	0.59	0.49	0.58	0.59	0.57
10	Cation Exchange Capacity (CEC)		(meq/100gm)	9.5	11.6	14.9	12.4	9.9
11	Available Phosphorus (as P)		Kg/ha	19.2	14.0	14.7	18.2	20.8

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

12	Organic carbon	(%) by mass)	0.75	0.79	0.81	0.69	0.78
13	Porosity	(% by mass)	35.2	34.1	38.1	32.6	38.2
14	Bulk Density	(g/cm^3)	1.25	1.26	1.28	1.29	1.22
15	Nitrogen	Kg/ha	230	174	222	166	198
17	Zinc (as Zn)	mg/kg	8.1	7.2	9.87	8.42	8.8
18	Manganese (as Mn)	mg/kg	15	16.2	72.96	22.45	20.2
19	Chromium (Cr+6)	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
20	Lead (as Pb)	mg/kg	3.2	1.47	1.28	1.26	1.27
21	Cadmium (as Cd)	mg/kg	<0.1	<0.05	<0.1	<0.1	<0.05
22	Cupper (as Cu)	mg/kg	30.2	18.2	18.23	33.82	23.8
23	Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

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		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

TEST RESUL

Sl. No.	Parameters		Unit	Sampling location				
				Son Barsi	Gadeva Village	Piprau village	Kohrar village	Maikhurd Village
1	pH		-	7.74	7.89	7.56	7.38	7.85
2	Electrical Conductivity at 25o C (1:5suspension.)		µmhos/cm	480	355	380	390	412
3	Sodium (as Na)		(mg/kg)	119	124	129	131	139
4	Water holding capacity		(%) by mass	30.8	32.8	28.9	30.2	31.5
5	Potassium (as K)		(kg/ha)	132	190	170	185	165
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	55.4	56.5	55.2	54.1	54.5
		Clay	(%) by mass)	27.8	27.9	29.5	28.1	29.4
		Silt	(%) by mass)	16.8	15.6	15.3	17.8	16.1
7	Calcium (as Ca)		(mg/kg)	1023	2085	2155	2085	2045
8	Magnesium (as Mg)		(mg/kg)	502	554.6	580	514	531
9	Sodium Absorption Ration (SAR)		-	0.54	0.44	0.45	0.47	0.50
10	Cation Exchange Capacity (CEC)		(meq/100gm)	10.2	16.1	17.1	14.2	15.2
11	Available Phosphorus (as P)		Kg/ha	18.8	20.1	18.6	19.5	17.8

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

12	Organic carbon	(%) by mass)	0.82	0.79	0.81	0.72	0.75
13	Porosity	(% by mass)	34.6	36	38	31.2	34.5
14	Bulk Density	(g/cm3)	1.2	1.19	1.18	1.21	1.22
15	Nitrogen	Kg/ha	155	205	185	220	190
17	Zinc (as Zn)	mg/kg	8.5	3.5	8.6	7.9	8.4
18	Manganese (as Mn)	mg/kg	23.15	18.5	21	20.3	22.3
19	Chromium (Cr+6)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
20	Lead (as Pb)	mg/kg	1.28	1.11	2.1	2.2	2.5
21	Cadmium (as Cd)	mg/kg	<0.1	<0.05	<0.05	<0.05	<0.05
22	Cupper (as Cu)	mg/kg	36.08	21.4	14.8	16.5	17.2
23	Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

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TC-12780

TEST REPORT
AMBIENT NOISE QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Noise Quality
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Sample Duration	24 Hrs.
Lab Code	ERDC240102-01		
Sample Collected by	Lab Representative	Sample Description	Ambient Noise
Analysis period	October 2023 to December 2023		

Test Result

Location Code	Location Name	Category	Day time Leq dB(A)	Standard Day time Leq; dB(A)	Night time Leq; dB(A)	Standard Night time Leq; dB(A)
N-1	Project Site	Industrial	59.8	75	52.1	70
N-2	Salaya Kala near Ash pond	Industrial	54.5	75	43.8	70
N-3	Patai Dandi village	Residential	52.8	55	41.6	45
N-4	NTPC Meja Road	Commercial	58.3	65	50.4	55
N-5	Pura Salaiya	Residential	52.2	55	41.8	45
N-6	Son Barsi	Residential	50.2	55	40.3	45
N-7	SH-135 C Kohdarghat Road	Commercial	60.4	65	53.9	55
N-8	Piprau village	Residential	51.4	55	41.2	45
N-9	Kohrar village	Residential	52.0	55	41.7	45
N-10	MaikhurdVillage	Residential	50.9	55	40.8	45

*** End of Report***

Note:- *Day Time mean 6 A.M to 10 P.M
**Day Time mean 10 P.M to 6 A.M

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TEST REPORT\

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.92	7.43	7.54	7.29	7.57	7.78
2	Temperature	°C			21.1	21.5	22.2	21.4	22.4	20.5
3	Conductivity	µmhos/cm			490	543	1305	958	564	881
4	Total dissolve solid (TDS)	mg/l	500	2000	328	364	874	642	378	590
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	156	544	418	173	277
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	137	255	228	245	257
8	Chloride (as Cl)	mg/l	250	1000	67	53	64	273	133	157
9	Calcium (as Ca)	mg/l	75	200	47.5	37	14	77.5	44	42.6
10	Magnesium (as Mg)	mg/l	30	100	19.1	16	53	32	18	16.8
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.64	0.67	0.65	0.53	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.5	18.9	45	40	35.6	36.4
13	Iron (as Fe)	mg/l	0.3	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.8	27.3	51.2	27.9	52.1	152.1
21	Potassium (as K)	mg/l	-	-	3.8	11.4	0.39	3.8	1.71	0.66
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.15	7.38	6.95	7.5	7.31	7.13
2	Temperature	o C	-		22.1	22.4	21.4	21.6	22.5	21.8
3	Conductivity	µmhos/cm	-		1066	391	484	567	807	504
4	Total dissolve solid (TDS)	mg/l	500	2000	714	262	324	380	541	338
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	348	149	194	178	318	186
7	Alkalinity (asCaCO3)	mg/l	200	600	284	144	63	246	247	157
8	Chloride (as Cl)	mg/l	250	1000	311	42	69	133	172	73
9	Calcium (as Ca)	mg/l	75	200	51.2	36	46.8	43.8	75.6	44.6
10	Magnesium (as Mg)	mg/l	30	100	21	14.6	19.7	16.8	30.8	18.7
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.58	0.53	0.63	0.56
12	Sulphate (as SO4)	mg/l	200	400	47	16	20.8	36.4	37.5	28.6
13	Iron (as Fe)	mg/l	0.3	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	131.6	22.4	38.1	52.9	138.8	35.1
21	Potassium (as K)	mg/l	-	-	0.59	9.69	3.6	1.63	1.14	2.9
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.1	5.4	6.7	7.2	6.8

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com

TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1ZS
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
Gwalior-474 011 M.P., India
Ph.: 0751 - 311 1424, 223 2177
Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com
TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.91	7.44	7.53	7.28	7.58	7.77
2	Temperature	°C			22.5	21.8	22.5	22.4	23.5	22.4
3	Conductivity	µmhos/cm			486	391	1300	955	562	877
4	Total dissolve solid (TDS)	mg/l	500	2000	326	262	871	640	376	588
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	198	154	542	417	172	276
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	57	138	254	226	244	256
8	Chloride (as Cl)	mg/l	250	1000	66.5	52.5	64	272	132	156
9	Calcium (as Ca)	mg/l	75	200	47	36.5	13.5	77.1	43.8	42
10	Magnesium (as Mg)	mg/l	30	100	19.1	15.3	52.5	31.5	17.8	16.4
11	Fluoride (as F)	mg/l	1	1.5	0.58	0.62	0.67	0.65	0.52	0.49
12	Sulphate (as SO_4)	mg/l	200	400	21.2	18.5	44.1	39.1	35.5	36.4
13	Iron (as Fe)	mg/l	0.3	NR	0.16	0.14	0.11	0.14	0.29	0.13
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	39.1	26.1	50.8	27.1	51.5	151.2
21	Potassium (as K)	mg/l	-	-	3.5	11.2	0.38	3.4	1.69	0.64
22	Nitrate (as NO_3)	mg/l	45	NR	5.9	8.9	4.4	7.9	6.9	5.1

Advanced Environmental Testing And Research Lab P. Ltd.

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com
TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
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Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.14	7.39	6.92	7.49	7.3	7.12
2	Temperature	o C	-		22.2	23.1	22.8	22.5	23.1	22.2
3	Conductivity	µmhos/cm	-		1062	388	481	565	809	503
4	Total dissolve solid (TDS)	mg/l	500	2000	712	260	322	379	540	337
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	346	149	193	177	317	185
7	Alkalinity (asCaCO3)	mg/l	200	600	285	143	62.5	245	246	156
8	Chloride (as Cl)	mg/l	250	1000	310	41	68.4	133	171	72.4
9	Calcium (as Ca)	mg/l	75	200	51	35.6	46.2	43.5	75.2	44.2
10	Magnesium (as Mg)	mg/l	30	100	20.5	14.2	19.2	16.8	30.5	18.4
11	Fluoride (as F)	mg/l	1	1.5	0.57	0.33	0.57	0.52	0.62	0.56
12	Sulphate (as SO4)	mg/l	200	400	46.1	15.5	20.8	36.2	37.5	28.4
13	Iron (as Fe)	mg/l	0.3	NR	0.12	0.13	0.15	0.49	0.14	0.15
14	Phosphate (as PO4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.9	20.8	37.9	52.8	138.4	34.8
21	Potassium (as K)	mg/l	-	-	0.58	9.53	3.4	1.61	1.13	2.8
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.1	5.3	6.7	7.2	6.7

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
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Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II
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Email. aelgwalior@gmail.com, aetrlgwalior@gmail.com, aetrlcenter@gmail.com, aetrl2016@gmail.com, www.aetrl.com

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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231117-02	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	16/11/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C6H5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Project Site near Plant Boundary	Salaya Kala near Ashpond	Patai Dandi village Near Primary school Sulamai	Primary School Mai Khurd	Kohrar near st joseph school	Son Barsi
1	pH value	-	6.5-8.5	-	6.89	7.43	7.52	7.26	7.58	7.76
2	Temperature	°C			25.2	24.8	24.6	24.1	23.8	26.2
3	Conductivity	µmhos/cm			483	388	1298	952	555	874
4	Total dissolve solid (TDS)	mg/l	500	2000	324	260	870	638	372	586
5	Total Suspended solids (TSS)	mg/l			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	192	152	540	416	170	275
7	Alkalinity (as$CaCO_3$)	mg/l	200	600	56	138	252	225	245	254
8	Chloride (as Cl)	mg/l	250	1000	66	52	63	270	130	155
9	Calcium (as Ca)	mg/l	75	200	47	36	130	77	43	41
10	Magnesium (as Mg)	mg/l	30	100	19	15	52	31	17	16
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.61	0.68	0.66	0.51	0.48
12	Sulphate (as SO_4)	mg/l	200	400	21	18	44	38	34	36
13	Iron (as Fe)	mg/l	0.3	NR	0.15	0.13	0.1	0.14	0.48	0.12
14	Phosphate (as PO_4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio_2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	38.1	25	50.1	26.6	50.2	150.2
21	Potassium (as K)	mg/l	-	-	3.2	11	0.38	3.1	1.68	0.62
22	Nitrate (as NO_3)	mg/l	45	NR	5.8	8.9	4.4	7.9	6.8	5.1

Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN/100ml	Absent/100ml	NR	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN/100ml	Absent/100ml	NR	Absent	Absent	Absent	Absent	Absent	Absent

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1ZS

Approved : by Occupational Health & Safety Management (ISO 45001:2018)

Approved : by National Accreditation Board for Testing and Calibration Laboratories

Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

Registered office: 63/1 Kailash Vihar, Near Income Tax Office, City Center -II

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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameter	Unit	Requirement (Acceptable Limit)	Permissible Limit	Piprau Village	Piprau Village near elementory school	Son Barsi village near school	Dasauti village near primary school Panasi	Rithaiya village	Gadeva Villge
1	pH value	-	6.5-8.5	-	7.13	7.38	6.91	7.48	7.29	7.11
2	Temperature	o C	-		24.6	24.8	24.2	24.6	24.0	24.7
3	Conductivity	µmhos/cm	-		1056	385	477	564	803	501
4	Total dissolve solid (TDS)	mg/l	500	2000	708	258	320	378	538	336
5	Total Suspended solids (TSS)	mg/l	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
6	Total Hardness (as CaCO3)	mg/l	200	600	344	148	192	176	316	184
7	Alkalinity (asCaCO3)	mg/l	200	600	284	142	62	248	245	155
8	Chloride (as Cl)	mg/l	250	1000	309	40	68	132	170	72
9	Calcium (as Ca)	mg/l	75	200	50	35	46	43	75	44
10	Magnesium (as Mg)	mg/l	30	100	20	14	19	16.8	30	18
11	Fluoride (as F)	mg/l	1	1.5	0.56	0.32	0.56	0.51	0.61	0.56
12	Sulphate (as SO4)	mg/l	200	400	46	15	20.5	36	35	28
13	Iron (as Fe)	mg/l	0.3	NR	0.12	0.12	0.15	0.49	0.14	0.14
14	Phosphate (as PO4)	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	Silica (Sio2)	mg/l	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Chemical Oxygen Demand	mg/l	-	-	NA	NA	NA	NA	NA	NA
17	Bio- Chemical Oxygen Demands(for3Days27°C)	mg/l	-	-	NA	NA	NA	NA	NA	NA
18	Dissolve Oxygen	mg/l	-	-	NA	NA	NA	NA	NA	NA
19	Oil & Grease	mg/l	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
20	Sodium (as Na)	mg/l	-	-	130.1	20.1	37.5	52.1	138.1	34.2
21	Potassium (as K)	mg/l	-	-	0.57	9.52	3.1	1.58	1.12	2.8
22	Nitrate (as NO3)	mg/l	45	NR	5.1	5.2	5.2	6.8	7.1	6.6

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TC-12780

TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Ground Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

23	Selenium (as Se)	mg/l	0.01	NR	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
24	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
25	Zinc (as Zn)	mg/l	5.0	15	0.15	0.47	0.09	0.08	0.17	0.11
26	Phenolic Compound as (C_6H_5OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Cadmium (as Cd)	mg/l	0.003	NR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Lead (as Pb)	mg/l	0.01	NR	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
29	Mercury (as Hg)	mg/l	0.001	NR	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
30	Arsenic (as As)	mg/l	0.01	0.05	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
31	Total Chromium (as Cr)	mg/l	0.05	NR	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
32	Total Coliform	MPN/100ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent
33	Fecal Coliform	MPN/100ml	Absent/100ml	-	Absent	Absent	Absent	Absent	Absent	Absent

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Sample Location	Monitoring Date	Benzene (ug/m^3)	*Benzo(a)* Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	10.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		11.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

Advanced Environmental Testing And Research Lab Gwalior

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	October 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

***** End of Report*****

7	Gadeva Village	13.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		14.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		23.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		24.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	17.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		18.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.10.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m³	1 ng/m³	1 ug/m³	20 ng/m³	6 ng/m³	-

Gwalior

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	November 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury ($\mu g/m3$)
1	Project Site (Meja TPP Main Entry Gate)	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	08.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		09.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		16.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

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TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	November 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

	Gadeva Village	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	12.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		13.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		21.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	18.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	18.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.11.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			5 µg/m³	1 ng/m³	1 ng/m³	20 ng/m³	6 ng/m³	-

***** End of Report*****

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

AUTHORIZED SIGNATORY

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8
Approved : by Occupational Health & Safety Management (ISO 45001:2018)
Approved : by National Accreditation Board for Testing and Calibration Laboratories
Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)
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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

S.No.	Location	Monitoring Date	Benzene (ug/m^3)	Benzo(a) Pyrene (ng/m^3)	Lead (ug/m^3)	Nickel (ng/m^3)	Arsenic (ng/m^3)	Mercury (µg/m3)
1	Project Site (Meja TPP Main Entry Gate)	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
2	Salaya Kala near Ash Pond	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
3	Patai Dandi Village	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
4	Rithaiya Village	11.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		12.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		20.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
5	Sukath Near Meja Tehsil	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
6	Son Barsi	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001

Advanced Environmental Testing And Research Lab P. Ltd. Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN : U73100MP2002PTC015352 GSTIN : 23AAECA9188L1Z8

Approved : by Occupational Health & Safety Management (ISO 45001:2018)

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Approved : by Ministry of Environment, Forest and Climate Change (MOEF&CC)

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TC-12780

TEST REPORT
AMBIENT AIR QUALITY ANALYSIS

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Test Report	Ambient Air Quality
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Date of Issue	12/01/2024
Lab Code	ERDC231029-01	Protocol Used	CPCB Guidelines
Sample Collected by	Lab Representative	Sampling plan & Procedure	SOP-EQMS/01
Monitoring period	December 2023	Sampling Instrument Used	RDS (PM_{10}) & FPS ($PM_{2.5}$)

7	Gadeva Village	18.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		19.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		28.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
8	Piprau Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
9	Korhar Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
10	Bhendewara Village	14.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		15.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		26.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
		27.12.2023	ND (< 1.0)	ND (< 1.0)	ND (<0.5)	ND (<15)	ND (<5.0)	<0.001
NAAQS Limits			*5 µg/m³*	*1 ng/m³*	*1 ug/m³*	*20 ng/m³*	*6 ng/m³*	-

***** End of Report*****

Gwalior

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS

1455

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Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patai Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	2 K.g
Lab Code	ERDC240117-01	Sample Description	Soil
Sample Collected by	Lab Representative		
Analysis Period	October 2023 to December2023	Date of Sample Collection	16/12/2023

TEST RESUL

Sl. No.	Parameters		Unit	Sampling location				
				Son Barsi	Gadeva Village	Pipras village	Kohar village	Majkhard Village
1	pH		-	7.74	7.89	7.56	7.38	7.85
2	Electrical Conductivity at 25o C (1:2suspension.)		µmhos/cm	480	355	380	390	412
3	Sodium (as Na)		(mg/kg)	119	124	129	131	139
4	Water holding capacity		(%) by mass	30.8	32.8	28.9	30.2	31.5
5	Potassium (as K)		(kg/ha)	132	190	170	185	165
	Texture			Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam
6	Grain Size	Sand	(%) by mass)	55.4	56.5	55.2	54.1	54.5
		Clay	(%) by mass)	27.8	27.9	29.5	28.1	29.4
		Silt	(%) by mass)	16.8	15.6	15.3	17.8	16.1
7	Calcium (as Ca)		(mg/kg)	1023	2085	2155	2085	2045
8	Magnesium (as Mg)		(mg/kg)	502	554.6	590	514	531
9	Sodium Absorption Ration (SAR)		-	0.54	0.44	0.45	0.47	0.50
10	Cation Exchange Capacity (CEC)		(meq/100gm)	10.2	16.1	17.1	14.2	15.2
11	Available Phosphorus (as P)		Kg/ha	18.8	20.1	18.6	19.5	17.8

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CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS 1456

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Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mal Khurd & Patel Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit Inland Surface w	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madanaha Village	Tons/ River d/s of site near Dhadhuwa Village	Pond Dansati Village	Pond near Khodar Pahari
1	pH	-	5.5 -9.0	7.89	7.89	7.5	7.28	7.58	7.49
2	Temperature	°C	N.S	23.0	22.5	21.7	22.5	21.1	21.5
3	Conductivity	µmhos/cm	N.S	354	388	330	304	652	231
4	Chloride(as Cl)	mg/l	600	18	20	30.2	44.2	29.1	22.8
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	145	149	105	118	58.8	80.5
6	Total Hardness(as $CaCO_3$)	mg/l	N.S	154	158	109	128	81	85.5
7	Calcium (as Ca)	mg/l	N.S	32.1	32.9	27.1	31.9	20.2	18.2
8	Magnesium (as Mg)	mg/l	N.S	12.0	12.5	11.8	10.8	7.9	8.9
9	COD (as O2)	mg/l	N.S	14	16	14	15	47	44
10	BOD (3 days at 27°C)	mg/l	3	2.7	3.1	2.6	2.9	5.9	7.0
11	Dissolve Oxygen	mg/l	4	6.1	6.2	6.1	6.8	4.8	4.4
12	Total Dissolved Solid	mg/l	1500	244	248	178	198	384	130
13	Total Suspended Solid	mg/l	N.S	4.2	4.4	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	2.2	2.2	2.2	2.2	2.2	2.2
15	Phosphate (as P)	mg/l	N.S	0.23	0.30	0.26	0.45	0.31	0.28
16	Fluoride (as F)	mg/l	1.5	0.33	0.38	0.67	0.7	0.52	0.43

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	17/12/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mal Khurd & Patni Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231217-03	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	December 2023	Date of Sample Collection	16/12/2023

TEST RESULT

17	Sulphate (SO_4)	mg/l	400	17.0	16.9	28.1	34.8	30.1	18.4
18	Iron (as Fe)	mg/l	50	0.55	0.29	0.53	0.28	0.14	0.19
19	Nitrate (as NO_3)	mg/l	N.S	3.3	3.1	4.4	4.5	3.5	3.9
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Sodium (as Na)	mg/l	N.S	13.4	14.1	10.5	14.9	37	5.5
23	Potassium (as K)	mg/l	N.S	1.7	1.5	1.9	1.9	6	2.3
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.06
27	Zinc (as Zn)	mg/l	15	0.24	0.28	0.11	0.12	0.19	0.25
28	Total Coliform	MPN	<5000	4580	4280	1580	1910	3610	5740

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Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS 1458

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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TEST REPORT

Name of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	18/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patni Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231118-02	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	17/11/2023

TEST RESULT

S.No	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madaraka Village	Tons/ River d/s of site near Dhadhuva Village	Pond Daurati Village	Pond near Khodar Pahari
1	pH	-	6.5-8.5	7.70	7.24	7.89	7.58	7.84	7.48
2	Temperature	°C	N.S	22.2	22.7	22.1	20.2	22.1	22.1
3	Conductivity	µmhos/cm	N.S	367	374	388	368	369	389
4	Chloride(as Cl)	mg/l	600	18	17	29.8	23.1	28.1	28.6
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	138	142	105	117	64.8	49.2
6	Total Hardness(as $CaCO_3$)	mg/l	N.S	118	117	108.8	128	80.4	87.1
7	Calcium (as Ca)	mg/l	N.S	37.4	36.8	30.4	31.1	18.4	14.1
8	Magnesium (as Mg)	mg/l	N.S	12.4	13.1	11.1	13.4	7.9	8.9
9	COD (as O2)	mg/l	N.S	13	14	13	11	48	44
10	BOD (3 days at 27°C)	mg/l	3	5.7	8.0	5.5	5.8	8.0	7.6
11	Dissolve Oxygen	mg/l	4	6.2	6.4	6.2	6.1	4.8	4.8
12	Total Dissolved Solid	mg/l	1500	240	247	174	189	280	139
13	Total Suspended Solid	mg/l	N.S	4.8	4.7	4	5	11	8
14	Silicate (as SiO_2)	mg/l	N.S	5.4	5.8	5.7	5.9	5.8	5.5
15	Phosphate (as P)	mg/l	N.S	0.34	0.30	0.39	0.4	0.39	0.2
16	Fluoride (as F)	mg/l	1.5	0.34	0.38	0.37	0.48	0.8	0.49

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Advanced Environmental Testing And Research Lab P. Ltd.

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CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS 1459

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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/11/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patel Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	EMDC231118-02	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	November 2023	Date of Sample Collection	17/11/2023

TEST RESULT

17	Sulphate (SO_4)	mg/l	400	18.6	18.1	89.1	36.9	20.1	18.4
18	Iron (as Fe)	mg/l	50	0.36	0.37	0.33	0.26	0.14	0.19
19	Nitrate (as NO_3)	mg/l	N.S	3.0	2.2	4.2	4.8	2.4	2.7
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13.7	13.5	10	14	36	8
23	Potassium (as K)	mg/l	N.S	1.4	1.8	1.9	1.8	8	7.9
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.06	<0.05	<0.05	0.05
27	Zinc (as Zn)	mg/l	15	0.30	0.25	0.11	0.15	0.19	0.35
28	Total Coliform	MPN	<5000	4480	4330	1430	1660	3510	3980

AUTHORIZED SIGNATORY

//True Copy//

Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1Z8

1460

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II
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TEST REPORT

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mai Khurd & Patni Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	ERDC231015-01	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

S.No.	Parameters	Unit	Tolerance Limit IS:2296 CLASS C	Ganga river u/s near Intake Point (outside the study area)	Ganga river d/s of Intake Point Bijora (outside the study area)	Tons River u/s of site near Madamba Village	Tons/ River d/s of site near Dhadhuva Village	Pond Daraut Village	Pond near Khodar Pahari
1	pH	-	6.5 -8.5	7.89	7.80	7.82	7.3	7.5	7.4
2	Temperature	°C	N.S	24.5	24.1	24.3	23.4	23.4	23.9
3	Conductivity	µmhos/cm	N.S	280	282	282	288	540	285
4	Chloride(as Cl)	mg/l	600	18	18	68	62	78	28
5	Total Alkalinity (as $CaCO_3$)	mg/l	N.S	144	148	104	118	94	48
6	Total Hardness(as $CaCO_3$)	mg/l	N.S	120	124	108	124	80	56
7	Calcium (as Ca)	mg/l	N.S	32.9	30.1	28	30	18	12.4
8	Magnesium (as Mg)	mg/l	N.S	11.6	12.4	10	12	7.8	5.4
9	COD (as Oz)	mg/l	N.S	15	16	13	12	48	42
10	BOD (3 days at 27°C)	mg/l	3	2.0	2.0	2.0	2.7	3.1	7.2
11	Dissolve Oxygen	mg/l	4	5.4	6.6	5.5	5.4	4.4	4.6
12	Total Dissolved Solid	mg/l	1500	240	247	170	188	387	184
13	Total Suspended Solid	mg/l	N.S	4.5	4.6	4	6	11	8
14	Nitrite (as NO_2)	mg/l	N.S	2.1	2.2	2.2	2.1	2.4	2.1
15	Phosphate (as P)	mg/l	N.S	0.21	0.22	0.26	0.28	0.22	0.10
16	Fluoride (as F)	mg/l	1.5	0.36	0.36	0.36	0.66	0.51	0.41

AUTHORIZED SIGNATORY

//True Copy//

Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352 GSTIN: 23AAECA9188L1ZS 1461

Approved: by Occupational Health &Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories
Approved: by Ministry of Environment, Forest and Climate Change (MoEF&CC)

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Email:aelgwalior@gmail.comaetrl2016@gmail.com,aetrlcenter@gmail.com
Web: www.aetrl.com

Issue of test report	EQMS India Global Pvt. Ltd. United Plaza, No. 305, 3rd Floor, Plot No. 16, Rishabh Corporate Towers, Delhi, 110092	Date of receipt	15/10/2023
		Date of Issue	12/01/2024
Project Name	M/s Meja Urja Nigam Private Limited Village- Kohdar, Mal Khurd & Patel Dandi Tehsil-Meja, District-Prayagraj, State-Uttar Pradesh	Qty. of Sample	5 Liter
Lab Code	EMDC231015-01	Sample Description	Surface Water
Sample Collected by	Lab Representative		
Analysis Period	October 2023	Date of Sample Collection	14/10/2023

TEST RESULT

17	Sulphate (SO4)	mg/l	400	18.9	17.3	25	24	18	15
18	Iron (as Fe)	mg/l	40	0.89	0.84	0.82	0.26	0.14	0.19
19	Nitrate (as NO3)	mg/l	N.S	3.9	3.8	4.1	4.8	3.9	3.8
20	Total Chromium (as Cr)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Sodium (as Na)	mg/l	N.S	13.9	14.3	10	14	30	8
23	Potassium (as K)	mg/l	N.S	1.6	1.7	1.9	1.8	5	7.8
24	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lead (as Pb)	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
26	Copper (as Cu)	mg/l	1.5	<0.05	<0.05	0.09	<0.05	<0.05	0.08
27	Zinc (as Zn)	mg/l	15	0.22	0.18	0.11	0.15	0.19	0.58
28	Total Coliform	MPN	<5000	4230	4120	1460	1240	3450	2780

AUTHORIZED SIGNATORY

//True Copy//

	Air quality Meja Urja Nigam Pvt. LTD Jan 2024 to March 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.01.2024	83	47	10.5	17.2	<20	0.34
2	06.01.2024	67	38	14.4	13.3	<20	0.19
3	01.01.2024	77	44	11.9	16.2	<20	0.29
4	11.01.2024	53	30	8.2	11.8	<20	0.15
5	17.01.2024	60	34	10.2	12.9	<20	0.17
6	18.01.2024	68	39	10.8	12.2	<20	0.16
7	24.01.2024	74	42	9.5	17.9	<20	0.32
8	25.01.2024	82	47	11.7	15.1	<20	0.34
9	01.02.2024	60	34	9.2	12.2	<20	0.22
10	02.02.2024	90	51	13.6	15.9	<20	0.36
11	08.02.2024	76	43	12.7	17.7	<20	0.36
12	09.02.2024	82	47	11.2	14.2	<20	0.41
13	15.02.2024	92	52	10.6	15.4	<20	0.42
14	16.02.2024	77	44	9.9	16.7	<20	0.35
15	22.02.2024	89	51	12.5	17.9	<20	0.40
16	23.02.2024	73	42	12	16.9	<20	0.30
17	02.03.2024	92	52	11.2	17.2	<20	0.42
18	03.03.2024	67	38	12.7	11.9	<20	0.16
19	09.03.2024	82	47	10.9	17.1	<20	0.15
20	10.03.2024	73	42	12	18	<20	0.17
21	16.03.2024	79	45	10.5	16.2	<20	0.30
22	17.03.2024	92	52	12.6	15.2	<20	0.36
23	23.03.2024	91	52	14.4	18.3	28.0	0.42
24	24.03.2024	71	40	11.9	12.2	<20	0.29
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.01.2024	80	46	9.7	16.1	<20	0.33
2	06.01.2024	64	36	8.3	12.2	<20	0.18
3	01.01.2024	74	42	11.1	15.1	<20	0.28
4	11.01.2024	50	29	7.4	10.7	<20	0.14
5	17.01.2024	57	32	9.4	11.8	<20	0.16
6	18.01.2024	65	37	10	11.1	<20	0.15
7	24.01.2024	71	40	8.7	14.2	<20	0.20
8	25.01.2024	79	45	10.9	14	<20	0.33
9	01.02.2024	57	32	8.4	11.1	<20	0.21
10	02.02.2024	89	51	12.6	14.8	<20	0.35
11	08.02.2024	73	42	11.9	12.2	<20	0.15
12	09.02.2024	79	45	10.4	13.1	<20	0.22
13	15.02.2024	90	52	9.8	14.3	<20	0.30
14	16.02.2024	74	42	9.1	15.6	<20	0.34
15	22.02.2024	86	49	11.7	15.9	<20	0.32
16	23.02.2024	70	40	11.2	15.8	<20	0.29

17	02.03.2024	90	52	10.4	16.1	<20	0.32
18	03.03.2024	64	36	11.9	10.8	<20	0.15
19	09.03.2024	79	45	10.1	16	<20	0.14
20	10.03.2024	70	40	11.2	15.2	<20	0.16
21	16.03.2024	76	43	9.7	15.1	<20	0.29
22	17.03.2024	89	51	11.8	14.1	<20	0.30
23	23.03.2024	90	52	12.7	16.5	24.0	0.35
24	24.03.2024	68	39	11.1	11.1	<20	0.28

Patai Dandi village (AAQ-3)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43.2	8.8	12.2	<20	0.19
2	06.01.2024	60	34.1	7.4	11.2	<20	0.14
3	01.01.2024	70	39.8	8.3	10.8	<20	0.14
4	11.01.2024	46	26.1	6.5	10.2	<20	0.10
5	17.01.2024	53	30.1	8.5	11.8	<20	0.12
6	18.01.2024	61	34.7	9.1	11.1	<20	0.11
7	24.01.2024	67	38.1	7.8	11.2	<20	0.16
8	25.01.2024	75	42.6	9.6	14	<20	0.21
9	01.02.2024	53	30.1	7.5	11.1	<20	0.17
10	02.02.2024	82	46.6	9.4	13.1	<20	0.22
11	08.02.2024	69	39.2	8.6	12.2	<20	0.11
12	09.02.2024	75	42.6	9.5	13.1	<20	0.22
13	15.02.2024	83	47.2	8.9	13.8	<20	0.16
14	16.02.2024	70	39.8	8.2	12.5	<20	0.17
15	22.02.2024	82	46.6	9.1	12.1	<20	0.18
16	23.02.2024	66	37.5	8.4	11.6	<20	0.15
17	02.03.2024	81	46.1	9.5	14.1	<20	0.20
18	03.03.2024	60	34.1	8	11.2	<20	0.11
19	09.03.2024	75	42.6	9.2	13.1	<20	0.10
20	10.03.2024	66	37.5	8.6	10.3	<20	0.12
21	16.03.2024	72	40.9	8.8	10.9	<20	0.19
22	17.03.2024	83	47.2	9.4	14.1	<20	0.21
23	23.03.2024	84	47.8	10.1	14.2	<20	0.23
24	24.03.2024	64	36.4	9.2	11.1	<20	0.18

Rithaiya Village (AAQ-4)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	78	44	9.2	12	<20	0.16
2	06.01.2024	62	35	7.8	11	<20	0.13
3	01.01.2024	72	41	8.7	10.6	<20	0.14
4	11.01.2024	44	25	6.9	10	<20	0.11
5	17.01.2024	55	31	8.9	11.6	<20	0.12
6	18.01.2024	63	36	9.5	10.9	<20	0.11
7	24.01.2024	69	39	8.2	11	<20	0.16
8	25.01.2024	77	44	10	13.8	<20	0.18
9	01.02.2024	55	31	7.9	10.9	<20	0.17
10	02.02.2024	84	48	9.8	12.9	<20	0.18
11	08.02.2024	71	40	9	12	<20	0.11
12	09.02.2024	77	44	9.9	12.9	<20	0.14
13	15.02.2024	85	48	9.3	13.6	<20	0.16
14	16.02.2024	72	41	8.6	12.3	<20	0.17
15	22.02.2024	84	48	9.5	11.9	<20	0.18
16	23.02.2024	68	39	8.8	11.4	<20	0.15

17	02.03.2024	83	47	9.9	13.4	<20	0.17
18	03.03.2024	62	35	8.4	11	<20	0.11
19	09.03.2024	77	44	9.6	12.9	<20	0.12
20	10.03.2024	68	39	9	10.1	<20	0.12
21	16.03.2024	74	42	9.2	10.7	<20	0.19
22	17.03.2024	85	48	9.8	13.6	<20	0.18
23	23.03.2024	86	49	10.8	13.8	<20	0.19
24	24.03.2024	66	38	9.6	10.9	<20	0.18

Meja (AAQ-5)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	80	46	9	15.1	<20	0.21
2	06.01.2024	64	36	7.6	11.2	<20	0.16
3	01.01.2024	74	42	10.4	14.1	<20	0.13
4	11.01.2024	47	27	6.7	10.4	<20	0.12
5	17.01.2024	57	32	8.7	10.8	<20	0.14
6	18.01.2024	65	37	9.3	10.5	<20	0.13
7	24.01.2024	71	40	8	13.2	<20	0.18
8	25.01.2024	79	45	10.2	13	<20	0.17
9	01.02.2024	57	32	7.7	10.5	<20	0.19
10	02.02.2024	90	51	11.9	13.8	<20	0.13
11	08.02.2024	73	42	11.2	11.2	<20	0.13
12	09.02.2024	79	45	9.7	12.1	<20	0.20
13	15.02.2024	90	51	9.1	13.3	<20	0.18
14	16.02.2024	74	42	8.4	14.6	<20	0.14
15	22.02.2024	86	49	11	14.9	<20	0.13
16	23.02.2024	89	51	10.5	14.8	<20	0.17
17	02.03.2024	91	52	9.7	15.1	<20	0.19
18	03.03.2024	64	36	11.2	10.5	<20	0.13
19	09.03.2024	79	45	9.4	15	<20	0.12
20	10.03.2024	70	40	10.5	14.2	<20	0.14
21	16.03.2024	76	43	9	14.1	<20	0.19
22	17.03.2024	89	51	11.1	13.1	<20	0.22
23	23.03.2024	89	52	12.4	15.5	<20	0.23
24	24.03.2024	68	39	10.4	10.6	<20	0.19

Son Barsi (AAQ-6)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	74	42	9.1	12.4	<20	0.16
2	06.01.2024	58	33	7.6	10.4	<20	0.11
3	01.01.2024	68	39	8.5	10	<20	0.11
4	11.01.2024	44	25	6.5	9	<20	0.09
5	17.01.2024	51	29	8.7	11	<20	0.09
6	18.01.2024	59	34	9.3	10.3	<20	0.11
7	24.01.2024	65	37	8	10.4	<20	0.13
8	25.01.2024	73	42	9.8	13.2	<20	0.18
9	01.02.2024	51	29	7.7	10.3	<20	0.14
10	02.02.2024	80	46	9.6	12.3	<20	0.19
11	08.02.2024	67	38	8.8	11.4	<20	0.12
12	09.02.2024	73	42	9.7	12.3	<20	0.19
13	15.02.2024	81	46	9.1	13	<20	0.13
14	16.02.2024	68	39	8.4	11.7	<20	0.14
15	22.02.2024	80	46	9.3	11.3	<20	0.15
16	23.02.2024	64	36	8.6	10.8	<20	0.12

17	02.03.2024	79	45	9.7	13.3	<20	0.17
18	03.03.2024	58	33	8.2	10.4	<20	0.14
19	09.03.2024	73	42	9.4	12.3	<20	0.10
20	10.03.2024	64	36	8.8	9.5	<20	0.09
21	16.03.2024	70	40	9	10.1	<20	0.16
22	17.03.2024	81	46	9.6	13.3	<20	0.18
23	23.03.2024	82	47	10.3	13.4	<20	0.20
24	24.03.2024	62	35	9.4	10.3	<20	0.15

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43	8.8	12.2	<20	0.14
2	06.01.2024	60	34	7.4	11.2	<20	0.12
3	01.01.2024	70	40	8.3	10.8	<20	0.13
4	11.01.2024	46	26	6.3	10.3	<20	0.11
5	17.01.2024	53	30	8.5	11.8	<20	0.15
6	18.01.2024	61	35	9.1	11.1	<20	0.13
7	24.01.2024	67	38	7.8	11.2	<20	0.11
8	25.01.2024	75	43	9.6	14	<20	0.16
9	01.02.2024	53	30	7.5	11.1	<20	0.12
10	02.02.2024	82	47	9.4	13.1	<20	0.12
11	08.02.2024	69	39	8.6	12.2	<20	0.14
12	09.02.2024	75	43	9.5	13.1	<20	0.14
13	15.02.2024	83	47	8.9	13.8	<20	0.11
14	16.02.2024	70	40	8.2	12.5	<20	0.12
15	22.02.2024	82	47	9.1	12.1	<20	0.13
16	23.02.2024	66	38	8.4	11.6	<20	0.11
17	02.03.2024	81	46	9.5	14.1	<20	0.15
18	03.03.2024	60	34	8	11.2	<20	0.12
19	09.03.2024	75	43	9.2	13.1	<20	0.12
20	10.03.2024	66	38	8.6	10.3	<20	0.13
21	16.03.2024	72	41	8.8	10.9	<20	0.14
22	17.03.2024	82	47	9.4	14.1	<20	0.16
23	23.03.2024	83	47	10.1	14.2	<20	0.16
24	24.03.2024	64	36	9.2	11.1	<20	0.13

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.01.2024	76	43	8.5	11.8	<20	0.15
2	06.01.2024	60	34	7.1	10.8	<20	0.13
3	01.01.2024	70	40	8	10.4	<20	0.14
4	11.01.2024	46	26	5.9	10.1	<20	0.10
5	17.01.2024	53	30	8.2	11.4	<20	0.16
6	18.01.2024	61	35	8.8	10.7	<20	0.14
7	24.01.2024	67	38	7.5	10.8	<20	0.12
8	25.01.2024	75	43	9.3	13.6	<20	0.17
9	01.02.2024	53	30	7.2	10.7	<20	0.13
10	02.02.2024	82	47	9.1	12.7	<20	0.13
11	08.02.2024	69	39	8.3	11.8	<20	0.15
12	09.02.2024	75	43	9.2	12.7	<20	0.15
13	15.02.2024	83	47	8.6	13.4	<20	0.12
14	16.02.2024	70	40	7.9	12.1	<20	0.13
15	22.02.2024	82	47	8.8	11.7	<20	0.14
16	23.02.2024	66	38	8.1	11.2	<20	0.12
17	02.03.2024	81	46	9.2	13.7	<20	0.16
18	03.03.2024	60	34	7.7	10.8	<20	0.13
19	09.03.2024	75	43	8.9	12.7	<20	0.13

20	10.03.2024	66	38	8.3	10.5	<20	0.14
21	16.03.2024	72	41	8.5	10.6	<20	0.15
22	17.03.2024	83	47	9.1	13.7	<20	0.17
23	23.03.2024	87	50	9.8	13.8	<20	0.17
24	24.03.2024	64	36	8.9	10.7	<20	0.14
Kohrar Village (AAQ-9)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.01.2024	79	45	9.4	12.7	<20	0.15
2	06.01.2024	63	36	8	11.7	<20	0.12
3	01.01.2024	73	41	8.9	11.6	<20	0.11
4	11.01.2024	48	27	6.5	11.3	<20	0.09
5	17.01.2024	56	32	9.1	12.3	<20	0.13
6	18.01.2024	64	36	9.7	11.6	<20	0.12
7	24.01.2024	70	40	8.4	11.7	<20	0.10
8	25.01.2024	78	44	10.2	14.5	<20	0.12
9	01.02.2024	56	32	8.1	11.6	<20	0.11
10	02.02.2024	85	48	10	13.6	<20	0.12
11	08.02.2024	72	41	9.2	12.7	<20	0.13
12	09.02.2024	78	44	10.1	13.6	<20	0.11
13	15.02.2024	86	49	9.5	14.3	<20	0.10
14	16.02.2024	73	41	8.8	13.0	<20	0.11
15	22.02.2024	85	48	9.7	12.6	<20	0.12
16	23.02.2024	69	39	9	12.1	<20	0.09
17	02.03.2024	84	48	10.1	14.1	<20	0.11
18	03.03.2024	63	36	8.6	11.7	<20	0.12
19	09.03.2024	78	44	9.8	13.6	<20	0.10
20	10.03.2024	69	39	9.2	10.8	<20	0.12
21	16.03.2024	75	43	9.4	11.4	<20	0.13
22	17.03.2024	86	49	10	14.3	<20	0.12
23	23.03.2024	87	49	11	14.5	<20	0.13
24	24.03.2024	67	38	9.8	11.6	<20	0.12
Bhendewara Village (AAQ-10)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.01.2024	76	43	8.7	11.9	<20	0.13
2	06.01.2024	60	43	7.3	10.9	<20	0.15
3	01.01.2024	70	43	8.2	11.1	<20	0.14
4	11.01.2024	45	43	6.3	10.9	<20	0.09
5	17.01.2024	53	43	8.4	11.5	<20	0.16
6	18.01.2024	61	43	9	11.2	<20	0.15
7	24.01.2024	67	43	7.7	10.9	<20	0.13
8	25.01.2024	75	43	9.5	13.7	<20	0.15
9	01.02.2024	53	43	7.4	10.9	<20	0.14
10	02.02.2024	82	43	9.3	12.8	<20	0.15
11	08.02.2024	69	43	8.5	11.9	<20	0.16
12	09.02.2024	75	43	9.4	12.8	<20	0.14
13	15.02.2024	83	43	8.8	13.5	<20	0.13
14	16.02.2024	70	43	8.1	12.2	<20	0.14
15	22.02.2024	82	43	9	11.8	<20	0.15
16	23.02.2024	66	43	8.3	11.3	<20	0.12
17	02.03.2024	81	43	9.4	13.3	<20	0.14
18	03.03.2024	60	43	7.9	10.9	<20	0.15
19	09.03.2024	75	43	9.1	12.8	<20	0.13
20	10.03.2024	66	43	8.5	10.9	<20	0.15
21	16.03.2024	72	43	8.7	11.2	<20	0.16
22	17.03.2024	83	43	9.3	13.5	<20	0.15

23	23.03.2024	84	43	10.3	13.7	<20	0.16
24	24.03.2024	64	49	9.1	11.2	<20	0.15

	Air quality Meja Urja Nigam Pvt. LTD April 2024 to June 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.04.2024	78	44	9.7	16.4	<20	0.32
2	06.04.2024	62	35	13.6	12.5	<20	0.17
3	04.04.2024	72	41	11.1	15.4	<20	0.27
4	11.04.2024	48	27	7.4	11	<20	0.13
5	17.04.2024	55	31	9.4	12.1	<20	0.15
6	18.04.2024	63	36	10	11.4	<20	0.14
7	24.04.2024	69	39	8.7	17.1	<20	0.30
8	25.04.2024	77	44	10.9	14.3	<20	0.32
9	01.05.2024	55	31	8.4	11.4	<20	0.20
10	02.05.2024	88	50	12.8	15.1	<20	0.34
11	08.05.2024	71	40	11.9	16.9	<20	0.34
12	09.05.2024	77	44	10.4	13.4	<20	0.39
13	15.05.2024	90	51	9.8	14.6	<20	0.40
14	16.05.2024	72	41	9.1	15.9	<20	0.33
15	22.05.2024	84	48	11.7	17.1	<20	0.38
16	23.05.2024	68	39	11.2	16.1	<20	0.28
17	02.06.2024	90	51	10.4	16.4	<20	0.40
18	03.06.2024	62	35	11.9	11.1	<20	0.14
19	09.06.2024	77	44	10.1	16.3	<20	0.13
20	10.06.2024	68	39	11.2	17.2	<20	0.15
21	16.06.2024	74	42	9.7	15.4	<20	0.28
22	17.06.2024	87	50	11.8	14.4	<20	0.34
23	23.06.2024	91	52	13.6	17.5	28.0	0.40
24	24.06.2024	66	38	11.1	11.4	<20	0.27
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.04.2024	77	44	8.9	15.3	<20	0.31
2	02.04.2024	61	35	7.5	11.4	<20	0.16
3	08.04.2024	71	40	10.3	14.3	<20	0.26
4	**09.04.2024**	47	27	6.6	9.9	<20	0.12
5	15.04.2024	54	31	8.6	11	<20	0.14
6	16.04.2024	62	35	9.2	10.3	<20	0.13
7	22.04.2024	68	39	7.9	13.4	<20	0.18
8	23.04.2024	76	43	10.1	13.2	<20	0.31
9	02.05.2024	54	31	7.6	10.3	<20	0.19
10	03.05.2024	87	50	11.8	14	<20	0.33
11	09.05.2024	70	40	11.1	11.4	<20	0.13
12	10.05.2024	76	43	9.6	12.3	<20	0.20
13	16.05.2024	89	51	9	13.5	<20	0.28
14	17.05.2024	71	40	8.3	14.8	<20	0.32
15	23.05.2024	83	47	10.9	15.1	<20	0.30
16	24.05.2024	67	38	10.4	15	<20	0.27

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17	02.06.2024	89	51	9.6	15.3	<20	0.30
18	03.06.2024	61	35	11.1	10	<20	0.13
19	09.06.2024	76	43	9.3	15.2	<20	0.12
20	10.06.2024	67	38	10.4	14.4	<20	0.14
21	16.06.2024	73	42	8.9	14.3	<20	0.27
22	17.06.2024	86	49	11	13.3	<20	0.28
23	23.06.2024	89	51	11.9	15.7	24.0	0.33
24	24.06.2024	65	37	10.3	10.3	<20	0.26
Patai Dandi village (AAQ-3)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.04.2024	73	41.5	8	11.4	<20	0.18
2	06.04.2024	57	32.4	6.6	10.4	<20	0.13
3	04.04.2024	67	38.1	7.5	10	<20	0.13
4	11.04.2024	43	24.4	5.7	9.4	<20	0.09
5	17.04.2024	50	28.4	7.7	11	<20	0.11
6	18.04.2024	58	32.9	8.3	10.3	<20	0.10
7	24.04.2024	64	36.4	7	10.4	<20	0.15
8	25.04.2024	72	40.9	8.8	13.2	<20	0.20
9	01.05.2024	50	28.4	6.7	10.3	<20	0.16
10	02.05.2024	79	44.9	8.6	12.3	<20	0.21
11	08.05.2024	66	37.5	7.8	11.4	<20	0.10
12	09.05.2024	72	40.9	8.7	12.3	<20	0.21
13	15.05.2024	80	45.5	8.1	13	<20	0.15
14	16.05.2024	67	38.1	7.4	11.7	<20	0.16
15	22.05.2024	79	44.9	8.3	11.3	<20	0.17
16	23.05.2024	63	35.8	7.6	10.8	<20	0.14
17	02.06.2024	78	44.3	8.7	13.3	<20	0.19
18	03.06.2024	57	32.4	7.2	10.4	<20	0.10
19	09.06.2024	72	40.9	8.4	12.3	<20	0.09
20	10.06.2024	63	35.8	7.8	9.5	<20	0.11
21	16.06.2024	69	39.2	8	10.1	<20	0.18
22	17.06.2024	80	45.5	8.6	13.3	<20	0.20
23	23.06.2024	81	46.1	9.3	13.4	<20	0.22
24	24.06.2024	61	34.7	8.4	10.3	<20	0.17
Rithaiya Village (AAQ-4)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.04.2024	78	44	8.4	11.5	<20	0.15
2	02.04.2024	62	35	7	10.5	<20	0.12
3	08.04.2024	72	41	7.9	10.1	<20	0.13
4	**09.04.2024**	44	25	6.1	9.5	<20	0.10
5	15.04.2024	55	31	8.1	11.1	<20	0.11
6	16.04.2024	63	36	8.7	10.4	<20	0.10
7	22.04.2024	69	39	7.4	10.5	<20	0.15
8	23.04.2024	77	44	9.2	13.3	<20	0.17
9	02.05.2024	55	31	7.1	10.4	<20	0.16
10	03.05.2024	84	48	9	12.4	<20	0.17
11	09.05.2024	71	40	8.2	11.5	<20	0.10
12	10.05.2024	77	44	9.1	12.4	<20	0.13
13	16.05.2024	85	48	8.5	13.1	<20	0.15
14	17.05.2024	72	41	7.8	11.8	<20	0.16
15	23.05.2024	84	48	8.7	11.4	<20	0.17
16	24.05.2024	68	38	8	10.9	<20	0.14

17	02.06.2024	83	47	9.1	12.9	<20	0.16
18	03.06.2024	62	35	7.6	10.5	<20	0.10
19	09.06.2024	77	44	8.8	12.4	<20	0.11
20	10.06.2024	68	38	8.2	9.6	<20	0.11
21	16.06.2024	74	42	8.4	10.2	<20	0.18
22	17.06.2024	85	48	9	13.1	<20	0.17
23	23.06.2024	86	49	10	13.3	<20	0.18
24	24.06.2024	66	37	8.8	10.4	<20	0.17

Meja (AAQ-5)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.04.2024	77	44	8.5	14.8	<20	0.20
2	06.04.2024	61	35	7.1	10.9	<20	0.15
3	04.04.2024	71	40	9.9	13.8	<20	0.12
4	11.04.2024	44	25	6.2	10.1	<20	0.11
5	17.04.2024	54	31	8.2	10.5	<20	0.13
6	18.04.2024	62	35	8.8	10.2	<20	0.12
7	24.04.2024	68	39	7.5	12.9	<20	0.17
8	25.04.2024	76	43	9.7	12.7	<20	0.16
9	01.05.2024	54	31	7.2	10.2	<20	0.18
10	02.05.2024	87	50	11.4	13.5	<20	0.12
11	08.05.2024	70	40	10.7	10.9	<20	0.12
12	09.05.2024	76	43	9.2	11.8	<20	0.19
13	15.05.2024	89	51	8.6	13	<20	0.17
14	16.05.2024	71	40	7.9	14.3	<20	0.13
15	22.05.2024	83	47	10.5	14.6	<20	0.12
16	23.05.2024	67	38	10	14.5	<20	0.16
17	02.06.2024	89	51	9.2	14.8	<20	0.18
18	03.06.2024	61	35	10.7	10.2	<20	0.12
19	09.06.2024	76	43	8.9	14.7	<20	0.11
20	10.06.2024	67	38	10	13.9	<20	0.13
21	16.06.2024	73	42	8.5	13.8	<20	0.18
22	17.06.2024	86	49	10.6	12.8	<20	0.21
23	23.06.2024	89	51	11.9	15.2	<20	0.22
24	24.06.2024	65	37	9.9	10.3	<20	0.18

Son Barsi (AAQ-6)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.04.2024	71	40	8.6	12.1	<20	0.17
2	02.04.2024	55	31	7.1	10.1	<20	0.12
3	08.04.2024	65	37	8	9.7	<20	0.12
4	**09.04.2024**	41	23	6	8.7	<20	0.10
5	15.04.2024	48	27	8.2	10.7	<20	0.10
6	16.04.2024	56	32	8.8	10	<20	0.12
7	22.04.2024	62	35	7.5	10.1	<20	0.14
8	23.04.2024	70	40	9.3	12.9	<20	0.19
9	02.05.2024	48	27	7.2	10	<20	0.15
10	03.05.2024	77	44	9.1	12	<20	0.20
11	09.05.2024	64	36	8.3	11.1	<20	0.13
12	10.05.2024	70	40	9.2	12	<20	0.20
13	16.05.2024	78	44	8.6	12.7	<20	0.14
14	17.05.2024	65	37	7.9	11.4	<20	0.15
15	23.05.2024	77	44	8.8	11	<20	0.16
16	24.05.2024	61	35	8.1	10.5	<20	0.13

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17	02.06.2024	76	43	9.2	13	<20	0.18
18	03.06.2024	55	31	7.7	10.1	<20	0.15
19	09.06.2024	70	40	8.9	12	<20	0.11
20	10.06.2024	61	35	8.3	9.2	<20	0.10
21	16.06.2024	67	38	8.5	9.8	<20	0.17
22	17.06.2024	78	44	9.1	13	<20	0.19
23	23.06.2024	79	45	9.8	13.1	<20	0.21
24	24.06.2024	59	34	8.9	10	<20	0.16

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.04.2024	73	42	8.3	11.9	<20	0.15
2	06.04.2024	57	32	6.9	10.9	<20	0.13
3	04.04.2024	67	38	7.8	10.5	<20	0.14
4	11.04.2024	43	25	5.8	10	<20	0.12
5	17.04.2024	50	29	8	11.5	<20	0.16
6	18.04.2024	58	33	8.6	10.8	<20	0.14
7	24.04.2024	64	36	7.3	10.9	<20	0.12
8	25.04.2024	72	41	9.1	13.7	<20	0.17
9	01.05.2024	50	29	7	10.8	<20	0.13
10	02.05.2024	79	45	8.9	12.8	<20	0.13
11	08.05.2024	66	38	8.1	11.9	<20	0.15
12	09.05.2024	72	41	9	12.8	<20	0.15
13	15.05.2024	80	46	8.4	13.5	<20	0.12
14	16.05.2024	67	38	7.7	12.2	<20	0.13
15	22.05.2024	79	45	8.6	11.8	<20	0.14
16	23.05.2024	63	36	7.9	11.3	<20	0.12
17	02.06.2024	78	44	9	13.8	<20	0.16
18	03.06.2024	57	32	7.5	10.9	<20	0.13
19	09.06.2024	72	41	8.7	12.8	<20	0.13
20	10.06.2024	63	36	8.1	10	<20	0.14
21	16.06.2024	69	39	8.3	10.6	<20	0.15
22	17.06.2024	79	45	8.9	13.8	<20	0.17
23	23.06.2024	80	46	9.6	13.9	<20	0.17
24	24.06.2024	61	35	8.7	10.8	<20	0.14

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.04.2024	73	42	8.2	11.3	<20	0.14
2	02.04.2024	57	32	6.8	10.3	<20	0.12
3	08.04.2024	67	38	7.7	9.9	<20	0.13
4	**09.04.2024**	43	25	5.6	9.6	<20	0.09
5	15.04.2024	50	29	7.9	10.9	<20	0.15
6	16.04.2024	58	33	8.5	10.2	<20	0.13
7	22.04.2024	64	36	7.2	10.3	<20	0.11
8	23.04.2024	72	41	9	13.1	<20	0.16
9	02.05.2024	50	29	6.9	10.2	<20	0.12
10	03.05.2024	79	45	8.8	12.2	<20	0.12
11	09.05.2024	66	38	8	11.3	<20	0.14
12	10.05.2024	72	41	8.9	12.2	<20	0.14
13	16.05.2024	80	46	8.3	12.9	<20	0.11
14	17.05.2024	67	38	7.6	11.6	<20	0.12
15	23.05.2024	79	45	8.5	11.2	<20	0.13
16	24.05.2024	63	36	7.8	10.7	<20	0.11
17	02.06.2024	78	44	8.9	13.2	<20	0.15
18	03.06.2024	57	32	7.4	10.3	<20	0.12
19	09.06.2024	72	41	8.6	12.2	<20	0.12

20	10.06.2024	63	36	8	10	<20	0.13
21	16.06.2024	69	39	8.2	10.1	<20	0.14
22	17.06.2024	80	46	8.8	13.2	<20	0.16
23	23.06.2024	84	48	9.5	13.3	<20	0.16
24	24.06.2024	61	35	8.6	10.2	<20	0.13
Kohrar Village (AAQ-9)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.04.2024	76	43	8.9	12.4	<20	0.16
2	06.04.2024	60	34	7.5	11.4	<20	0.13
3	04.04.2024	70	40	8.4	11.3	<20	0.12
4	11.04.2024	45	26	6	11.0	<20	0.10
5	17.04.2024	53	30	8.6	12.0	<20	0.14
6	18.04.2024	61	35	9.2	11.3	<20	0.13
7	24.04.2024	67	38	7.9	11.4	<20	0.11
8	25.04.2024	75	43	9.7	14.2	<20	0.13
9	01.05.2024	53	30	7.6	11.3	<20	0.12
10	02.05.2024	82	47	9.5	13.3	<20	0.13
11	08.05.2024	69	39	8.7	12.4	<20	0.14
12	09.05.2024	75	43	9.6	13.3	<20	0.12
13	15.05.2024	83	47	9	14.0	<20	0.11
14	16.05.2024	70	40	8.3	12.7	<20	0.12
15	22.05.2024	82	47	9.2	12.3	<20	0.13
16	23.05.2024	66	38	8.5	11.8	<20	0.10
17	02.06.2024	81	46	9.6	13.8	<20	0.12
18	03.06.2024	60	34	8.1	11.4	<20	0.13
19	09.06.2024	75	43	9.3	13.3	<20	0.11
20	10.06.2024	66	38	8.7	10.5	<20	0.13
21	16.06.2024	72	41	8.9	11.1	<20	0.14
22	17.06.2024	83	47	9.5	14.0	<20	0.13
23	23.06.2024	84	48	10.5	14.2	<20	0.14
24	24.06.2024	64	36	9.3	11.3	<20	0.13
Bhendewara Village (AAQ-10)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.04.2024	73	42	7.7	11.7	<20	0.12
2	02.04.2024	57	32	6.3	10.7	<20	0.14
3	08.04.2024	67	38	7.2	10.9	<20	0.13
4	**09.04.2024**	42	24	5.3	10.7	<20	0.08
5	15.04.2024	50	29	7.4	11.3	<20	0.15
6	16.04.2024	58	33	8	11.0	<20	0.14
7	22.04.2024	64	36	6.7	10.7	<20	0.12
8	23.04.2024	72	41	8.5	13.5	<20	0.14
9	02.05.2024	50	29	6.4	10.7	<20	0.13
10	03.05.2024	79	45	8.3	12.6	<20	0.14
11	09.05.2024	66	38	7.5	11.7	<20	0.15
12	10.05.2024	72	41	8.4	12.6	<20	0.13
13	16.05.2024	80	46	7.8	13.3	<20	0.12
14	17.05.2024	67	38	7.1	12.0	<20	0.13
15	23.05.2024	79	45	8	11.6	<20	0.14
16	24.05.2024	63	36	7.3	11.1	<20	0.11
17	02.06.2024	78	44	8.4	13.1	<20	0.13
18	03.06.2024	57	32	6.9	10.7	<20	0.14
19	09.06.2024	72	41	8.1	12.6	<20	0.12
20	10.06.2024	63	36	7.5	10.7	<20	0.14
21	16.06.2024	69	39	7.7	11.0	<20	0.15
22	17.06.2024	80	46	8.3	13.3	<20	0.14

23	23.06.2024	81	46	9.3	13.5	<20	0.15
24	24.06.2024	61	35	8.1	11.0	<20	0.14

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	Air quality Meja Urja Nigam Pvt. LTD July 2024 to Sept 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.07.2024	75	43	8.9	15.6	<20	0.28
2	04.07.2024	59	34	12.8	11.7	<20	0.13
3	10.07.2024	69	39	10.3	14.6	<20	0.23
4	11.07.2024	45	26	6.6	10.2	<20	0.09
5	17.07.2024	52	30	8.6	11.3	<20	0.11
6	18.07.2024	60	34	9.2	10.6	<20	0.10
7	24.07.2024	66	38	7.9	16.3	<20	0.26
8	25.07.2024	74	42	10.1	13.5	<20	0.28
9	01.08.2024	52	30	7.6	10.6	<20	0.16
10	02.08.2024	85	48	12	14.3	<20	0.30
11	08.08.2024	68	39	11.1	16.1	<20	0.30
12	09.08.2024	74	42	9.6	12.6	<20	0.35
13	15.08.2024	87	50	9	13.8	<20	0.36
14	16.08.2024	69	39	8.3	15.1	<20	0.29
15	22.08.2024	81	46	10.9	16.3	<20	0.34
16	23.08.2024	65	37	10.4	15.3	<20	0.24
17	02.09.2024	87	50	9.6	15.6	<20	0.36
18	03.09.2024	59	34	11.1	10.3	<20	0.10
19	09.09.2024	74	42	9.3	15.5	<20	0.09
20	10.09.2024	65	37	10.4	16.4	<20	0.11
21	16.09.2024	71	40	8.9	14.6	<20	0.24
22	17.09.2024	84	48	11	13.6	<20	0.30
23	23.09.2024	88	50	12.8	16.7	28.0	0.36
24	24.09.2024	63	36	10.3	10.6	<20	0.23
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	74	42	8.1	14.5	<20	0.27
2	02.07.2024	58	33	6.7	10.6	<20	0.12
3	09.07.2024	68	39	9.5	13.5	<20	0.22
4	10.07.2024	44	25	5.8	9.1	<20	0.08
5	16.07.2024	51	29	7.8	10.2	<20	0.10
6	17.07.2024	59	34	8.4	9.5	<20	0.09
7	25.07.2024	65	37	7.1	12.6	<20	0.14
8	26.07.2024	73	42	9.3	12.4	<20	0.27
9	02.08.2024	51	29	6.8	9.5	<20	0.15
10	03.08.2024	84	48	11	13.2	<20	0.29
11	07.08.2024	67	38	10.3	10.6	<20	0.09
12	08.08.2024	73	42	8.8	11.5	<20	0.16
13	14.08.2024	86	49	8.2	12.7	<20	0.24
14	15.08.2024	68	39	7.5	14	<20	0.28
15	22.08.2024	80	46	10.1	14.3	<20	0.26
16	23.08.2024	64	36	9.6	14.2	<20	0.23
17	03.09.2024	86	49	8.8	14.5	<20	0.26

18	04.09.2024	58	33	10.3	9.2	<20	0.09
19	10.09.2024	73	42	8.5	14.4	<20	0.08
20	11.09.2024	64	36	9.6	13.6	<20	0.10
21	17.09.2024	70	40	8.1	13.5	<20	0.23
22	18.09.2024	83	47	10.2	12.5	<20	0.24
23	24.09.2024	86	49	11.1	14.9	24.0	0.29
24	25.09.2024	62	35	9.5	9.5	<20	0.22
Patai Dandi village (AAQ-3)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	70	39.8	7.2	10.6	<20	0.14
2	04.07.2024	54	30.7	5.8	9.6	<20	0.09
3	10.07.2024	64	36.4	6.7	9.2	<20	0.09
4	11.07.2024	40	22.7	4.9	8.6	<20	0.05
5	17.07.2024	47	26.7	6.9	10.2	<20	0.07
6	18.07.2024	55	31.2	7.5	9.5	<20	0.06
7	24.07.2024	61	34.7	6.2	9.6	<20	0.11
8	25.07.2024	69	39.2	8	12.4	<20	0.16
9	01.08.2024	47	26.7	5.9	9.5	<20	0.12
10	02.08.2024	76	43.2	7.8	11.5	<20	0.17
11	08.08.2024	63	35.8	7	10.6	<20	0.06
12	09.08.2024	69	39.2	7.9	11.5	<20	0.17
13	15.08.2024	77	43.8	7.3	12.2	<20	0.11
14	16.08.2024	64	36.4	6.6	10.9	<20	0.12
15	22.08.2024	76	43.2	7.5	10.5	<20	0.13
16	23.08.2024	60	34.1	6.8	10	<20	0.10
17	02.09.2024	75	42.6	7.9	12.5	<20	0.15
18	03.09.2024	54	30.7	6.4	9.6	<20	0.06
19	09.09.2024	69	39.2	7.6	11.5	<20	0.05
20	10.09.2024	60	34.1	7	8.7	<20	0.07
21	16.09.2024	66	37.5	7.2	9.3	<20	0.14
22	17.09.2024	77	43.8	7.8	12.5	<20	0.16
23	23.09.2024	78	44.3	8.5	12.6	<20	0.18
24	24.09.2024	58	32.9	7.6	9.5	<20	0.13
Rithaiya Village (AAQ-4)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	75	42	7.6	10.7	<20	0.13
2	02.07.2024	59	33	6.2	9.7	<20	0.10
3	09.07.2024	69	39	7.1	9.3	<20	0.11
4	10.07.2024	41	23	5.3	8.7	<20	0.08
5	16.07.2024	52	29	7.3	10.3	<20	0.09
6	17.07.2024	60	34	7.9	9.6	<20	0.08
7	25.07.2024	66	37	6.6	9.7	<20	0.13
8	26.07.2024	74	42	8.4	12.5	<20	0.15
9	02.08.2024	52	29	6.3	9.6	<20	0.14
10	03.08.2024	81	46	8.2	11.6	<20	0.15
11	07.08.2024	68	38	7.4	10.7	<20	0.08
12	08.08.2024	74	42	8.3	11.6	<20	0.11
13	14.08.2024	82	46	7.7	12.3	<20	0.13
14	15.08.2024	69	39	7	11	<20	0.14
15	22.08.2024	81	46	7.9	10.6	<20	0.15
16	23.08.2024	65	37	7.2	10.1	<20	0.12
17	03.09.2024	80	45	8.3	12.1	<20	0.14

18	04.09.2024	59	33	6.8	9.7	<20	0.08
19	10.09.2024	74	42	8	11.6	<20	0.09
20	11.09.2024	65	37	7.4	8.8	<20	0.09
21	17.09.2024	71	40	7.6	9.4	<20	0.16
22	18.09.2024	82	46	8.2	12.3	<20	0.15
23	24.09.2024	83	47	9.2	12.5	<20	0.16
24	25.09.2024	63	36	8	9.6	<20	0.15
Meja (AAQ-5)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	74	42	7.7	14	<20	0.18
2	04.07.2024	58	33	6.3	10.1	<20	0.13
3	10.07.2024	68	39	9.1	13	<20	0.10
4	11.07.2024	41	23	5.4	9.3	<20	0.09
5	17.07.2024	51	29	7.4	9.7	<20	0.11
6	18.07.2024	59	34	8	9.4	<20	0.10
7	24.07.2024	65	37	6.7	12.1	<20	0.15
8	25.07.2024	73	42	8.9	11.9	<20	0.14
9	01.08.2024	51	29	6.4	9.4	<20	0.16
10	02.08.2024	84	48	10.6	12.7	<20	0.10
11	08.08.2024	67	38	9.9	10.1	<20	0.10
12	09.08.2024	73	42	8.4	11	<20	0.17
13	15.08.2024	86	49	7.8	12.2	<20	0.15
14	16.08.2024	68	39	7.1	13.5	<20	0.11
15	22.08.2024	80	46	9.7	13.8	<20	0.10
16	23.08.2024	64	36	9.2	13.7	<20	0.14
17	02.09.2024	86	49	8.4	14	<20	0.16
18	03.09.2024	58	33	9.9	9.4	<20	0.10
19	09.09.2024	73	42	8.1	13.9	<20	0.09
20	10.09.2024	64	36	9.2	13.1	<20	0.11
21	16.09.2024	70	40	7.7	13	<20	0.16
22	17.09.2024	83	47	9.8	12	<20	0.19
23	23.09.2024	86	49	11.1	14.4	<20	0.20
24	24.09.2024	62	35	9.1	9.5	<20	0.16
Son Barsi (AAQ-6)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	68	39	7.8	11.3	<20	0.15
2	02.07.2024	52	30	6.3	9.3	<20	0.10
3	09.07.2024	62	35	7.2	8.9	<20	0.10
4	10.07.2024	38	22	5.2	7.9	<20	0.08
5	16.07.2024	45	26	7.4	9.9	<20	0.08
6	17.07.2024	53	30	8	9.2	<20	0.10
7	25.07.2024	59	34	6.7	9.3	<20	0.12
8	26.07.2024	67	38	8.5	12.1	<20	0.17
9	02.08.2024	45	26	6.4	9.2	<20	0.13
10	03.08.2024	74	42	8.3	11.2	<20	0.18
11	07.08.2024	61	35	7.5	10.3	<20	0.11
12	08.08.2024	67	38	8.4	11.2	<20	0.18
13	14.08.2024	75	43	7.8	11.9	<20	0.12
14	15.08.2024	62	35	7.1	10.6	<20	0.13
15	22.08.2024	74	42	8	10.2	<20	0.14
16	23.08.2024	58	33	7.3	9.7	<20	0.11
17	03.09.2024	73	42	8.4	12.2	<20	0.16

18	04.09.2024	52	30	6.9	9.3	<20	0.13
19	10.09.2024	67	38	8.1	11.2	<20	0.09
20	11.09.2024	58	33	7.5	8.4	<20	0.08
21	17.09.2024	64	36	7.7	9	<20	0.15
22	18.09.2024	75	43	8.3	12.2	<20	0.17
23	24.09.2024	76	43	9	12.3	<20	0.19
24	25.09.2024	56	32	8.1	9.2	<20	0.14

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.07.2024	70	40	7.5	11.1	<20	0.13
2	04.07.2024	54	31	6.1	10.1	<20	0.11
3	10.07.2024	64	36	7	9.7	<20	0.12
4	11.07.2024	40	23	5	9.2	<20	0.10
5	17.07.2024	47	27	7.2	10.7	<20	0.14
6	18.07.2024	55	31	7.8	10	<20	0.12
7	24.07.2024	61	35	6.5	10.1	<20	0.10
8	25.07.2024	69	39	8.3	12.9	<20	0.15
9	01.08.2024	47	27	6.2	10	<20	0.11
10	02.08.2024	76	43	8.1	12	<20	0.11
11	08.08.2024	63	36	7.3	11.1	<20	0.13
12	09.08.2024	69	39	8.2	12	<20	0.13
13	15.08.2024	77	44	7.6	12.7	<20	0.10
14	16.08.2024	64	36	6.9	11.4	<20	0.11
15	22.08.2024	76	43	7.8	11	<20	0.12
16	23.08.2024	60	34	7.1	10.5	<20	0.10
17	02.09.2024	75	43	8.2	13	<20	0.14
18	03.09.2024	54	31	6.7	10.1	<20	0.11
19	09.09.2024	69	39	7.9	12	<20	0.11
20	10.09.2024	60	34	7.3	9.2	<20	0.12
21	16.09.2024	66	38	7.5	9.8	<20	0.13
22	17.09.2024	76	43	8.1	13	<20	0.15
23	23.09.2024	77	44	8.8	13.1	<20	0.15
24	24.09.2024	58	33	7.9	10	<20	0.12

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.07.2024	70	40	7.4	10.5	<20	0.12
2	02.07.2024	54	31	6	9.5	<20	0.10
3	09.07.2024	64	36	6.9	9.1	<20	0.11
4	10.07.2024	40	23	4.8	8.8	<20	0.07
5	16.07.2024	47	27	7.1	10.1	<20	0.13
6	17.07.2024	55	31	7.7	9.4	<20	0.11
7	25.07.2024	61	35	6.4	9.5	<20	0.09
8	26.07.2024	69	39	8.2	12.3	<20	0.14
9	02.08.2024	47	27	6.1	9.4	<20	0.10
10	03.08.2024	76	43	8	11.4	<20	0.10
11	07.08.2024	63	36	7.2	10.5	<20	0.12
12	08.08.2024	69	39	8.1	11.4	<20	0.12
13	14.08.2024	77	44	7.5	12.1	<20	0.09
14	15.08.2024	64	36	6.8	10.8	<20	0.10
15	22.08.2024	76	43	7.7	10.4	<20	0.11
16	23.08.2024	60	34	7	9.9	<20	0.09
17	03.09.2024	75	43	8.1	12.4	<20	0.13
18	04.09.2024	54	31	6.6	9.5	<20	0.10
19	10.09.2024	69	39	7.8	11.4	<20	0.10
20	11.09.2024	60	34	7.2	9.2	<20	0.11

21	17.09.2024	66	38	7.4	9.3	<20	0.12
22	18.09.2024	77	44	8	12.4	<20	0.14
23	24.09.2024	81	46	8.7	12.5	<20	0.14
24	25.09.2024	58	33	7.8	9.4	<20	0.11
Kohrar Village (AAQ-9)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	73	41	8.1	11.6	<20	0.14
2	04.07.2024	57	32	6.7	10.6	<20	0.11
3	10.07.2024	67	38	7.6	10.5	<20	0.10
4	11.07.2024	42	24	5.2	10.2	<20	0.08
5	17.07.2024	50	28	7.8	11.2	<20	0.12
6	18.07.2024	58	33	8.4	10.5	<20	0.11
7	24.07.2024	64	36	7.1	10.6	<20	0.09
8	25.07.2024	72	41	8.9	13.4	<20	0.11
9	01.08.2024	50	28	6.8	10.5	<20	0.10
10	02.08.2024	79	45	8.7	12.5	<20	0.11
11	08.08.2024	66	38	7.9	11.6	<20	0.12
12	09.08.2024	72	41	8.8	12.5	<20	0.10
13	15.08.2024	80	45	8.2	13.2	<20	0.09
14	16.08.2024	67	38	7.5	11.9	<20	0.10
15	22.08.2024	79	45	8.4	11.5	<20	0.11
16	23.08.2024	63	36	7.7	11.0	<20	0.08
17	02.09.2024	78	44	8.8	13.0	<20	0.10
18	03.09.2024	57	32	7.3	10.6	<20	0.11
19	09.09.2024	72	41	8.5	12.5	<20	0.09
20	10.09.2024	63	36	7.9	9.7	<20	0.11
21	16.09.2024	69	39	8.1	10.3	<20	0.12
22	17.09.2024	80	45	8.7	13.2	<20	0.11
23	23.09.2024	81	46	9.7	13.4	<20	0.12
24	24.09.2024	61	35	8.5	10.5	<20	0.11
Bhendewara Village (AAQ-10)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	70	40	6.9	10.9	<20	0.10
2	02.07.2024	54	31	5.5	9.9	<20	0.12
3	09.07.2024	64	36	6.4	10.1	<20	0.11
4	10.07.2024	39	22	4.5	9.9	<20	0.06
5	16.07.2024	47	27	6.6	10.5	<20	0.13
6	17.07.2024	55	31	7.2	10.2	<20	0.12
7	25.07.2024	61	35	5.9	9.9	<20	0.10
8	26.07.2024	69	39	7.7	12.7	<20	0.12
9	02.08.2024	47	27	5.6	9.9	<20	0.11
10	03.08.2024	76	43	7.5	11.8	<20	0.12
11	07.08.2024	63	36	6.7	10.9	<20	0.13
12	08.08.2024	69	39	7.6	11.8	<20	0.11
13	14.08.2024	77	44	7	12.5	<20	0.10
14	15.08.2024	64	36	6.3	11.2	<20	0.11
15	22.08.2024	76	43	7.2	10.8	<20	0.12
16	23.08.2024	60	34	6.5	10.3	<20	0.09
17	03.09.2024	75	43	7.6	12.3	<20	0.11
18	04.09.2024	54	31	6.1	9.9	<20	0.12
19	10.09.2024	69	39	7.3	11.8	<20	0.10
20	11.09.2024	60	34	6.7	9.9	<20	0.12
21	17.09.2024	66	38	6.9	10.2	<20	0.13
22	18.09.2024	77	44	7.5	12.5	<20	0.12
23	24.09.2024	78	44	8.5	12.7	<20	0.13

24	25.09.2024	58	33	7.3	10.2	<20	0.12

//True Copy//

	Air quality Meja Urja Nigam Pvt. LTD July 2024 to Sept 2024						
Project site(meja TPP main entry Gate)(AAQ-1)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH_3 (µg/m^3)**	**CO (mg/m^3)**
1	03.07.2024	75	43	8.9	15.6	<20	0.28
2	04.07.2024	59	34	12.8	11.7	<20	0.13
3	10.07.2024	69	39	10.3	14.6	<20	0.23
4	11.07.2024	45	26	6.6	10.2	<20	0.09
5	17.07.2024	52	30	8.6	11.3	<20	0.11
6	18.07.2024	60	34	9.2	10.6	<20	0.10
7	24.07.2024	66	38	7.9	16.3	<20	0.26
8	25.07.2024	74	42	10.1	13.5	<20	0.28
9	01.08.2024	52	30	7.6	10.6	<20	0.16
10	02.08.2024	85	48	12	14.3	<20	0.30
11	08.08.2024	68	39	11.1	16.1	<20	0.30
12	09.08.2024	74	42	9.6	12.6	<20	0.35
13	15.08.2024	87	50	9	13.8	<20	0.36
14	16.08.2024	69	39	8.3	15.1	<20	0.29
15	22.08.2024	81	46	10.9	16.3	<20	0.34
16	23.08.2024	65	37	10.4	15.3	<20	0.24
17	02.09.2024	87	50	9.6	15.6	<20	0.36
18	03.09.2024	59	34	11.1	10.3	<20	0.10
19	09.09.2024	74	42	9.3	15.5	<20	0.09
20	10.09.2024	65	37	10.4	16.4	<20	0.11
21	16.09.2024	71	40	8.9	14.6	<20	0.24
22	17.09.2024	84	48	11	13.6	<20	0.30
23	23.09.2024	88	50	12.8	16.7	28.0	0.36
24	24.09.2024	63	36	10.3	10.6	<20	0.23
Salaya kala near Ashpond(AAQ-2)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	74	42	8.1	14.5	<20	0.27
2	02.07.2024	58	33	6.7	10.6	<20	0.12
3	09.07.2024	68	39	9.5	13.5	<20	0.22
4	10.07.2024	44	25	5.8	9.1	<20	0.08
5	16.07.2024	51	29	7.8	10.2	<20	0.10
6	17.07.2024	59	34	8.4	9.5	<20	0.09
7	25.07.2024	65	37	7.1	12.6	<20	0.14
8	26.07.2024	73	42	9.3	12.4	<20	0.27
9	02.08.2024	51	29	6.8	9.5	<20	0.15
10	03.08.2024	84	48	11	13.2	<20	0.29
11	07.08.2024	67	38	10.3	10.6	<20	0.09
12	08.08.2024	73	42	8.8	11.5	<20	0.16
13	14.08.2024	86	49	8.2	12.7	<20	0.24
14	15.08.2024	68	39	7.5	14	<20	0.28
15	22.08.2024	80	46	10.1	14.3	<20	0.26
16	23.08.2024	64	36	9.6	14.2	<20	0.23
17	03.09.2024	86	49	8.8	14.5	<20	0.26

18	04.09.2024	58	33	10.3	9.2	<20	0.09
19	10.09.2024	73	42	8.5	14.4	<20	0.08
20	11.09.2024	64	36	9.6	13.6	<20	0.10
21	17.09.2024	70	40	8.1	13.5	<20	0.23
22	18.09.2024	83	47	10.2	12.5	<20	0.24
23	24.09.2024	86	49	11.1	14.9	24.0	0.29
24	25.09.2024	62	35	9.5	9.5	<20	0.22
Patai Dandi village (AAQ-3)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	70	39.8	7.2	10.6	<20	0.14
2	04.07.2024	54	30.7	5.8	9.6	<20	0.09
3	10.07.2024	64	36.4	6.7	9.2	<20	0.09
4	11.07.2024	40	22.7	4.9	8.6	<20	0.05
5	17.07.2024	47	26.7	6.9	10.2	<20	0.07
6	18.07.2024	55	31.2	7.5	9.5	<20	0.06
7	24.07.2024	61	34.7	6.2	9.6	<20	0.11
8	25.07.2024	69	39.2	8	12.4	<20	0.16
9	01.08.2024	47	26.7	5.9	9.5	<20	0.12
10	02.08.2024	76	43.2	7.8	11.5	<20	0.17
11	08.08.2024	63	35.8	7	10.6	<20	0.06
12	09.08.2024	69	39.2	7.9	11.5	<20	0.17
13	15.08.2024	77	43.8	7.3	12.2	<20	0.11
14	16.08.2024	64	36.4	6.6	10.9	<20	0.12
15	22.08.2024	76	43.2	7.5	10.5	<20	0.13
16	23.08.2024	60	34.1	6.8	10	<20	0.10
17	02.09.2024	75	42.6	7.9	12.5	<20	0.15
18	03.09.2024	54	30.7	6.4	9.6	<20	0.06
19	09.09.2024	69	39.2	7.6	11.5	<20	0.05
20	10.09.2024	60	34.1	7	8.7	<20	0.07
21	16.09.2024	66	37.5	7.2	9.3	<20	0.14
22	17.09.2024	77	43.8	7.8	12.5	<20	0.16
23	23.09.2024	78	44.3	8.5	12.6	<20	0.18
24	24.09.2024	58	32.9	7.6	9.5	<20	0.13
Rithaiya Village (AAQ-4)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	75	42	7.6	10.7	<20	0.13
2	02.07.2024	59	33	6.2	9.7	<20	0.10
3	09.07.2024	69	39	7.1	9.3	<20	0.11
4	10.07.2024	41	23	5.3	8.7	<20	0.08
5	16.07.2024	52	29	7.3	10.3	<20	0.09
6	17.07.2024	60	34	7.9	9.6	<20	0.08
7	25.07.2024	66	37	6.6	9.7	<20	0.13
8	26.07.2024	74	42	8.4	12.5	<20	0.15
9	02.08.2024	52	29	6.3	9.6	<20	0.14
10	03.08.2024	81	46	8.2	11.6	<20	0.15
11	07.08.2024	68	38	7.4	10.7	<20	0.08
12	08.08.2024	74	42	8.3	11.6	<20	0.11
13	14.08.2024	82	46	7.7	12.3	<20	0.13
14	15.08.2024	69	39	7	11	<20	0.14
15	22.08.2024	81	46	7.9	10.6	<20	0.15
16	23.08.2024	65	37	7.2	10.1	<20	0.12
17	03.09.2024	80	45	8.3	12.1	<20	0.14

18	04.09.2024	59	33	6.8	9.7	<20	0.08
19	10.09.2024	74	42	8	11.6	<20	0.09
20	11.09.2024	65	37	7.4	8.8	<20	0.09
21	17.09.2024	71	40	7.6	9.4	<20	0.16
22	18.09.2024	82	46	8.2	12.3	<20	0.15
23	24.09.2024	83	47	9.2	12.5	<20	0.16
24	25.09.2024	63	36	8	9.6	<20	0.15
Meja (AAQ-5)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	74	42	7.7	14	<20	0.18
2	04.07.2024	58	33	6.3	10.1	<20	0.13
3	10.07.2024	68	39	9.1	13	<20	0.10
4	11.07.2024	41	23	5.4	9.3	<20	0.09
5	17.07.2024	51	29	7.4	9.7	<20	0.11
6	18.07.2024	59	34	8	9.4	<20	0.10
7	24.07.2024	65	37	6.7	12.1	<20	0.15
8	25.07.2024	73	42	8.9	11.9	<20	0.14
9	01.08.2024	51	29	6.4	9.4	<20	0.16
10	02.08.2024	84	48	10.6	12.7	<20	0.10
11	08.08.2024	67	38	9.9	10.1	<20	0.10
12	09.08.2024	73	42	8.4	11	<20	0.17
13	15.08.2024	86	49	7.8	12.2	<20	0.15
14	16.08.2024	68	39	7.1	13.5	<20	0.11
15	22.08.2024	80	46	9.7	13.8	<20	0.10
16	23.08.2024	64	36	9.2	13.7	<20	0.14
17	02.09.2024	86	49	8.4	14	<20	0.16
18	03.09.2024	58	33	9.9	9.4	<20	0.10
19	09.09.2024	73	42	8.1	13.9	<20	0.09
20	10.09.2024	64	36	9.2	13.1	<20	0.11
21	16.09.2024	70	40	7.7	13	<20	0.16
22	17.09.2024	83	47	9.8	12	<20	0.19
23	23.09.2024	86	49	11.1	14.4	<20	0.20
24	24.09.2024	62	35	9.1	9.5	<20	0.16
Son Barsi (AAQ-6)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	68	39	7.8	11.3	<20	0.15
2	02.07.2024	52	30	6.3	9.3	<20	0.10
3	09.07.2024	62	35	7.2	8.9	<20	0.10
4	10.07.2024	38	22	5.2	7.9	<20	0.08
5	16.07.2024	45	26	7.4	9.9	<20	0.08
6	17.07.2024	53	30	8	9.2	<20	0.10
7	25.07.2024	59	34	6.7	9.3	<20	0.12
8	26.07.2024	67	38	8.5	12.1	<20	0.17
9	02.08.2024	45	26	6.4	9.2	<20	0.13
10	03.08.2024	74	42	8.3	11.2	<20	0.18
11	07.08.2024	61	35	7.5	10.3	<20	0.11
12	08.08.2024	67	38	8.4	11.2	<20	0.18
13	14.08.2024	75	43	7.8	11.9	<20	0.12
14	15.08.2024	62	35	7.1	10.6	<20	0.13
15	22.08.2024	74	42	8	10.2	<20	0.14
16	23.08.2024	58	33	7.3	9.7	<20	0.11
17	03.09.2024	73	42	8.4	12.2	<20	0.16

18	04.09.2024	52	30	6.9	9.3	<20	0.13
19	10.09.2024	67	38	8.1	11.2	<20	0.09
20	11.09.2024	58	33	7.5	8.4	<20	0.08
21	17.09.2024	64	36	7.7	9	<20	0.15
22	18.09.2024	75	43	8.3	12.2	<20	0.17
23	24.09.2024	76	43	9	12.3	<20	0.19
24	25.09.2024	56	32	8.1	9.2	<20	0.14

Gadeva Village (AAQ-7)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	03.07.2024	70	40	7.5	11.1	<20	0.13
2	04.07.2024	54	31	6.1	10.1	<20	0.11
3	10.07.2024	64	36	7	9.7	<20	0.12
4	11.07.2024	40	23	5	9.2	<20	0.10
5	17.07.2024	47	27	7.2	10.7	<20	0.14
6	18.07.2024	55	31	7.8	10	<20	0.12
7	24.07.2024	61	35	6.5	10.1	<20	0.10
8	25.07.2024	69	39	8.3	12.9	<20	0.15
9	01.08.2024	47	27	6.2	10	<20	0.11
10	02.08.2024	76	43	8.1	12	<20	0.11
11	08.08.2024	63	36	7.3	11.1	<20	0.13
12	09.08.2024	69	39	8.2	12	<20	0.13
13	15.08.2024	77	44	7.6	12.7	<20	0.10
14	16.08.2024	64	36	6.9	11.4	<20	0.11
15	22.08.2024	76	43	7.8	11	<20	0.12
16	23.08.2024	60	34	7.1	10.5	<20	0.10
17	02.09.2024	75	43	8.2	13	<20	0.14
18	03.09.2024	54	31	6.7	10.1	<20	0.11
19	09.09.2024	69	39	7.9	12	<20	0.11
20	10.09.2024	60	34	7.3	9.2	<20	0.12
21	16.09.2024	66	38	7.5	9.8	<20	0.13
22	17.09.2024	76	43	8.1	13	<20	0.15
23	23.09.2024	77	44	8.8	13.1	<20	0.15
24	24.09.2024	58	33	7.9	10	<20	0.12

piprau village (AAQ-8)

S.No.	Date	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	NH3 (µg/m3)	CO (mg/m^3)
1	01.07.2024	70	40	7.4	10.5	<20	0.12
2	02.07.2024	54	31	6	9.5	<20	0.10
3	09.07.2024	64	36	6.9	9.1	<20	0.11
4	10.07.2024	40	23	4.8	8.8	<20	0.07
5	16.07.2024	47	27	7.1	10.1	<20	0.13
6	17.07.2024	55	31	7.7	9.4	<20	0.11
7	25.07.2024	61	35	6.4	9.5	<20	0.09
8	26.07.2024	69	39	8.2	12.3	<20	0.14
9	02.08.2024	47	27	6.1	9.4	<20	0.10
10	03.08.2024	76	43	8	11.4	<20	0.10
11	07.08.2024	63	36	7.2	10.5	<20	0.12
12	08.08.2024	69	39	8.1	11.4	<20	0.12
13	14.08.2024	77	44	7.5	12.1	<20	0.09
14	15.08.2024	64	36	6.8	10.8	<20	0.10
15	22.08.2024	76	43	7.7	10.4	<20	0.11
16	23.08.2024	60	34	7	9.9	<20	0.09
17	03.09.2024	75	43	8.1	12.4	<20	0.13
18	04.09.2024	54	31	6.6	9.5	<20	0.10
19	10.09.2024	69	39	7.8	11.4	<20	0.10
20	11.09.2024	60	34	7.2	9.2	<20	0.11

21	17.09.2024	66	38	7.4	9.3	<20	0.12
22	18.09.2024	77	44	8	12.4	<20	0.14
23	24.09.2024	81	46	8.7	12.5	<20	0.14
24	25.09.2024	58	33	7.8	9.4	<20	0.11
Kohrar Village (AAQ-9)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	03.07.2024	73	41	8.1	11.6	<20	0.14
2	04.07.2024	57	32	6.7	10.6	<20	0.11
3	10.07.2024	67	38	7.6	10.5	<20	0.10
4	11.07.2024	42	24	5.2	10.2	<20	0.08
5	17.07.2024	50	28	7.8	11.2	<20	0.12
6	18.07.2024	58	33	8.4	10.5	<20	0.11
7	24.07.2024	64	36	7.1	10.6	<20	0.09
8	25.07.2024	72	41	8.9	13.4	<20	0.11
9	01.08.2024	50	28	6.8	10.5	<20	0.10
10	02.08.2024	79	45	8.7	12.5	<20	0.11
11	08.08.2024	66	38	7.9	11.6	<20	0.12
12	09.08.2024	72	41	8.8	12.5	<20	0.10
13	15.08.2024	80	45	8.2	13.2	<20	0.09
14	16.08.2024	67	38	7.5	11.9	<20	0.10
15	22.08.2024	79	45	8.4	11.5	<20	0.11
16	23.08.2024	63	36	7.7	11.0	<20	0.08
17	02.09.2024	78	44	8.8	13.0	<20	0.10
18	03.09.2024	57	32	7.3	10.6	<20	0.11
19	09.09.2024	72	41	8.5	12.5	<20	0.09
20	10.09.2024	63	36	7.9	9.7	<20	0.11
21	16.09.2024	69	39	8.1	10.3	<20	0.12
22	17.09.2024	80	45	8.7	13.2	<20	0.11
23	23.09.2024	81	46	9.7	13.4	<20	0.12
24	24.09.2024	61	35	8.5	10.5	<20	0.11
Bhendewara Village (AAQ-10)							
S.No.	**Date**	**PM10 (µg/m3)**	**PM2.5 (µg/m3)**	**SO2 (µg/m3)**	**NOx (µg/m3)**	**NH3 (µg/m3)**	**CO (mg/m^3)**
1	01.07.2024	70	40	6.9	10.9	<20	0.10
2	02.07.2024	54	31	5.5	9.9	<20	0.12
3	09.07.2024	64	36	6.4	10.1	<20	0.11
4	10.07.2024	39	22	4.5	9.9	<20	0.06
5	16.07.2024	47	27	6.6	10.5	<20	0.13
6	17.07.2024	55	31	7.2	10.2	<20	0.12
7	25.07.2024	61	35	5.9	9.9	<20	0.10
8	26.07.2024	69	39	7.7	12.7	<20	0.12
9	02.08.2024	47	27	5.6	9.9	<20	0.11
10	03.08.2024	76	43	7.5	11.8	<20	0.12
11	07.08.2024	63	36	6.7	10.9	<20	0.13
12	08.08.2024	69	39	7.6	11.8	<20	0.11
13	14.08.2024	77	44	7	12.5	<20	0.10
14	15.08.2024	64	36	6.3	11.2	<20	0.11
15	22.08.2024	76	43	7.2	10.8	<20	0.12
16	23.08.2024	60	34	6.5	10.3	<20	0.09
17	03.09.2024	75	43	7.6	12.3	<20	0.11
18	04.09.2024	54	31	6.1	9.9	<20	0.12
19	10.09.2024	69	39	7.3	11.8	<20	0.10
20	11.09.2024	60	34	6.7	9.9	<20	0.12
21	17.09.2024	66	38	6.9	10.2	<20	0.13
22	18.09.2024	77	44	7.5	12.5	<20	0.12
23	24.09.2024	78	44	8.5	12.7	<20	0.13

24	25.09.2024	58	33	7.3	10.2	<20	0.12

//True Copy//

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VAKALATNAMA

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

APPEAL NO. 46 of 2025

IN THE MATTER OF:

Sanjaya Kumar Mishra ...**APPELLANT**

VERSUS

Ministry of Forest, Environment & Climate Change & Ors. ...**RESPONDENTS**

Know all to whom these presents shall come that I, Asesh Kumar Chattopadhyay, for Meja Urja Nigam Ltd., them above named the Respondent No. 2 do hereby appoint

ADARSH TRIPATHI, VIKRAM SINGH BAID AND AJITESH GARG

(MP/1256/2014) (D/3896/2018) (D/5097/2021)

G-34, Basement, Lajpat Nagar III, New Delhi – 110024

9090416535 / 9425308454| adarsht912003@gmail.com

Advocate(s), to be my/ our true and lawful attorney (s), in the matter noted above, to do all the following acts, deeds and things, or any of them, (jointly and severally) and also ratify anything already done on our behalf that is to say: -

1. To sign, verify and present and send notices, replies rejoinders, pleadings, appeals, cross-objections or petitions for execution, review, revision, other petitions or affidavit or other documents as shall be deemed necessary or advisable for the prosecution of the case or in relation thereto in all its stages.
2. To appear, act, and plead in the above-mentioned case in any court or tribunal etc, in which the same be heard or tried in the 1st instance or in appeal or review or revision or execution or in any other stage of its progress until its final decision.
3. To withdraw or compromise the said case or submit to arbitration any differences or disputes that may arise to or in any manner relating to the said case.
4. To receive documents, papers, records, orders etc. and to do all other acts all things, which may be necessary or proper to be done for the progress and in all course of the prosecution of the said case.
5. To employ any other legal practitioner, advocate or consultant authorizing him to exercise the power and authority hereby conferred on the Advocate (s) whenever he/they may think fit to do so.

And I/We hereby agree that whatever the Advocate (s) or his/ there substitute shall do in the premises shall be binding on me in all intents and purposes just as if it would have been done by me.

And I/We hereby agree not to hold the Advocate (s) or his/their substitute responsible for the said case in consequence of his absence from the court when the said case is called up for hearing.

And I/We hereby agree that in the event of the whole or any part of the free agreed by me/ us to be paid to the Advocate (s) remaining unpaid he/they shall be entitled to withdraw from the prosecution of the said case, or not to appear until the same is paid.

In witness whereof I/We hereunto set my/our hand to these presents the contents of which have been explained to and understood by me/us.

Date: 14.08.2025

Adarsh Tripathi, Vikram Singh Baid and Ajitesh Garg
(MP/1256/2014) (D/3896/2018) (D/5097/2021)

Advocate (s)

Client

अशोष कुमार चट्टोपाध्याय / Asesh Kumar Chattopadhyay
मुख्य कार्यकारी अधिकारी / Chief Executive Officer
मेजा ऊर्जा निगम (प्रा) लि., प्रयागराज
Meja Urja Nigam (P) Ltd., Prayagraj
(एनटीपीसी लिमिटेड एवं उ.प्र.रा.वि.उ.नि.लि.का संयुक्त उपक्रम)
(A Joint Venture of NTPC Ltd. & UPRVUN Ltd.)

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Gmail

Adarsh Tripathi <adarsht912003@gmail.com>

APPEAL NO. 46/2025

1 message

Adarsh Tripathi <adarsht912003@gmail.com> Mon, Oct 6, 2025 at 12:07 PM
To: sanjaykmishra@hotmail.com

Dear Sir,

Please be in receipt of the Reply on behalf of the Respondent No. 2 (Meja Urja Nigam Private Limited).

NGT Reply Final.pdf

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Adarsh Tripathi
Advocate on Record, Supreme Court of India
G-34, Basement, Lajpat Nagar-3, New Delhi-110024
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