**BEFORE THE HONOURABLE
NATIONAL GREEN TRIBUNAL,
WESTERN ZONE BENCH, PUNE**

**I.A. NO. 163 OF 2024
IN
APPEAL NO. 145 OF 2024 (WZ)**

Brijkishore Hargovind Agrawal and others ..... **Appellants**

VERSUS

Union of India and others ..... **Respondents**

**REPLY OF RESPONDENT NO.3
ADANI POWER LIMITED
ADANI POWER MAHARASHTRA LIMITED
HAVING BEEN MERGED WITH
ADANI POWER LIMITED**

NEXT DATE FOR HEARING : 13/01/2025

INDEX ON NEXT PAGE

Filed on and by:

Date : 06/12/2024

Place : Pune





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LIST OF PARTIES TO IA

APPELLANTS

1. Brijkishore Hargovind Agrawal
2. Manoj Pali
3. Pawan Lashkare
4. Ishwar Ganvir
5. Haribhau Sonule

VERSUS

RESPONDENTS

1. Union of India
2. Maharashtra Pollution Control Board
3. Adani Power Maharashtra Limited
4. The District Magistrate/ District Collector
5. Chief Executive Officer
6. General Manager District Industries Centre
7. Nagpur Municipal Corporation
8. Nagpur Metro Region Development Authority
9. Principal Chief Conservator of Forest

ABBREVIATIONS

Short	Full-form
ADS	Additional Document Sought
APL	Adani Power Ltd
APML	Adani Power Maharashtra Ltd
EAC	Expert Appraisal Committee
EC	Environmental Clearance
EIA	Environmental Impact Assessment (Report)
IA	Interlocutory Application
MOEF&CC MoEFCC	Ministry of Environment, Forests and Climate Change
MoM	Minutes of Mitting
MPCB	Maharashtra Pollution Control Board
NGT	Hon'ble National Green Tribunal
OA	Original application
PH	Public Consultation/Hearing
SPCB	State Pollution Control Board
ToR	Terms of Reference
WZ	Western Zone

DIARY OF EVENTS

Sr	Date	Task
1	31-05-2022	Baseline Study March to May 2022
2	23-12-2022	Online Submission of Form 1 & Pre-feasibility Report
3	13-01-2023	ToR presentation to EAC
4	13-02-2023	ToR Granted by MoEFCC
5	18-04-2023	EIA/EMP Report submission to Member Secretary, SPCB for 'Public Hearing' (PH)
6	25-05-2023	Notice for Public Hearing by SPCB
7	**13-07-2023**	**Date of Public Hearing**
8	12-08-2023	SPCB Recommendation of public hearing proceeding to MoEFCC
9	21-09-2023	Form 1 for EC Submission along with final EIA/EMP on PARIVESH portal including Appendix A
10	17-10-2023	EAC Presentation for EC, MoEFCC
11	28-10-2023	Issue of MoM EAC meeting
12	30-11-2023	Reply of EDS on PARIVESH portal as per EAC MOM
13	21-12-2023	EAC 2nd presentation for EC, MoEFCC
14	07-01-2024	Issue of MOM EAC meeting
15	**02-02-2024**	**Final grant of EC**
16	02-02-2024	Upload to PARIVESH portal
17	08-02-2024	Published in Newspaper

MOST RESPECTFULLY SUBMITTED

The answering party most respectfully states and submits as follows:

1. I, Dr. Rajesh Sehgal, son of Late Shri S.P.Sehgal, Indian inhabitant, aged 51 years, the Authorized Signatory of the applicant and having office of the answering **Respondent No.3, M/s Adani Power Maharashtra Limited** now to be noted and requested to be substituted as **M/s Adani Power Limited**, at Adani Corporate House, Shantigram, Near Vaishno Devi Circle, S.G.Highway, Khodiyar, Ahmedabad - 382421 hereby state on solemn affirmation and oath as under.

2. Respondent has filed this reply

a) To oppose allowing the IA for condonation of delay and therefore oppose the admission of Appeal.

b) To oppose the Appeal on merit.

3. Respondent submits that all allegations and averments made in the IA and Appeal are hereby denied. Respondent submits that nothing alleged and stated in IA or Appeal shall be deemed to have been accepted merely because the same has not been categorically denied or addressed in the reply.

4. **Respondent is filing this affidavit only**

with limited purpose to oppose the admission of the Appeal No. 31/2023 (SZ) and allowing the IA No. 105/2023 (SZ) filed in this OA, for the condonation of delay.

5. Pursuant to an order of the Hon'ble National Company Law Tribunal, Ahmedabad Bench, Adani Power Maharashtra Limited – the Respondent No.3, has been amalgamated with Adani Power Limited ('APL'). In the circumstances, the **present** reply is being filed by APL, thereby opposing the condonation of delay by the Appellants in filing Appeal No.145 of 2024 (hereinafter referred to as the 'main appeal').

6. At the outset, APL denies all the statements, averments, contentions and allegations raised/made in the aforesaid I.A. No. 163 of 2024 (hereinafter referred to as the 'said IA'). The failure of APL in dealing with any of the statements, averments, contentions or allegations raised/made in the said IA or in dealing with the said IA paragraph-wise may not be construed as an admission on its part, and APL denies the same as if the same are **specifically** set out herein and traversed in seriatim.

7. I state and submit that the averments of the Appellants in the said IA are vague, without particulars, and mere excuses. The Appellants have not explained each day's delay in filing of the main appeal.

8. Admittedly, there is a delay of 45 days in

filing the main appeal by the Appellants. The main appeal is barred by **limitation**, as prescribed under the provisions of the National Green Tribunal Act, 2010 ('NGT Act'). Although the Appellants have sought to invoke Sections 14 to 18 of the NGT Act in the main appeal, a perusal of the main appeal including the reliefs sought therein makes it evident that the Appellants are challenging the Environmental Clearance dated 02.02.2024 ('said EC'). Thus, it is apparent that the main appeal is filed under Section 18(1) read with Section 16(h) of the NGT Act. Section 16 of the NGT Act prescribes a limitation period of 30 days from the date of the decision/direction to prefer an appeal before this Hon'ble Tribunal.

9. The Appellants apart from failing to provide a day-to-day delay explanation, have even failed to provide "sufficient cause" for such delay. It is humbly submitted that delay is condoned when such delay is beyond the control of the Appellants who have acted in a bona fide manner. However, the Appellants, had approached court with unclean hands and despite delay which was solely caused due to the deliberate, negligent, and casual approach of the Appellants.

10. The Principal Bench of this Hon'ble Tribunal in *Laxmi Chouhan vs. Union of India and Ors. [Appeal No. 08/2019(CZ)]*, did not condone the delay on the ground that the **Appellant** therein had failed to provide sufficient reasons for delay in approaching and that there was no justification for a

day-to-day delay.

11. The Appellants in the said IA have claimed that it took a long time for them to collect the money from all the villagers and to pay the local counsel. However, the Appellants had managed to travel to Delhi from village near Nagpur, to seek an expert opinion, which was received by them after 15 days. Furthermore, if it took a lot of efforts and time to obtain a small amount to pay the local counsel, then ideally the poor villagers should not have been able to manage and collect money to pay an expert in Delhi. Therefore, it is abundantly clear from the reasons for delay provided by the Appellants have been concocted and portrays the negligent **and** causal approach to file the main petition.

12. Further, the Appellants have attributed the delay in filing of the main appeal to the time taken for collection of relevant documents and drafting of main appeal by the Advocate. In this regard, it may be pertinent to note that the Appellant No.1 had attended the public hearing held on 13th July 2023, and was therefore clearly aware of the said project. Moreover, the relevant documents relating to the said project are uploaded on the website of MoEF and are available in public domain. Therefore, the **excuse** of time taken for collection of documents is unpalatable. Moreover, the delay that occurred allegedly on account of drafting of the main appeal is not a valid ground for condonation of delay.

13. The Appellants in the said IA provided reasons for delay, however, admittedly, it took more than 53 days for them to get the draft prepared of the main petition by the local counsel. Further, if Appellants were genuinely suffering from such grave injustice after the said EC was granted, they would have been cautious of the limitation period. However, the deliberate inaction and gross negligence of delay in filing the main appeal is imputable to the Appellants. It is pertinent to note that though the said IA, at paragraph 6 states that *"The Appellants are poor villagers in Surabardi* **Village***"* in the Affidavit affirming the I.A, Appellant no.1 states that his occupation is business, and he resides at Nagpur.

14. APL states and submits that in fact the Appellants are not aggrieved by the said EC, but have filed the main appeal only with a view to harass APL and to serve their vested interests. The said IA and the main appeal are an abuse of process of law. The **Appellants** have claimed in paragraph 6 of the said IA that they are poor villagers, which is a false statement. In fact, the Appellant No.1 operates a resort named as '*Surabardi Meadows*', which is located in the central-east part of the mining area of the said coal mine, and that the Appellant Nos.2 and 3 are employed in the said resort operated by the Appellant No.1. In reality, the Appellants are opposing the said project at the behest of the Appellant No.1 whose business operations of his resort are likely to be affected by the said project.

The real grievance against the said project emanates from commercial concerns and not genuine environmental concerns. The Appellants are being supported by local politicians, who had also attended the said public hearing and attempted to disrupt the same, and who are governed by political motivations in opposing the said project. These above facts stated in this para are relevant facts and were supressed knowingly. This is personal commercial fight fought under guise of public interest on environmental turf.

15. Respondent sincerely, vehemently and persistently presses all the submissions made in this affidavit. Respondent urges the Hon'ble Tribunal with utmost humility, respect and with folded hands not to entertain this OA and inter alia the OA, which is filed under s.16(h) of the 'National Green Tribunal Act 2010', after **admitted delay of 41 days**.

16. Respondent has reproduced the relevant extract of the s. 16 for the convenience as hereinbelow.

16. Tribunal to have appellate jurisdiction

Any person aggrieved by, —

……. (a) to (g) ……..

(h) an order made, on or after the commencement of the National Green

Tribunal Act, 2010, granting environmental clearance in the area in which any industries, operations or processes or class of industries, operations and processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986; (29 of 1986);

may, ***within*** *a period of* ***thirty days*** *from the date on which the order or decision or direction or determination is communicated to him, prefer an appeal to the Tribunal (18 of 2003);*

Provided that the Tribunal may, if it is satisfied that the ***appellant was PREVENTED by sufficient cause*** *from filing the appeal* ***within the said period****, allow it to be filed under this section within a further period* ***not exceeding sixty days****.*

17. Appellants have set out the alleged time taken in preparing appeal and has claimed the same to be 'sufficient **cause'** but nowhere it has been explained as to how those have PREVENTED them from filing the appeal in time. In other words, appellants have no reasons for that.

18. Respondent urges to read provisions of the 'National Green **Tribunal** Act 2010' under s.16 before allowing IA or Appeal.

APPELLANTS HAVE NOT COME WITH CLEANS HANDS AND HAVE SUPRESSED THE RELEVANT INFORMATION

19. The appellants have supressed the fact that their land was getting affected commercially and hence they are **against** the project for that reason AND not the genuine environmental reasons. The objections in the 'Public Hearing' as well were out of that frustration. This important relevant fact has been supressed by the appellants.

LAWFUL PROVISION OF 30 DAYS FOR FILING AN APPEAL

20. Respondent states that the lawmakers have thoughtfully made the provision of 30 days for filing an appeal. Parliament's collective wisdom can't be overlooked and dispensed with without valid reason, that too as stipulated in the same proviso itself. General interpretation or benefit of doubt or **interest** of justice or interest of environment, can't be presumed unless submitted in the pleadings and justified properly.

21. The time limit of 30 days is specified considering all the general legal process involved in it. i.e. going **through** the order, applying mind on it, gathering the information, consulting internally, consulting the Advocate, preparing the draft, making an affidavit, paying appeal fees and filing an appeal.

All these steps are known to everyone and so also to the lawmakers. As such all these steps are ought to be fit in the provided period of 30 days, by the diligent aggrieved appellant.

22. There is no provision in the law giving relaxation of any time for laxity, lethargy, negligence or lazy working of the appellant. Moreover, these excuses mentioned by the appellant in his appeal, have not been accepted as the reasons for allowing the further grace period, even for a day.

DELAY IS ACTUALLY FROM DATE OF PUBLIC HEARING

23. Respondent states that all grievances start from the date of 'Public Hearing' and only related to it. As such, the period of delay strictly starts from the date of 'Public Hearing' AND the strict period of limitation of only 30 days **from** the date when 'Environmental Clearance' was finally granted. The condonation of delay if any will have to be strictly explained from _____.

PRINCIPLE OF READING THE LAW AS IT IS

24. Respondent submits that it is well settled principle of law that Act has to be read and interpreted as it is, if it can be well understood without any difficulty. Respondent submits **that** as such this word used by the lawmakers has to be

interpreted as it is.

SPECIFIC WORD DELIBERATELY USED IN THE ACT "PREVENTED"

25. Respondent submits that the word used in the proviso sub-clause is PREVENTED. This word has its own meaning which can be referred to any common English OR legal dictionary.

PREVENT Definition & Meaning
- Black's Law Dictionary

> **To hinder or preclude. To stop or intercept the approach, access, or performance of a thing.**
>
> **Prevented means "physically or legally impossible to perform"; "hindered" means "impeded" or "impaired".**

Prevented Definition | Law Insider

https://dictionary.cambridge.org/dictionary/english/prevented

> **PREVENTED: to stop something from happening or someone from doing something:**

26. The legislature parliament has specifically

used word, 'PREVENTED' which is not there in limitation act, and such additional insertion of chosen adjective can't be overlooked OR omitted by this Hon'ble Tribunal. **This word 'PREVENTED' used in this specific act has not been set aside by any constitutional court in any litigation.**

27. The parliament while making this Act was fully aware of this legal clause, which is a specific provision other than Limitation Act. This specific word carries and conveys the meaning, in common parlance and legal terminology. Hence all reasons given as 'sufficient cause' should be also enough to PREVENT appellant from filing appeal in time.

28. Appellant has even not pleaded as to how there is valid **reason** to show that he was 'prevented' from filing this appeal in time.

29. All documents that are related to 'Public Hearing' and EC challenged are and were on the website, progressively, even during the process of consideration of EC. Appellant ought to have raised the 'substantial and alarming procedural lapses' as claimed even during that period by writing to EAC or MoEFCC. This was not done.

30. Respondent submits that all the reasons given justifying the delay in filing this appeal in time, are incorrect, false, untenable and unacceptable as per the proviso in the Act.

LEGITIMATE EXPETENCY

31. That the specific proviso incorporated as an integral part of the provision of appeal, has conferred the right of appeal to the applicant, provided he is an aggrieved person, AND in the same sub-clause given protection to the Respondent/s including the 'Project Proponent' from delay, uncertainty and legitimate expectancy to further proceed with the project.

32. The EIA Notification 14/09/2006 regulates the projects and activities which run in to several Crores, across the India. The huge investment is made by the 'Project Proponent' based on the various sanctions given by the various authorities, once after other. Grant of a permission OR 'Environmental Clearance' OR **Consent**, is not the end of the 'licence raj' OR 'permission regime'. Evey law will have the Appeal provision and as such each permission or clearance or consent can be challenged in accordance with that provision of Act.

33. Respondent states that if such appeals are filed one after other, with liberal interpretation of limitation, without justifying delay, **then** no project would be able to come up in this country. If grace period is allowed generously, no project will come in India. **To sabotage the industrial growth of India, we won't need outside enemy**. As such, unless there is compelling reason, made out, mentioned, pleaded, which can be allowed by this

Hon'ble Tribunal, ONLY THEN such discretionary grace period can be considered by this Hon'ble Tribunal. There has to be legitimate expectancy for the PP as to when the Clearance will reach its finality. Financial institutions also will be able to then proceed with the loan proposals by extending the loan from the public deposits with banks.

RIGHT OF PROJECT PROPONENT IS EQUALLY STRONG AS THE RIGHT OF AGGRIEVED PERSON (APPELALNT)

34. The act and its provisions are to be read in full and collectively. The letter of law, including its clauses / sub-clauses / proviso, are all made by the parliament, keeping in mind the spirit of law. Even while fulfilling the spirit of law, and keeping in mind the **environmental** interest at forefront, legislature felt the compelling necessity to provide the safeguards to stop its abuse, misuse and protect the national interests.

35. Respondent submits that therefore the restrictive proviso are **equally** important and integral part of law. The word 'prevented' can't be overlooked for liberal interpretation.

36. The right or protection, certainty given to PP is thoughtfully in-built with wider objective. Protecting environment doesn't mean giving power to everyone to harass and hound the PP indefinitely.

37. The purpose of the Act will **be** truly fulfilled only when all clauses are read, as it is, and interpreted to give them their intended meaning. If it is offering protection to PP, then that is the intention of the Act, which should be honoured by all.

DAMAGE TO ENVIRONMENT OR SUBSTANTIAL QUESTION OF ENVIRONMENT HAS NOT ARISEN OR MADE OUT

38. Appellants cannot read and plead in general, vague language to negate or circumvent any of the provision of law. The reason given by the appellants is totally vague and do not speak anything. Appellants have not pleaded as to how it will lead to grave prejudice to appellant. Appellants have even **not** pleaded as to how the alleged procedural lapse is substantial OR alarming. Appellants have even not pleaded as to how the interest of the justice will be fulfilled by condoning this delay.

39. Respondent submits that the forms submitted were already there on the website right from beginning. If these lapses were so substantial OR **alarming**, appellants have not raised them before the EAC or MoEFCC, after reading the MoM on the website. MoEFCC through their PARIVESH portal has made the entire process transparent and at all stages it is displayed on the website.

40. Appellants slept over it. Appellants did not even bother to raise the issue before the appropriate authority during the appraisal process. i.e. before the EAC or MoEFCC. Appellants are therefore trying to seek the indulgence of the Hon'ble Tribunal to substitute and do the function of EAC and MoEFCC. Appellants have chosen to omit their part of responsibility and now giving that itself as the reason for the delay in filing an appeal. Appellants were aware about the project form the 'Public Hearing' stage itself. As such they ought to have gone to EAC and MoEFCC raising their concerns about improper 'Public Hearing'.

41. The protection offered to Respondent from such frivolous appeals, by the proviso of the act can't be taken away by the mere prayer in IA to condone the delay. The reasons offered are vague, baseless, don't justify, plead OR even mention how appellant was 'prevented'. As such Respondent submits that the appeal must be rejected at this stage itself.

42. Respondent submits that no substantial question related to environment **has** arisen. There is no issue of 'relief, compensation, restitution' to anyone at this stage. There is no pleading to that effect even in this appeal.

43. In light of the facts as argued above and the written submission filed to this effect, the Respondent presses and urges to consider all the above points on the basis of **provisions** of the Act,

on law and merit and dismiss and disallow this appeal on account of delay.

In light of the aforesaid submissions, APL states and submits that the said IA may not be entertained and that the main appeal is required to be dismissed as barred by the limitation prescribed under Section 16 of the NGT Act with costs. I state and submit that the Appellants are not entitled to any reliefs, much less the relief sought either in the said IA and/or the main appeal.

Place: **Pune**
Date: **06/12/2024**

DEPONENT
Respondent No. 3
ADANI POWER LTD

Identified by & before me:

Advocate Raghunath Mahabal
Bar Council of Maharashtra & Goa
Enrolment No. MAH/349/2012 / 24-02-2012
Advocate for ADANI POWER LTD

S. No. 9351 /2024

2435

VIJAY C. SHAH
NOTARY
GOVT. OF INDIA
- 9 DEC 2024

VERIFICATION & AFFIDAVIT

IN SUPPORT OF THE REPLY OF ADANI POWER LIMITED TO I.A. NO. 163 OF 2024

I, Dr Rajesh Sehgal, son of Shri SP Sehgal, aged about 51 years, being the Authorized Representative of Adani Power Limited, having address at Adani Corporate House, Shantigram, Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad – 382 421, do hererby affirm as follows.

I have verified the facts stated in this reply. All the contents of the reply and the submissions made herein are verified by me.

I have gathered information and perused the records. I have not supressed any relevant facts.

I am submitting it in this affidavit on solemn affirmation and under oath.

Place: **Pune**
Date: **06/12/2024**

DEPONENT
Respondent No. 3
ADANI POWER LTD

Identified by & before me:

Raghunath Mahabal
High Court Mumbai
ADVOCATE

Advocate Raghunath Mahabal
Bar Council of Maharashtra & Goa
Enrolment No. MAH/349/2012 / 24-02-2012
Advocate for ADANI POWER LTD

SOLEMNLY AFFIRMED
BEFORE ME

VIJAY C. SHAH
NOTARY
GOVT. OF INDIA
- 9 DEC 2024

NOTARY VIJAY C. SHAH AHMEDABAD GUJARAT STATE REGD. 226002 GOVT. OF INDIA

NOTARIAL

Ax. A

ईआयए-ईएमपी मसुदा अहवालाचा कार्यकारी सारांश

मेसर्स. अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल) च्या ८६२.०० हेक्टर खाणीच्या लीज क्षेत्रात उत्पादन क्षमता २.० एमटीपीए (निर्धारित क्षमता) / ३.० एमटीपीए (सर्वोच्च क्षमता) गोंडखरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र)

स्थळ

गाव - गोंडखरी, तालुका - कळमेश्वर, जिल्हा - नागपूर (महाराष्ट्र)

संदर्भाच्या अटी फाईल क्र. IA-J-११०१५/४६/२०२२-IA-II (M) दिनांक १३ फेब्रुवारी २०२३
श्रेणी अ, (सेक्टर १) १ (अ) (i) खनिज उत्खनन
आधारभूत निरीक्षण कालावधी : मान्सून-पूर्व ऋतू (१ मार्च २०२२ ते ३१ मे २०२२)

प्रकल्प प्रस्तावक

adani
Power

मेसर्स. अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल)

पर्यावरण सल्लागार

ANACON

मेसर्स. ॲनाकॉन लॅबोरेटरीज प्रायव्हेट लिमिटेड, नागपूर
क्यूसीआय - एनएबीईटी मान्यताप्राप्त ईआयए सल्लागार
(सेक्टर १) १ (अ) (१) खनिज उत्खनन
एमओईएफ आणि सीसी (जीओआय) मान्यताप्राप्त प्रयोगशाळेसाठी
आईएसओ ९००१:२०१५, आईएसओ १४००१:२०१५, आईएसओ ४५००१:२०१८
लॅब अँड कन्सल्टन्सी : एफपी - ३४, ३५, फूड पार्क,
एमआयडीसी, बुटीबोरी, नागपूर - ४४११२२
मोबाईल क्र.: +९१ -९३७२९६००७७
ईमेल: ngp@anacon.in
संकेतस्थळ : www.anaconlaboratories.com

अहवाल क्रमांक: एएनक्यूआर/पीडी/२०अ/२०२३/२२०
एप्रिल - २०२३

T.C.

कार्यकारी सारांश

1.0 परिचय

गोंडखरी कोळसा ब्लॉक हा महाराष्ट्र राज्यातील नागपूर जिल्ह्यातील गोंडखरी परिसरात (कामठी कोळसा क्षेत्र) भूमिगत कोळसा खाण प्रकल्प प्रस्तावित आहे . पट्टेदार मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल) गोंडखरी भूमिगत कोळसा खाणीसाठी पर्यावरण मंजुरी देण्यासाठी अर्ज करत आहे . (एमएल क्षेत्र 862.00 है. आणि उत्पादन क्षमता 2.00 एमटीपीए (निर्धारित क्षमता) / 3.0 एमटीपीए (सर्वोच्च क्षमता).

खाण लीज क्षेत्र 862.00 हेक्टर असून कोळशाची उत्पादन क्षमता 2.00 एमटीपीए (निर्धारित क्षमता) / 3.0 एमटीपीए (सर्वोच्च क्षमता) आहे. खाणकामाची पद्धत यांत्रिकीकृत भूमिगत खाण पद्धत आहे. खाणीचे आयुष्य 26 वर्षे आहे. EIA-EMP अहवालाचा मसुदा सुधारित केलेल्या EIA अधिसूचना 2006 नुसार तयार केला आहे आणि दि. 13.02.2023 रोजी EAC (कोळसा खाण प्रकल्प), MoEFCC, नवी दिल्ली पत्र क्रमांक IA-J-11015/46/2022-IA II(M) द्वारे ToR मंजूर केले.

खाण योजनेला कोळसा मंत्रालय, भारत सरकार, नवी दिल्ली यांच्याकडून दि. 09/01/2023 च्या पत्राद्वारे मान्यता देण्यात आली आहे.

1.1 प्रकल्पाची ओळख

गोंडखरी कोळसा खाण हा नागपूर जिल्ह्यातील गोंडखरी परिसरात (कामठी कोळसा क्षेत्र) प्रस्तावित भूमिगत कोळसा खाण प्रकल्प आहे आणि तो मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड (APML) वेस्टिंग ऑर्डर क्र. NA-104/7/2021-NA, दि . 18 नोव्हेंबर 2021 ला दिले आहे. खाण लीजसाठी अर्ज सादर केला गेला आहे आणि मंजुरी प्रक्रियेत आहे. सध्या खाण योजना 9 जानेवारी 2023 च्या पत्राद्वारे कोळसा मंत्रालयाकडून मंजूर करण्यात आली आहे.

1.1.1 प्रकल्पाचे स्थान

862.00 हेक्टर क्षेत्रावरील लीज क्षेत्र गाव गोंडखरी , तहसील - कळमेश्वर , जिल्हा - नागपूर, महाराष्ट्र येथे आहे. सर्वात जवळचे वस्ती गाव गोंडखरी हे माइन लीज क्षेत्राच्या परिघापासून दक्षिण-पश्चिम दिशेने 1.50 किमी अंतरावर आहे. लीज क्षेत्र हे भारतीय सर्वेक्षण टोपोशीट क्र. 55 K/16, 1: 50,000 स्केलवर आणि अक्षांश N 21°07' 57" - N 21°10' 56" आणि रेखांश E 78° 54' 45" - E 78°56' 26" दरम्यान आहे. साइटची पर्यावरणीय सेटिंग्ज **तक्ता 1** मध्ये सादर केली आहे. प्रकल्पाचा निर्देशांक नकाशा **आकृती 1** मध्ये प्रदान केला आहे आणि अभ्यास क्षेत्राचा नकाशा **आकृती 2** मध्ये दिला आहे. प्रकल्पाच्या परिसरात CPCB/MoEFCC द्वारे गंभीरपणे प्रदूषित ओळखले गेलेले क्लस्टर नाही.

तक्ता 1: पर्यावरणीय सेटिंगचे तपशील

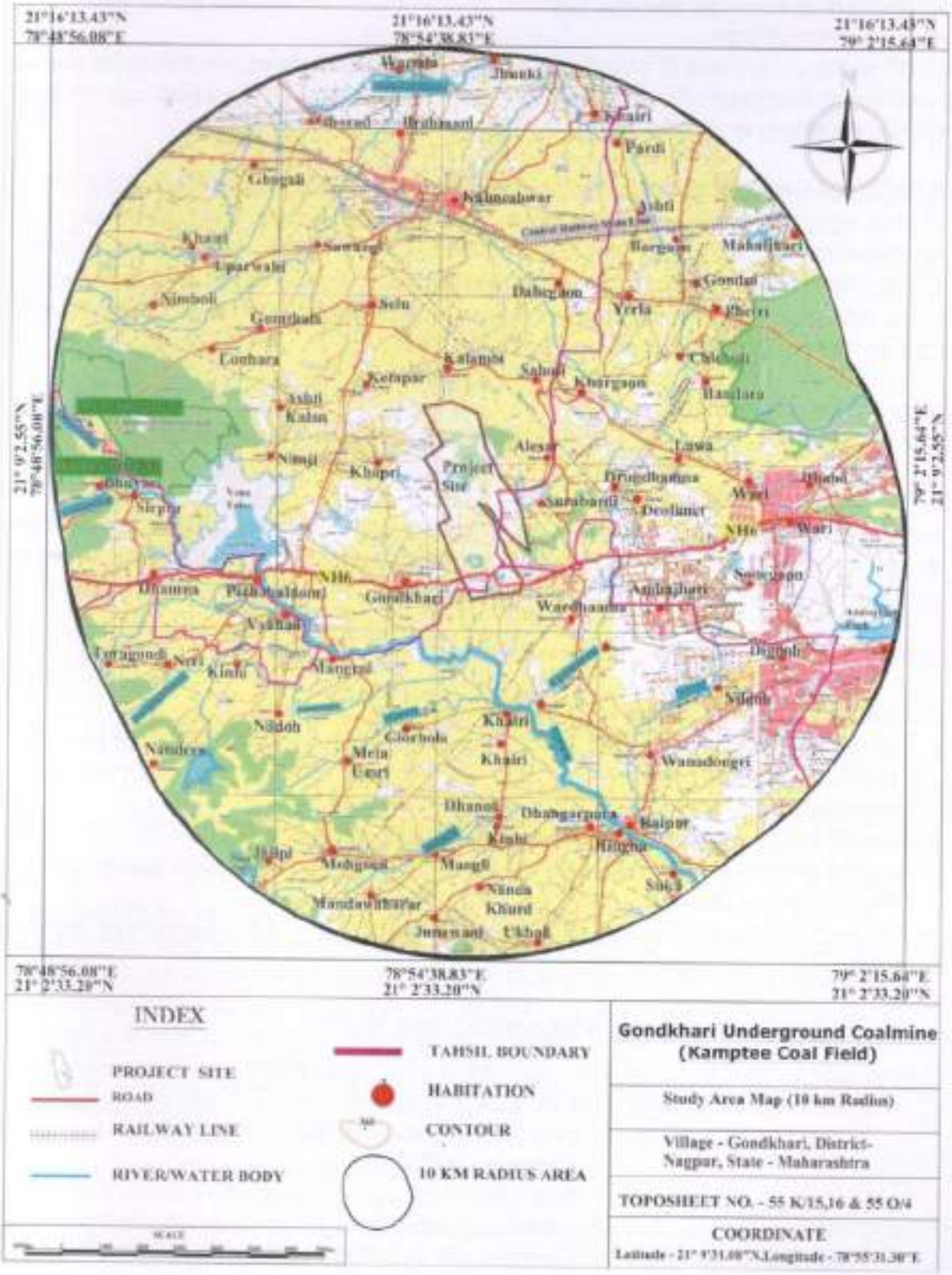
अनु. क्र.	तपशील	विवरण
१.	प्रकल्प स्थान	खाण लीज क्षेत्र – ८६२ हे. गाव – गोंडखरी, तहसील – कळमेश्वर, जि. - नागपूर, महाराष्ट्र.
२.	नवीन/विस्तार	नवीन
३.	को-ऑर्डिनेट्स	अक्षांश N210 07' 57" ते N210 10' 56" रेखांश E780 54' 45" ते E780 56' 26"
४.	भारताचे सर्वेक्षण टोपो शीट क्र.	55K/16
५.	हवामानाची स्थिती	सरासरी वार्षिक पाऊस ११००.३ मिमी आहे तापमान: मान्सूनपूर्व ४.५ °C (किमान) ४७.८ °C (कमाल) : हिवाळा ३.९ °C (किमान) ३९.७ °C (कमाल) : पावसाळ्यानंतर ५.५ °C (किमान) ३९.७ °C (कमाल) स्रोत: आयएमडी, नागपूर (सोनेगाव)
६.	जवळचे IMD स्टेशन	IMD नागपूर (सोनेगाव) – १२.५ किमी (SE)
७.	समुद्रसपाटीपासून साइटची सरासरी उंची	३२४ - ३८० मी.

अनु. क्र.	तपशील	विवरण
८.	जवळचा राष्ट्रीय/राज्य महामार्ग	NH 53 (AH 46) - लगत (S) SH 250 – ६.५ किमी (N) SH 255 – ६.८ किमी (S) SH 260 – ७.०किमी (ESE) SH 248 – ४.७ किमी (NE) NH 547E- ३.५ किमी (W)
९.	पर्यटन स्थळे (१५ किमीच्या आत)	विठ्ठल रुक्मिणी मंदिर, धापेवाडा – १३.९ किमी (N) हाईलँड वॉटर पार्क - लगत (E) सुराबर्डी शिव मंदिर – १.३ किमी (E) सातपुडा बोटॅनिकल गार्डन – १०.४ किमी (E) तेलनखेडी गार्डन – ११.४ किमी (E) आदासा गणेश मंदिर – १६.७ किमी (NNE)
१०.	पुरातत्व दृष्ट्या महत्वाची ठिकाणे	जुनापानी स्टोन सर्कल, फेत्री – ७.८ किमी (ENE)
११.	जवळचे रेल्वे स्टेशन	कळमेश्वर – ५.४ किमी (NNE)
१२.	पर्यटन स्थळे	डॉ. बाबासाहेब आंबेडकर संग्रहालय आणि स्मारक – ४.६ (ENE) कस्तुरचंद पार्क – १४.६ किमी (E) केंद्रीय संग्रहालय, नागपूर – १४.२ किमी (E) माहुरझरी मेगालिथिक स्टोन सर्कल – १०.१ किमी (E) महाराज बाग प्राणीसंग्रहालय – १३.८ किमी (E) जुनापानी स्टोन सर्कल, फेत्री – ७.८ किमी (ENE) गोरेवाडा जंगल सफारी - वन्यजीव आणि सफारी पार्क – ९.३७ किमी (ENE)
१३.	जवळचे विमानतळ	डॉ. बाबासाहेब आंबेडकर आंतरराष्ट्रीय विमानतळ १० किमी (ESE)
१४.	जवळच्या राज्य/राष्ट्रीय सीमा	मध्य प्रदेश – ३३.६ किमी (NNE)
१५.	जवळचे गाव/वस्ती	सुराबर्डी – ०.६ किमी (E) गोंडखरी – ०.३ किमी (W)
१६.	2,00,000 लोकसंख्या असलेले सर्वात जवळचे प्रमुख शहर	नागपूर – १२ किमी (E)
१७.	जवळचे शहर	वाडी – ५.८ किमी (E)
१८.	समुद्र किनाऱ्यापासून अंतर	बंगालचा उपसागर – ५७६ किमी (SE)
१९.	जवळचे राखीव / संरक्षित जंगले	बाजारगाव राखीव जंगल - ५.१ (W) माधोगड राखीव जंगल- ९.७ किमी (W) खुले मिश्र जंगल – गोरेवाडा ६.३ (ENE)
२०.	सर्वात जवळील नदी/जलसाठे	सप्तधारा नदी – ८.१ किमी (N); वेणा नदी – १.२ किमी (S) घोरड्यो नाला – ८.९ किमी (WNW); उन्ना नाला – ८.९ किमी (W) देवदकाशा नाला – ४.५ किमी (WSW); झिलपी नाला – ५.५ किमी (S) वेणा कालवा – १.७ किमी (SSW); अनस नाला – २.५ किमी (SSW) नाग नाला – ५.५ किमी (SE); खरकरी नाला – ३.१ किमी (SSE)
२१.	जवळचा तलाव	अंबाझरी तलाव – ८.५ किमी (ESE); भिवकुंड धरण – ९.९ किमी (SW) फुटाळा तलाव – १०.० किमी (E) अलेसुर स्थानिक तलाव – प्रस्तावित खाण क्षेत्रात मोरधम धरण आणि जलाशय – ११.५ किमी (NW) सुराबर्डी तलाव - लगत (E) वेणा धरण – ४.२ किमी (W) झिलपी तलाव – ९.१ किमी (SW)
२२.	भूकंपीय क्षेत्र	IS-1893 (भाग-1)-2002 नुसार सिस्मिक झोन-II, म्हणून, भूकंपाच्या दृष्टीने साइट एक स्थिर क्षेत्र आहे.

अनु. क्र.	तपशील	विवरण
२३.	जवळचे उद्योग	चेंनविम इंजिनिअरिंग (I) प्रा. लिमिटेड – २.७ किमी (W) पॅरागॉन पॉलिमर प्रॉडक्ट्स प्रा. लिमिटेड – १.८ किमी (W) सनी इन्फ्रा इंजिनिअर्स प्रा. लिमिटेड – ३.८ किमी (E) जेडीएस ट्रान्सफॉर्मर इंडस्ट्रीज प्रा. लिमिटेड – ६.० किमी (ESE) भारत इलेक्ट्रिकल्स – ०.३ किमी (SSW) श्री सालासर इंडस्ट्रीज – ५.५ किमी (E) एमआईडीसी कळमेश्वर – ५.२ किमी (N) माईनेक्स मेटालर्जीकल कं. लिमिटेड, निमजी – ४.४१ किमी (W) नाइस पेपर्स लिमिटेड – ७.६ किमी (NNW) हिंगणा एमआईडीसी – ६.३ किमी (SE)
२४.	वन्यजीव संरक्षण कायदा, 1972 नुसार संरक्षित क्षेत्रे (व्याघ्र राखीव, हत्ती राखीव, जैवक्षेत्र, राष्ट्रीय उद्याने, वन्यजीव अभयारण्ये, सामुदायिक राखीव आणि संवर्धन राखीव)	काहीही नाही (१० किलोमीटरच्या परिघी क्षेत्रात नाही)



आकृती 1: प्रकल्प साइटचा निर्देशांक नकाशा



आकृती 2: अभ्यास क्षेत्राचा नकाशा (10 किमी रेडियल अंतर)

2.0 प्रकल्पाचे वर्णन

2.1 खाणकामाची पद्धत

गोंडखरी कोळसा खाण (UG खाण) ही नागपूर जिल्ह्यातील कामठी कोळसा क्षेत्राच्या गोंडखरी भागातील प्रस्तावित कोळसा खाण प्रकल्प आहे जी मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड (APML) च्या मालकीची आहे. खाणकामाची पद्धत म्हणजे यांत्रिकी भूमिगत खाणकाम पद्धत, म्हणजे उत्खननासाठी लाँगवॉल खाण पद्धत प्रस्तावित आहे.

डिपॉझिटचे काम करण्याची प्रस्तावित पद्धत ही यांत्रिकीकृत लाँगवॉल (रिट्रीटिंग) पद्धत असेल जी खाणकामाची पद्धत म्हणून स्वीकारली जाईल. खाणीतून उच्च दर्जाचे उत्पादन नियोजन करून पुढील यांत्रिकीकरणाचे नियोजन करण्यात आले आहे. सहा रस्ता हेडरआणि लाँगवॉलचे दोन संच विकास आणि डिपिलरिंगसाठी स्वीकारले जातात. बेल्ट कन्व्हेयरच्या प्रणालीवर लंप ब्रीडरद्वारे कोळसा बाहेर काढला जाईल. हाय पुल सॉलिड ब्लास्टिंगसाठी कॉम्प्रेस्ड एअर ड्रिलसह साइड डिस्चार्ज लोडर आणि छताच्या आधारासाठी कॉम्प्रेस्ड एअर बोल्टर चा वापर केला जाईल. चेन कन्व्हेयरद्वारे फीडर ब्रेकरवर कोळसा रिकामा केल्या जाईल करणे आणि स्टे क्षेत्रासाठी बेल्ट कन्वेयर वापरल्या जाईल.

2.1.1 खाणीचं अपेक्षित आयुष्य

एकूण खाणयोग्य साठा 52.496 दशलक्ष टन आहे आणि खाणीचे आयुष्य @ २.0 एम टी पी ए (कोळशासाठी) = 26 वर्षे.

2.2 संकल्पनात्मक खाण योजना

2049 पर्यंतच्या भाडेपट्टा कालावधीसाठी संकल्पनात्मक आराखडा तयार करण्यात आला आहे. प्रगतीशील खाण बंद करण्याच्या क्रियाकलापादरम्यान भूमिगत उपकरणे नष्ट करणे आणि खाण यंत्रांची विल्हेवाट लावणे, कार्यशाळा नष्ट करणे, मोडकळीस आलेल्या सुविधांचे पुनर्वसन इत्यादीसाठी तरतूद करण्यात आली आहे.

खाणीचा शेवटचा जमीन वापर खालील घटकांद्वारे नियंत्रित केला जातो:

- खाणकाम करताना कचरा निर्मितीची कल्पना केली जाते.
- खननपूर्व जमिनीच्या वापरासाठी संपूर्ण काम केलेले क्षेत्र पुनर्संचयित करण्याच्या दिशेने बॅकफिलिंग करणे शक्य आहे.
- खाणीतील खड्डे जमिनीच्या पातळीवर आणणे व्यवहार्य नसल्याने त्याचे पावसाच्या पाण्याच्या साठ्यात रूपांतर करणे उपयुक्त ठरत नाही.
- काम केलेले क्षेत्र पावसाच्या पाण्याच्या साठवणुकीद्वारे पुन्हा प्राप्त केले जाऊ शकते.
- आजूबाजूच्या भागात वनस्पतीचे प्रमाण कमी आहे, जे प्राणी वस्तीला परावृत्त करते, त्यामुळे वनस्पति आणि प्राण्यांचे निवासस्थान उपयुक्त ठरेल.

पातळीपर्यंत खाण बॅकफिल करणे योग्य ठरेल आणि पर्यावरणीय आणि सौंदर्यात्मक पुनर्संचयित करण्यासाठी ती स्थिर करण्याचा प्रस्ताव आहे.

तक्ता 2: खाणीची ठळक वैशिष्ट्ये

अ. क्र.	वर्णन	तपशील
१.	उत्पादन/अंदाजित साठा	लक्षित क्षमता – 2.0 MTPA सर्वोच्च निर्धारित क्षमता – 3.0 MTPA अंदाजे एकूण भूवैज्ञानिक साठा: 109.447 Mt. निव्वळ भूवैज्ञानिक राखीव: 98.5030 दशलक्ष टन खाणकाम योग्य राखीव साठा: 52.946 दशलक्ष टन
२.	खाणकामासाठी एकूण राखीव	काढण्यायोग्य साठा: 42.946 दशलक्ष टन
३.	खाण पद्धती आणि तंत्रज्ञान	भूमिगत खाणकाम: बोगद्यासाठी DERDS आणि रोड हेडर तैनात करून केव्हिंगसह लाँगवॉल रिट्रीटिंग पद्धत .
४.	खाण लीज क्षेत्र	८६२.०० हे.
५.	खाणीचं आयुष्य	30 वर्षे (बांधकाम टप्प्यासह)
६.	लीज कालावधी	खाण लीजसाठी अर्ज सादर करण्यात आला असून मंजुरीचे काम प्रगतीपथावर आहे.

७.	एकूण पाण्याची गरज आणि स्त्रोत	एकूण पाण्याची गरज 496 KLD आहे (खणीतून 436 KLD आणि बोअरवेलमधून 60 KLD) स्रोत: औद्योगिक पाण्याची गरज सध्याच्या जलाशय, भूजल आणि खाणीच्या पाण्याच्या स्त्रोतातून पूर्ण केली जाईल. पिण्याच्या पाण्याची गरज योग्य प्रक्रिया करून भूजल स्त्रोतांमधून पूर्ण केली जाईल.
८.	उर्जेची आवश्यकता आणि स्त्रोत	उर्जेची आवश्यकता 19.742 मेगावॅट आहे आणि स्त्रोत खालीलप्रमाणे आहे- • प्रस्तावित खाप उपकेंद्रापासून सुमारे 3 किमी अंतरावर असलेल्या नागपूर जिल्ह्यातील महाराष्ट्र राज्य विद्युत वितरण कंपनी लिमिटेड अंतर्गत जवळच्या 33/11 kV सुराबर्डी उपकेंद्रातून खाणीला वीज मिळेल. • 2 MTPA च्या कमाल उत्पादनासाठी विजेची मागणी पूर्ण करण्यासाठी, प्रस्तावित सबस्टेशनवर 2 x 5 MVA 33/3.3 kV बाह्य ट्रान्सफॉर्मर स्थापित करण्याचा प्रस्ताव आहे.
९.	मनुष्यबळाची आवश्यकता	८६३ (सर्वोच्च)
१०.	कच्चा माल आवश्यक	वाटप केलेला ब्लॉक कोळशाच्या विक्रीसाठी व्यावसायिक कोळसा ब्लॉक आहे.
११.	कोळशाचा ग्रेड	G8 (सरासरी)
१२.	कामाची किमान खोली	169 मी
१३.	कामाची कमाल खोली	394 मी
१४.	प्रवण	90 ते 220
१५.	कोळसा सीम तपशील	कोळशाच्या शिवणांपैकी काम करण्यायोग्य शिवण आहेत: II सीम, III सीम, V सीम आणि VIII सीम.
१६.	प्रकल्पाची अंदाजित किंमत	१३०३ कोटी रु.

2.3 कचरा निर्मिती आणि विल्हेवाट

ड्रायव्हेज दरम्यान प्रस्तावित प्रकल्पातून निर्माण होणारा घनकचरा उंच-मातीमध्ये आणि खाणीच्या प्रवेशासाठी कठीण खडकांमध्ये आणि हार्ड रॉकमधील क्रॉस-कट्सच्या ड्रायव्हेजमधून निर्माण होणारा घनकचरा अंदाजे **127000 Cum** आहे . या ड्रायव्हेज दरम्यान निर्माण होणारा घनकचरा पृष्ठभागावर स्वतंत्रपणे स्टॅक केला जाईल आणि बंधाऱ्यात बँक हेड तयार करण्यासाठी आणि सखल भाग भरण्यासाठी, पायाभूत सुविधांसाठी जमिनीचा विकास आणि हिरवळीच्या विकासासाठी वापरला जाईल. बांधकाम कार्यादरम्यान टाकाऊ कचरा 50 किलो/दिवस आणि ऑपरेशन टप्प्यात 170 किलो/दिवस निर्माण होणे अपेक्षित आहे. सुधारित घनकचरा व्यवस्थापन नियम, 2016 नुसार तयार होणारा घनकचरा योग्यरित्या गोळा केला जाईल, विलग केला जाईल आणि योग्यरित्या पुनर्वापर/विल्हेवाट लावली जाईल.

2.4 पाण्याची गरज आणि स्त्रोत

एकूण पाण्याची गरज 496 KLD (खाण सीपेज मधून 436 KLD आणि बोअरवेलमधून 60 KLD) आहे. औद्योगिक पाण्याची गरज सध्याचे जलाशय, भूजल आणि खाणीतील जलस्रोतांमधून भागवली जाईल. पिण्याच्या पाण्याची गरज योग्य प्रक्रिया करून भूजल स्रोतांमधून पूर्ण केली जाईल.

2.5 मनुष्यबळाची आवश्यकता

मनुष्यबळाची एकूण गरज 863 व्यक्ती आहे, आणि या व्यतिरिक्त कोणत्याही अतिरिक्त मनुष्यबळाची आवश्यकता नाही.

2.6 साइट इन्फ्रास्ट्रक्चर

खाण कार्यालय, विश्रांती निवारा, ट्रान्सफॉर्मर आणि यंत्रसामग्री यांसारख्या स्वरूपात पायाभूत सुविधा उपलब्ध असतील. खाणकामापासून ते राष्ट्रीय महामार्गाला जोडणारा रस्ता. हा रस्ता यापूर्वीच अस्तित्वात आहे. खाण लीज परिसरात प्रथमोपचार केंद्र, पाणी पिण्याचे ठिकाण उपलब्ध असेल.

3.0 विद्यमान पर्यावरणीय परिस्थिती

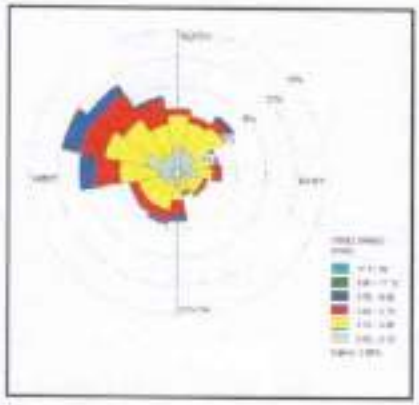
3.1 बेसलाइन पर्यावरणीय अभ्यास

प्रकल्प स्थळापासून 10 किमी रेडियल अंतरासह प्रकल्पाच्या ठिकाणी आधारभूत पर्यावरण अभ्यास करण्यात आला. प्रस्तावित प्रकल्पासाठी EIA अभ्यासाचा एक भाग म्हणून, **मान्सून- पूर्व ऋतू (1 मार्च 2022 - 31 मे 2022)** अतिरिक्त AAQ निरीक्षणासह मान्सून- पूर्व ऋतूमध्ये 2 वेगवेगळ्या ठिकाणी पर्यावरणीय आधारभूत निरीक्षण **1 मार्च 2023 - 31 मार्च 2023** ला केले गेले.

3.1.1 हवामानशास्त्र आणि वातावरणीय हवेची गुणवत्ता

साइटवर व्युत्पन्न केलेल्या हवामानविषयक डेटाचा सारांश

प्रमुख वाऱ्याची दिशा	मान्सूनपूर्व ऋतू - 2022
प्रथम प्रमुख वाऱ्याची दिशा	WNW (11.96%)
दुसरी प्रमुख वाऱ्याची दिशा	NW (10.91%)
तिसरी प्रमुख वाऱ्याची दिशा	W (9.87 %)
शांत परिस्थिती (%)	०.८६
सरासरी वाऱ्याचा वेग (मी/से)	२.९५



महिना	तापमान (°से.)		सापेक्ष आर्द्रता (%)		एकूण मासिक पाऊस (मिमी)
	किमान	कमाल	किमान	कमाल	
मार्च - 2022	१७.४	४३.५	५.५	६३.५	0
एप्रिल - 2022	२४.१	४५.९	५.३	४९.९	0
मे - 2022	२७.६	४६.२	८.७	५७.०	0
श्रेणी	**१७.४ - ४६.२**		**५.३ - ६३.५**		**एकूण = ०.०**

सभोवतालच्या हवेच्या गुणवत्तेची स्थिती

महत्त्वाच्या पॅरामीटर्सच्या संदर्भात सभोवतालच्या हवेच्या गुणवत्तेचे निरीक्षण मान्सून-पूर्व ऋतूमध्ये **(1 मार्च 2022 - 31 मे 2022)** करण्यात आले होते, तर **1 मार्च 2023 ते 31 मार्च 2023** या कालावधीत 2 वेगवेगळ्या ठिकाणी अतिरिक्त AAQ निरीक्षण केले गेले. EAC द्वारे मंजूर केलेल्या टीओआरच्या अनुषंगाने एकूण 12 ठिकाणी सभोवतालच्या हवेच्या गुणवत्तेचे निरीक्षण करण्यात आले. रेस्पिरेबल पार्टिक्युलेट मॅटर (PM10), सूक्ष्म कण (PM2.5), सल्फर डायऑक्साइड (SO_2), नायट्रोजन ऑक्साइड (NO_x), कार्बन मोनोऑक्साइड (CO), ओझोन (O_3) आणि अमोनिया (NH_3) चे स्तर आधारभूत स्थिती स्थापित करण्यासाठी निरीक्षण केले गेले. निरीक्षण परिणामांची किमान आणि कमाल मूल्ये **तक्ता 3** मध्ये दिली आहेत.

तक्ता 3: सभोवतालच्या हवेच्या गुणवत्तेच्या देखरेखीच्या परिणामांचा सारांश

अ. क्र.	स्थान		PM 10	PM 2.5	SO 2	NO 2	CO	ओझोन	NH 3
			µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg /m³	µg /m³
१	प्रकल्पाची जागा- उत्तर टोकाला स्थान	किमान	५५.४	२१.६	७.३	१८.१	०.३२३	६.२	५.३
		कमाल	७४.३	३५.६	१०.४	२८.९	०.३६९	९.९	७.९
		सरासरी	६७.१	२८.४	९.१	२३.८	०.३४५	८.१	६.७
		९८ व्या	७३.८	३५.०	१०.३	२८.२	०.३६८	९.९	७.९
२	प्रकल्प स्थळ- दक्षिण टोकाला स्थान	किमान	५२.८	१८.७	५.८	१४.९	०.२२४	५.१	४.२
		कमाल	६७.४	३२.४	८.१	२०.३	०.२८६	७.४	६.१
		सरासरी	५९.८	२५.१	६.९	१७.६	०.२६३	६.३	५.२
		९८ व्या	६६.९	३१.७	८.१	२०.१	०.२८५	७.२	६.०
३	कळंबी	किमान	४१.५	१५.८	४.८	११.४	०.२१५	४.८	४.३
		कमाल	५६.६	२२.१	६.९	१५.१	०.२५८	७.०	६.२
		सरासरी	४९.६	१८.६	५.९	१३.२	०.२३५	५.९	५.१
		९८ व्या	५५.८	२१.५	६.९	१४.८	०.२५५	७.०	६.०
४	वडधामना	किमान	५९.९	२६.२	८.९	२१.४	०.३२८	६.४	५.९
		कमाल	७७.२	३४.०	१३.८	२५.६	०.४२१	९.२	८.३
		सरासरी	६८.२	३०.१	११.५	२४.६	०.३७७	७.९	६.८
		९८ व्या	७५.४	३३.८	१३.६	२६.५	०.४१५	९.१	८.२
५	कार्मेल अकादमी CBSE	किमान	५१.६	२२.४	६.६	१६.१	०.३२८	५.९	५.१
		कमाल	७०.२	३१.३	९.७	२५.८	०.३८८	८.६	७.९
		सरासरी	६१.५	२६.४	८.२	२१.२	०.३५६	७.२	६.४
		९८ व्या	६९.२	३०.६	९.७	२५.२	०.३८३	८.६	७.९
६	केटापार	किमान	४९.५	१९.४	६.०	१४.०	०.२७८	५.४	४.८
		कमाल	६३.९	२७.५	९.२	१९.९	०.३७६	७.९	६.९
		सरासरी	५६.५	२३.६	७.६	१६.४	०.३१९	६.७	५.९
		९८ व्या	६३.४	२७.२	९.०	१९.५	०.३७२	७.८	६.८
७	आलेसूर	किमान	५९.५	२५.७	७.०	१४.८	०.३१४	५.२	५.५
		कमाल	७१.६	३३.०	१०.४	२३.५	०.४२३	९.८	९.१
		सरासरी	६५.३	२९.१	८.७	१८.८	०.३७३	७.८	७.३
		९८ व्या	७१.५	३२.५	१०.३	२२.५	०.४१९	९.८	८.८
८	गोडखैरी	किमान	६६.४	२९.०	८.८	२१.०	०.३८०	७.०	५.४
		कमाल	८८.४	४१.०	१५.९	३१.१	०.४१९	९.६	९.२
		सरासरी	७४.५	३४.९	१३.२	२७.५	०.४०२	८.५	७.६
		९८ व्या	८६.५	४०.६	१५.९	३१.१	०.४१७	९.६	८.९
९	सुरादेवी	किमान	५७.६	२२.७	९.३	१५.६	०.३५१	६.१	४.५
		कमाल	७६.७	३२.१	१३.८	२३.१	०.३८७	८.४	७.६
		सरासरी	६४.७	२७.३	११.५	२०.४	०.३७१	७.४	६.३
		९८ व्या	७५.०	३१.८	१३.५	२३.१	०.३८५	८.४	७.४
१०	खापरी	किमान	४४.५	१७.४	५.८	१२.७	०.२७०	५.१	४.४
		कमाल	६०.६	२४.३	८.५	२०.३	०.३१९	७.४	६.८
		सरासरी	५३.१	२०.५	७.२	१६.७	०.२९३	६.२	५.५
		९८ व्या	५९.७	२३.७	८.५	१९.८	०.३१५	७.४	६.८
११	साहुली	किमान	४७.२	२३.५	६.७	८.८	०.२८०	५.३	५.५
		कमाल	५९.८	२८.७	८.३	१२.१	०.३२८	७.७	७.०
		सरासरी	५४.७	२६.२	७.५	१०.४	०.३०५	६.८	६.३
		९८ व्या	५९.७	२८.५	८.२	१२.०	०.३२७	७.७	७.०
१२	डुगधामना	किमान	५०.९	२२.६	७.१	१३.९	०.३७३	६.२	५.७
		कमाल	६२.०	३२.१	१०.०	१७.६	०.४३५	८.७	८.२

अ. क्र.	स्थान		PM 10	PM 2.5	SO 2	NO 2	CO	ओझोन	NH 3
			µg/m 3	µg/m 3	µg/m 3	µg/m 3	mg/m 3	µg /m 3	µg /m 3
		सरासरी	५७.३	२८.१	८.३	१५.६	०.४१२	७.५	६.९
		९८ वा	६१.९	३२.०	९.८	१७.५	०.४३५	८.७	८.१
CPCB मानके			१०० (२४ तास)	६० (२४ तास)	८० (२४ तास)	८० (२४ तास)	२ (८ तास)	१०० (८ तास)	४००(२४ तास)

वरील परिणामांवरून असे दिसून आले आहे की PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, ओझोन आणि NH_3 च्या संदर्भात सभोवतालची हवा गुणवत्ता CPCB ने निर्दिष्ट केलेल्या परवानगी मर्यादित होती.

3.2 वातावरणीय आवाज पातळी

वातावरणीय आवाज पातळी निरीक्षण 8 निरीक्षण स्थानांवर केले गेले ; ही आठ (8) ठिकाणे गावातील परिसर, रहदारी आणि रुग्णालये आणि शाळा यांसारख्या संवेदनशील क्षेत्रांवर आधारित आहेत. निरीक्षण परिणाम **सारणी 4** मध्ये सारांशित केले आहेत.

सारणी 4: सभोवतालच्या आवाज पातळी निरीक्षण परिणामांचा सारांश

अ. क्र.	निरीक्षण स्थाने	समतुल्य आवाज पातळी	
		Leq दिवस	Leq रात्र
निवासी क्षेत्र			
•	केटापार	५३.९	४१.३
•	खापरी	५४.७	४२.६
•	आलेसुर	५१.२	३९.७
CPCB मानके dB(A)		**५५.०**	**४५.०**
व्यावसायिक क्षेत्र			
•	गोंडखैरी	६२.५	४७.२
•	सुराबर्डी	५९.८	४३.७
CPCB मानके dB(A)		**६५.०**	**५५.०**
सायलेन्स झोन			
•	कळंबी - प्रताप हायस्कूल	४६.७	३७.४
•	सोमलवाडा शाळा वडधामना	४८.९	३९.२
CPCB मानके dB(A)		**५०.०**	४०.०
औद्योगिक क्षेत्र			
•	प्रकल्प स्थळ-आलेसुर लेक फार्म हाऊस चा जवळ	५१.५	३८.३
CPCB मानके dB(A)		**७५.०**	**७०.०**

स्रोत: अॅनाकॉन लॅबोरेटरीज प्रा. लि., नागपूर द्वारे फील्ड मॉनिटरिंग आणि विश्लेषण

विविध झोनच्या संदर्भात एकंदर वातावरणीय आवाजाची गुणवत्ता CPCB द्वारे विहित मर्यादित असल्याचे आढळून आले.

3.3 भूतलावरील जल आणि भूजल संसाधने आणि गुणवत्ता

साइट विशिष्ट भूविज्ञान

प्रकल्प क्षेत्रात बेसाल्टचा समावेश आहे; चेर्टी चुनखडी आणि मातीचे आवरण ज्याची जाडी सुमारे 1.0-1.5 मीटर आहे. प्रकल्पाच्या ठिकाणी आऊटक्रॉप्स फार दुर्मिळ आहेत. गोंडखरी ब्लॉक डेक्कन ट्रॅप्च्या जाड धराने झाकलेला आहे आणि त्यानंतर कामठीचा ब्लांकेट आहे. संरचनात्मकदृष्ट्या गोंडखारी ब्लॉक मध्यम क्लिष्ट आहे. मुख्य फॉल्ट मध्ये NW-SE चा ट्रेंड असतो म्हणजेच बेडच्या स्ट्राइकच्या समांतर.

साइट विशिष्ट हायड्रोजियोलॉजी

संपूर्ण अभ्यास क्षेत्र डेक्कन ट्रॅप फॉर्मेशनशी संबंधित क्रेटेशियस युगाच्या बेसल्टिक खडकांच्या निर्मितीचा समावेश आहे. या निर्मितीची प्राथमिक पोरोसिटी आणि पारगम्यता खूपच खराब आहे. या फॉर्मेशन्समधील भूजल हे फ्रॅक्चर झोन आणि जॉइन्ट मध्ये आढळते. वेदर्ड भाग आणि खंडित क्षेत्रे हे या क्षेत्रातील जलचर बनतात.

अभ्यास क्षेत्रातील पाणी पातळीच्या खोलीची परिस्थिती:
मान्सूनपूर्व पाण्याची पातळी- 4.5 ते 9.5 मीटर bgl
पावसाळ्यानंतरची पाण्याची पातळी: 1.5 ते 5.2 m bgl

पाण्याची गुणवत्ता

भूजल आणि पृष्ठभागाच्या पाण्याच्या गुणवत्तेची सध्याची स्थिती जाणून घेण्यासाठी विविध गावांमधील आणि पाणवठ्यांमधील एकुण 16 पाण्याचे नमुने गोळा करून त्यांचे मुल्यांकन करण्यात आले, ज्यामध्ये अनुक्रमे 8 भूजल आणि 8 पृष्ठभागावरील पाण्याच्या नमुन्यांचा समावेश आहे.

A. भूजलाची गुणवत्ता

भूजलाच्या भौतिक-रासायनिक वैशिष्ट्यांचे विश्लेषण केले आणि IS-10500 मानकांशी तुलना केली गेली. विश्लेषण परिणाम सूचित करतात की पीएच हे 7.03 - 7.61 चा श्रेणीत आहे. TDS 348 - 786 mg/l पर्यंत चा श्रेणीत होता. एकूण कठीनता 210.63 - 478.05 mg/l च्या श्रेणीत असल्याचे आढळले. फ्लोराइड सांद्रता 0.14 - 0.29 mg/l च्या श्रेणीत असल्याचे आढळले. नायट्रेट आणि सल्फेट अनुक्रमे 9.62 - 18.59 mg/l आणि 9.62 - 24.01 mg/l या श्रेणीत आढळले. क्लोराईड सांद्रता 39.82 ते 209.81 mg/l च्या श्रेणीत आढळले. सर्व सॅम्पलिंग ठिकाणी एकूण सस्पेंडेड सॉलिड सांद्रता शोध मर्यादा (DL -10mg/l) पेक्षा कमी आढळली. As, Pb, Ni सारखे जड धातू शोध मायदिपेक्षा कमी म्हणजे अनुक्रमे BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) आणि लोह 0.13 ते 0.24 mg/l च्या श्रेणीत असल्याचे आढळले.

अनु क्र	स्थाने	WQI	गुणवत्ता	शेरा
१	प्रकल्प साइट	६०.७७	चांगले	भौतिक -रासायनिक मापदंडांवर आधारित पाण्याच्या गुणवत्तेचे मूल्यांकन केले गेले आणि नमुने भौतिक - रासायनिकदृष्ट्या चांगले असल्याचे आढळले.
२	कळंबी	७२.२१	चांगले	
३	केटापार	७९.९६	चांगले	
४	खापरी	६७.४८	चांगले	
५	आलेसुर	५२.३३	चांगले	
६	गोंडखैरी	८६.०४	चांगले	
७	सुराबर्डी	५०.६९	चांगले	
८	वडधामना	७०.०९	चांगले	

B. पृष्ठभागाच्या पाण्याची गुणवत्ता

पृष्ठभागावरील पाण्याच्या नमुन्यांची भौतिक-रासायनिक वैशिष्ट्ये गोळा केली आणि त्यांचे विश्लेषण केले गेले आणि IS-10500 मानकांशी तुलना केली गेली. विश्लेषण परिणाम दर्शवितात की पीएच 7.12 - 8.37 च्या दरम्यान आहे, जे 6.5 ते 8.5 च्या निर्दिष्ट मानकांमध्ये चांगले आहे. पाण्याचा pH पाणी ॲसिडिक आहे की अल्कलाइन आहे हे दर्शवते. TDS 381 - 1100 mg/l असल्याचे आढळून आले जे 2000 mg/l च्या अनुज्ञेय मर्यादित आहे. एकूण कठीनता $CaCO_3$ म्हणून 211.95 - 712.19 mg/l च्या श्रेणीत होती जी 600 mg/l च्या अनुज्ञेय मर्यादित आहे. क्लोराईड आणि सल्फेटची पातळी अनुक्रमे 58.6 - 240.8 mg/l आणि 9.28 - 57.61 mg/l या श्रेणीत आढळून आली.

Dissolved Oxygen (DO) म्हणजे पाण्यात विरघळलेल्या ऑक्सिजन (O_2) चे प्रमाण होय. कारण मासे आणि इतर जलीय जीव ऑक्सिजनशिवाय जगू शकत नाहीत, डीओ हे पाण्याच्या गुणवत्तेचे सर्वात महत्वाचे मापदंड आहे. फॉस्फरसचे नोंदवलेले मूल्य (PO_4 म्हणून) 5.1 - 6.3 mg/l च्या श्रेणीत आहे जे वनस्पती आणि एकपेशीय वनस्पतींसाठी महत्वाचे पोषक आहे. बहुतेक ताज्या पाण्यात फॉस्फरसचा पुरवठा कमी असल्यामुळे, फॉस्फरसच्या माफक प्रमाणात वाढीमुळेही वनस्पती आणि शैवाल यांची अत्याधिक वाढ होऊ शकते जी विरघळलेला ऑक्सिजन (डीओ) विघटित करतात. PO_4 ची सांद्रता 0.36 - 0.62 mg/l च्या श्रेणीत असल्याचे आढळले. COD ची श्रेणी 26 - 88 mg/l आणि BOD ची श्रेणी 3.6 - 17.3 mg/l आहे.

As, Pb, Ni सारखे जड धातू शोध मर्यादेपेक्षा कमी म्हणजे अनुक्रमे BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) आणि लोह 0.21 0.61 mg/l च्या श्रेणीत असल्याचे आढळले.

C. जीवाणूजन्य दूषितपणा

जिवाणूंचे कोलिफॉर्म गट हे पाण्यात विष्ठेच्या दूषिततेचे सूचक आहेत. सर्व पृष्ठभागावरील पाण्याचे नमुने बॅक्टेरियोलॉजिकली दूषित असल्याचे आढळून आले. पृष्ठभागावरील पाण्यामध्ये एकूण कोलिफॉर्म्सची उपस्थिती सूचित करते की जीवापूंच्या कोणत्याही स्त्रोतामध्ये (सेप्टिक प्रणाली, प्राणी कचरा इ.) आणि पृष्ठभागावरील पाण्याचा प्रवाह यांच्यामध्ये दूषित होण्याचा मार्ग अस्तित्वात आहे. जेव्हा कोलिफॉर्म बॅक्टेरिया विहिरीच्या पाण्यात आढळतात तेव्हा सदोष विहीर हे कारण असू शकते. पृष्ठभागावरील पाण्यासाठी, घरगुती कारणासाठी वापरण्यापूर्वी क्लोरिनेशन किंवा निर्जंतुकीकरण प्रक्रिया आवश्यक आहे. भूजलाचे नमुने जीवाणूजन्य दूषित असल्याचे आढळून आले नाही.

3.4 जमीन वापर भू-आच्छादन वर्गीकरण

प्रकल्प स्थळाच्या परिघापासून १० किमी रेडियल अंतराचा भू-वापर आणि भू-आच्छादन नकाशा तयार केला आहे आणि त्याचा तपशील खाली दिलेला आहे.



आकृती 4: 10 किमी त्रिज्येमध्ये LU/LC वर्गीकरणाचे पाई चार्ट वितरण

भू-आच्छादन वर्ग आणि त्यांचे कव्हरेज **तक्ता 5** मध्ये सारांशित केले आहे.

तक्ता 5: 10 किमी त्रिज्येमध्ये भू-आच्छादन वर्ग आणि त्यांचे कव्हरेज

अनु. क्र.	स्तर-I	स्तर-II	क्षेत्रफळ (चौ. किमी)	टक्केवारी (%)
१	बिल्ट-अप जमीन	वसाहत	३८.०३	८.३८
		औद्योगिक वसाहत	८.०२	१.७७
		रेल्वे ट्रॅक	०.६३	०.१४
		रस्ते पायाभूत सुविधा	१.८०	०.४०
२	शेतजमीन/ पीक	एकल पीक	१८६.५२	४१.११

अनु. क्र.	स्तर-I	स्तर-II	क्षेत्रफळ (चौ. किमी)	टक्केवारी (%)
	जमीन	दुहेरी पीक	९९.७२	२१.९८
३	वन	राखीव वन	८.४७	१.८७
		खुले मिश्र जंगल	१०.४९	२.२९
		खुले जंगल	२२.९९	५.०७
		घनदाट जंगल	१.०९	०.२४
४	स्क्रब/ वेस्टलँड्स	ओपन स्क्रब	३८.७२	८.५३
		पडीक जमीन	७.३७	१.६२
		दाट स्क्रब	१६.७२	३.६८
५	जलसाठे	नदी/ नाला/प्रवाह/कालवे	७.४३	१.६४
		तलाव/सरोवर/जलाशय	४.४५	०.९८
६	खाणी क्षेत्र	खडकाळ पडीक जमीन	१.३७	०.३०
		एकूण	३१५.२८	१००

3.5 मातीची गुणवत्ता

या प्रदेशाच्या मातीच्या प्रोफाइलचा अभ्यास करण्यासाठी, जमिनीच्या वापराच्या विविध परिस्थितीचे प्रतिनिधित्व करणाऱ्या प्रकल्पाच्या ठिकाणी आणि आजूबाजूच्या परिसरातील विद्यमान मातीच्या परिस्थितीचे मूल्यांकन करण्यासाठी नमुन्यांची ठिकाणे निवडली गेली. भौतिक, रासायनिक आणि जड धातूंचे प्रमाण निश्चित करण्यात आले. कोर कटर जमिनीत १५ सें.मी. पासून ६० सेंमी खोलीपर्यंत घुसवून नमुने गोळा करण्यात आले.

मातीची भौतिक वैशिष्ट्ये

मातीच्या नमुन्यांच्या विश्लेषणाच्या परिणामांवरून, असे आढळून आले की, अभ्यास क्षेत्रातील मातीची घनता 1.498 - 1.643 g/cc दरम्यान आहे जी वनस्पतींच्या वाढीसाठी अनुकूल स्थिती दर्शवते. पाणी धारण क्षमता 14.93 - 21.21% दरम्यान आहे. मातीमध्ये इनफीलट्रेशन दर 18.37 - 22.15 मिमी/तास या श्रेणीत आहे .

मातीची रासायनिक वैशिष्ट्ये

pH हा मातीच्या क्षारीय किंवा अम्लीय स्वरूपाचा एक महत्त्वाचा मापदंड आहे. हे सूक्ष्मजीवांच्या संख्येवर तसेच धातूंच्या आयनांच्या विद्राव्यतेवर मोठ्या प्रमाणात परिणाम करते आणि पोषक द्रव्यांची उपलब्धता नियंत्रित करते. प्रतिक्रियेत pH अम्लीय (5.34 – 6.57) असल्याचे आढळून येते. विद्युत चालकता, जमिनीतील विरघळणारे लवणांचे मोजमाप 210 - 792 µS /cm च्या श्रेणीत आढळले.

जमिनीतील महत्वाचे विद्राव्य धनायन कैल्शियम और मैग्नीशियम आहेत ज्यांची सांद्रता पातळी अनुक्रमे 229.5 - 825 mg/kg आणि 234.72 - 417.12 mg/kg आहे. क्लोराइड 107.2 - 161.5 mg/Kg च्या श्रेणीत आहे.

एन.पी.के. मूल्याच्या संदर्भात जमिनीच्या प्रमुख पोषक तत्वांच्या सुपीकता स्थितीची उपलब्ध सांद्रता 116.80 - 297.0 kg/ha (गुणवत्ता चांगली ते अधिक चांगली), 13.01 - 40.15 kg/ha (गुणवत्ता कमी ते मध्यम) आणि 120.32-358.47kg/ha (गुणवत्ता कमी ते चांगली) च्या श्रेणीत आढळली. सेंद्रिय कार्बन 0.22% - 0.67% (गुणवत्ता कमी ते सरासरी पुरेशी) या श्रेणीत आढळून आले.

3.6 जीवशास्त्रीय वातावरण

अभ्यास क्षेत्रात वनस्पतींची रचना

जैव-भौगोलिक वर्गीकरणानुसार, प्रकल्प क्षेत्र जैव-भौगोलिक प्रांत (6D) डेक्कन प्रायद्वीप-मध्य पठार क्षेत्रांतर्गत येतो. तर, चॅम्पियन आणि सेठ नुसार, 1968 क्षेत्रातील वनस्पतींचे प्रकार उष्णकटिबंधीय कोरडे पर्णपाती जंगल म्हणून गटबद्ध केले.

माइन लीज साइटवर किरकोळ वनस्पती जसे *Butea monosperma* (पळस), *Tectona grandis* (सागवान), *Acacia sp.* (बाभूळ), *Maytenus emarginata* (भाराटी), *Lantana camera* (घानेरी) आणि *Hyptis suaveolens* (रानतुळशी), *Calotropis procera* (रुई), इ. आढळतात. माइन लीज क्षेत्रामध्ये आणि माइन लीज क्षेत्राच्या मध्य उत्तरेकडील भागात नाला ओलांडण्याच्या काठावर काही मोठी झाडे आढळतात.

अभ्यास क्षेत्रात एकूण 133 वनस्पतींच्या प्रजातींचे निरीक्षण करण्यात आले. फुलांच्या रचनेबद्दल तपशील खालीलप्रमाणे आहेत.

A. झाडे: अभ्यास क्षेत्रात एकूण ६६ प्रजाती आढळल्या.

B. **झुडपे (लहान झाडे):** अभ्यास क्षेत्रातून एकूण 25 प्रजातींची गणना करण्यात आली.
C. **लहान झुडपे:** अभ्यास क्षेत्रात 16 प्रजातींचे निरीक्षण करण्यात आले.
D. **गवत:** अभ्यास क्षेत्रातून एकूण 12 प्रजातींची नोंद करण्यात आली
E. **वेली:** अभ्यास क्षेत्रात वेलीच्या 12 प्रजातींची नोंद करण्यात आली.
F. **परजीवी वनस्पती:** 02 प्रजाती अभ्यास क्षेत्रात सूचीबद्ध आहेत.

RET (दुर्मिळ, तुप्तप्राय आणि धोकादायक प्रजाती) ची स्थिती

अभ्यास क्षेत्रातील गणना केलेल्या वनस्पतींपैकी, भारतीय वनस्पतींच्या RED डेटा बुकद्वारे, त्यापैकी कोणालाही धोका श्रेणी नियुक्त केलेली नाही. (नायर आणि शास्त्री , 1990) आणि धोक्यात असलेल्या संवहनी वनस्पतींची लाल यादी (IUCN, 2010; BSI, 2003) नुसार.

अभ्यास क्षेत्राच्या स्थानिक वनस्पती

डी कॅन्डोले (1855) यांनी प्रथम "स्थानिक" ही संकल्पना वापरली, जी वर्गीकरण युनिटचे क्षेत्र म्हणून परिभाषित केली जाते, विशेषत: ज्या प्रजातींचे वितरण किंवा निवासस्थान मर्यादित आहे, भौगोलिक, पर्यावरणीय किंवा ऐहिक अडथळ्यांद्वारे आसपासच्या प्रदेशापासून वेगळे केले जाते. नोंदवलेल्या वनस्पती प्रजातींपैकी एकालाही या प्रदेशातील स्थानिक वनस्पतीचा दर्जा देण्यात आलेला नाही.

अभ्यास क्षेत्रातील प्राणी

10 किमी त्रिज्येच्या अभ्यास क्षेत्रात सस्तन प्राणी, सरपटणारे प्राणी, पक्षी आणि इतर खालच्या अपृष्ठवंशी प्राण्यांच्या अनेक प्रजातींचे निवासस्थान असल्याचे आढळून आले. आधी वर्णन केल्याप्रमाणे, अभ्यास क्षेत्राचा भाग जंगलाने व्यापलेला आहे. रानडुक्कर, सांभर, नीलगाय, भेकर, चितळ यांसारखे मोठे प्राणी तसेच जॅकल, माकड, कोल्हे इत्यादी लहान आकाराचे प्राणी बाजारगाव आणि माथेगड राखीव वनक्षेत्रात मुबलक प्रमाणात आढळतात. संपूर्ण अभ्यास क्षेत्रामध्ये मुख्यत: वनक्षेत्रातील पाणवठ्यांजवळ आणि कृषी क्षेत्राजवळ पक्ष्यांचे निरीक्षण करण्यात आले. अभ्यास क्षेत्रात उभयचर प्राणी देखील आढळून आले. वेणा नदी आणि जलसाठ्यात गोठ्या पाण्याचे मासे आढळून आले.

- **IUCN RED (2013) यादीनुसार**

नोंदवलेल्या प्राण्यांपैकी, सर्व IUCN नुसार सर्वात कमी चिंता म्हणजेच Least Concern (LC) श्रेणीत वर्गीकृत आहेत.

- **वन्यजीव (संरक्षण) अधिनियम , १९७२**

भारतीय वन्यजीव (संरक्षण) अधिनियम, १९७२ द्वारे काही दिसणाऱ्या प्राण्यांना वेगवेगळ्या अनुसूचित समाविष्ट करून संरक्षण दिले गेले.

उभयचर प्राण्यांमध्ये, भारतीय नाग (*Naja naja*), घोणस (*Daboia russelii*) आणि धामण (*Ptyas mucosa*) यांना वन्यजीव संरक्षण अधिनियम, (1972) च्या अनुसूची-II नुसार संरक्षण प्रदान करण्यात आले आणि मण्यार (*Bungarus caeruleus*) आणि भारतीय तोड (*Duttaphrynus parietalis*) यांना वन्यजीव संरक्षण कायदा, (1972) च्या अनुसूची – IV नुसार प्रदान करण्यात आले होते.

सस्तन प्राण्यांमध्ये; सामान्य मुंगूस (*Herpestes edwardsi*), कोल्हा (*Canis aureus*), जंगली मांजर (*Felis chaus*), हनुमान लंगूर (*Presbytis entellus*), अनुसूची-II मध्ये संरक्षित आहेत. जंगली डुक्कर (*Sus scrofa*) यांना शेड्यूल-III मध्ये समाविष्ट करून संरक्षण प्रदान केले आहे, तर ससा आणि खार अनुसूची IV मध्ये समाविष्ट आहेत आणि उंदीर आणि वटवाघुळांचा वन्यजीव संरक्षण अधिनियम, (1972) च्या अनुसूची V मध्ये समावेश आहे.

अभ्यास क्षेत्रातील पक्ष्यांमध्ये, वन्यजीव संरक्षण अधिनियम, (1972) नुसार सर्व पक्षी अनुसूची IV मध्ये समाविष्ट आहेत.

3.7 सामाजिक-आर्थिक वातावरण

लोकसंख्याशास्त्रीय (Demographic) तपशीलांचा तपशील

तक्ता 6: अभ्यास क्षेत्रातील लोकसंख्येचे तपशील

झोन	एकूण कुटुंब	एकूण लोकसंख्या	एकूण पुरुष	एकूण स्त्रिया	एकूण 0-6 मुले	एकूण अनुसूचित जाती	एकूण अनुसूचित जमाती	साक्षर लोकसंख्या	निरक्षर लोकसंख्या
0-२ किमी	२६८९	११९८०	५८२०	५३६०	१३४७	२१०३	८१०	८५५७	२६२३
२-५ किमी	५८३४	२४६३९	१२८२६	११८१३	२८०१	७५३२	१९४०	१९०६७	५५७२
५-१० किमी	१६९६४	७४१९१	३८४८९	३५७०२	८१७१	११६७०	१०४५	५७७५२	१६४३१
10 किमी	२५४८७	११००१०	५७१३५	५२८७५	१२३१९	२१३०५	११७९५	८५३७६	२४६३४
% मध्ये			५१.९४	४८.०६	११.२०	१९.३७	१०.७२	७७.६१	२२.३९

स्रोत: प्राथमिक जनगणना गोषवारा 2011, राज्य महाराष्ट्र.

अभ्यास क्षेत्रातील लिंग गुणोत्तराचा तपशील

2011 च्या जनगणनेच्या नोंदीनुसार लिंग गुणोत्तर हे लोकसंख्येतील महिला आणि पुरुषांचे प्रमाण आहे (सामान्यीकरण 1000 पर्यंत). अभ्यास क्षेत्रातील लिंग गुणोत्तर असमानपणे वितरित ट्रेंड दर्शविते. एकूण लिंग गुणोत्तर 925 महिला ते हजार पुरुष आहे. बालक 0-6 लिंग गुणोत्तर 935 महिला ते 1000 पुरुष होते. अनुसूचित जाती प्रवर्गात 946 महिला आणि एसटी प्रवर्ग मध्ये 943 महिला ते 1000 पुरुष.

रोजगार नमुना तपशील

अभ्यास क्षेत्रातील रोजगार आणि मुख्य कामगार रोजगार नमुना **तक्ता 7** मध्ये दिलेला आहे.

तक्ता 7: रोजगार आणि मुख्य रोजगार नमुना तपशील

	एकूण रोजगाराचे विभाजन		एकूण कामगारांचे विभाजन		एकूण मुख्य कामगारांचे विभाजन			
झोन	एकूण कामगार	एकूण बिगर कामगार	एकूण सीमांत कामगार	एकूण मुख्य कामगार	शेती करणारे	शेती कामगार	घरगुती उद्योग कामगार	मुख्य इतर कामगार
०-२ किमी	४७४९	६४३९	४१६ -	४३३३	७१०	१८४३	६०	१७२०
२-५ किमी	९९४८	१४६९१	११९०	८७५८	६७५	१८५८	१६६	६०५९
५-१० किमी	३१२३२	४२९५९	३४६४	२७७६८	४४५५	९८७१	६९७	१२७४५
१० किमी	४५९२९	६४०८१	५०७०	४०८९५	५८४०	१३५७२	९२३	२०५२४
% मध्ये	४१.७५	५८.२५	४.६१	३७.१४	५.३१	१२.३४	०.८४	१८.६६

स्रोत: प्राथमिक जनगणना गोषवारा 2011, राज्य महाराष्ट्र.

पायाभूत सुविधा

पायाभूत सुविधा

पायाभूत सुविधा	उपलब्धता (टक्केवारीत) सन २०११ च्या नागपूर जनगणनेनुसार
शैक्षणिक सुविधा	९५
पिण्याचे पाणी	९७
रस्ते	९७
वीज	९५
संदेशवहन	९४
वाहतूक	९०
सरकारी प्राथमिक आरोग्य केंद्र आणि उप केंद्र	२०
बँक आणि सोसायटी	६५
ड्रेनेज	७३
मनोरंजन	१३

सर्वेक्षण / अभ्यास क्षेत्राची ठळक निरीक्षणे

शिक्षण :

या गावात शासकीय पूर्व प्राथमिक, शासकीय प्राथमिक, खाजगी प्राथमिक, शासकीय माध्यमिक, खाजगी माध्यमिक व शासकीय माध्यमिक शाळा उपलब्ध आहेत. सर्वात जवळचे शासकीय अभियांत्रिकी महाविद्यालय व शासकीय वैद्यकीय महाविद्यालय हिंगणा येथे आहे . सर्वात जवळची शासकीय अपंग शाळा, शासकीय कला व विज्ञान पदवी महाविद्यालय, शासकीय एमबीए महाविद्यालय, शासकीय पॉलिटेक्निक महाविद्यालय आणि शासकीय आयटीए महाविद्यालय नागपुरात आहे.

आरोग्य:

या गावात प्राथमिक आरोग्य सेवा केंद्र , 1 प्राथमिक आरोग्य उपकेंद्र, 1 प्रसूती व बाल कल्याण केंद्र , 1 टीबी क्लिनिक, 1 आधुनिक रुग्णालय, 1 पशुवैद्यकीय रुग्णालय, 1 कुटुंब कल्याण केंद्र , 2 वैद्यकीय दुकाने उपलब्ध आहेत.

शेती:

या गावातील एकूण सिंचित क्षेत्र 639 हेक्टर बोअरहोल्स/ट्यूबवेल पासून 236.2 हेक्टर हे सिंचनाचे स्त्रोत आहे.

पिण्याचे पाणी आणि स्वच्छता:

वर्षभर नळाने ने पाणी पुरवठा असतो. झाकलेली विहीर, उघडी विहीर आणि हातपंप हे पिण्याच्या पाण्याचे इतर स्रोत आहेत. या गावात ओपन ड्रेनेज सिस्टिम उपलब्ध आहे. रस्त्यावर कचरा उचलण्याची व्यवस्था आहे. सांडपाणी थेट पाणी थेट जलाशयांमध्ये सोडले जाते.

संदेशवहन:

या गावात पोस्ट ऑफिस उपलब्ध आहे. लँडलाइन आणि मोबाइल कव्हरेज देखील उपलब्ध आहे. या गावात इंटरनेट सेंटर उपलब्ध आहे. या गावात खाजगी कुरियर सुविधा उपलब्ध आहे.

वाहतूक:

गावांमध्ये सार्वजनिक बस सेवा उपलब्ध आहे. या गावांमध्ये खासगी बससेवाही उपलब्ध आहे. 10 किमी पेक्षा कमी अंतरावर कोणतेही रेल्वे स्टेशन नाही. या गावात ऑटो उपलब्ध आहेत. या गावातून राष्ट्रीय महामार्ग जातो. तसेच 10 किमी त्रिज्येच्या क्षेत्रा मध्ये राज्य महामार्ग पण आहे. या गावातून जिल्हा रस्ता जातो. पक्का रस्ता,कच्चा रस्ता, मकाडम रस्ता आणि पायवाट हे गावातील इतर रस्ते आणि वाहतूक आहेत.

वाणिज्य:

गावात व्यापारी बँक उपलब्ध आहे. या गावात सहकारी बँक उपलब्ध आहे. या गावात कृषी पतसंस्था, मंडई /नियमित बाजार, साप्ताहिक हाट / संधा आणि कृषी विपणन संस्था उपलब्ध आहेत.

इतर सुविधा:
ग्रामस्थांना उन्हाळ्यात 20 तास आणि हिवाळ्यात 22 तास वीज पुरवठा मिळते, अंगणवाडी केंद्र, आशा, जन्म-मृत्यू नोंदणी कार्यालय, क्रीडा सुविधा, सिनेमा थिएटर आहे व सार्वजनिक वाचनालय, दैनिक वृत्तपत्र आणि मतदान केंद्र या गावातल्या इतर सुविधा आहेत.

3.8 जीवन गुणवत्ता

रहिवासी लोकसंख्येला मिळणाऱ्या सार्वजनिक सुविधांच्या संदर्भात जीवनाच्या गुणवत्तेचे उत्तम वर्णन केले जाते. गोंडखरी हे भारताच्या महाराष्ट्र राज्यातील नागपूर जिल्ह्यातील कळमेश्वर तालुक्यातील एक गाव आहे.
हा ब्लॉक राष्ट्रीय महामार्ग NH6 पासून सुरु होणाऱ्या जिल्हा परिषद टार रस्त्याने जोडला आहे आणि नागपूर शहरापासून सुमारे 20 किमी पश्चिमेला आहे. हा ब्लॉक राष्ट्रीय महामार्ग 6 च्या अगदी उत्तरेला आहे. कळमेश्वर टाउनशिप ब्लॉकच्या उत्तरेस सुमारे 8 Km अंतरावर आहे तर नागपूर शहर 20 Km पूर्वेस आहे. सर्वात जवळचे रेल्वे स्टेशन कळमेश्वर आहे जे 10 किलोमीटर अंतरावर आहे. सर्वात जवळचे विमानतळ नागपूर विमानतळ आहे जे ब्लॉकपासून सुमारे 20 किमी अंतरावर आहे. या गावात शासकीय पूर्व प्राथमिक, शासकीय प्राथमिक, खाजगी प्राथमिक, शासकीय माध्यमिक, खाजगी माध्यमिक व शासकीय माध्यमिक शाळा उपलब्ध आहेत. सर्वात जवळचे शासकीय अभियांत्रिकी महाविद्यालय व शासकीय वैद्यकीय महाविद्यालय हिंगणा येथे आहे . सर्वात जवळची शासकीय अपंग शाळा, शासकीय कला व विज्ञान पदवी महाविद्यालय, शासकीय एमबीए महाविद्यालय, शासकीय पॉलिटेक्निक महाविद्यालय आणि शासकीय आयटीआय महाविद्यालय नागपुरात आहे. या गावात 1 प्राथमिक आरोग्य सेवा केंद्र, 1 प्राथमिक आरोग्य उपकेंद्र, 1 प्रसूती व बाल कल्याण केंद्र, 1 टीबी क्लिनिक, 1 आधुनिक रुग्णालय, 1 पशुवैद्यकीय रुग्णालय, 1 कुटुंब कल्याण केंद्र, 2 वैद्यकीय दुकाने उपलब्ध आहेत. या गावात पाईप फॅक्टरी उत्पादन उत्पादक आहे. या गावातील एकूण सिंचित क्षेत्र 639 हेक्टर बोअरहोल्स/ट्यूबवेल पासून 236.2 हेक्टर हे सिंचनाचे स्त्रोत आहे. गावांमध्ये सार्वजनिक बस सेवा उपलब्ध. पक्के रस्ता, कच्चा रस्ता, मकाडम रस्ता आणि पायवाट हे गावातील इतर रस्ते आणि वाहतूक आहेत. वर्षभर नळाने पाणी पुरवठा असतो. झाकलेली विहीर, उघडी विहीर आणि हातपंप हे पिण्याच्या पाण्याचे इतर स्त्रोत आहेत . या गावात खुली ड्रेनेज व्यवस्था उपलब्ध आहे. रस्त्यावर कचरा उचलण्याची व्यवस्था आहे. या गावात पोस्ट ऑफिस उपलब्ध आहे. लँडलाइन आणि मोबाइल कव्हरेज देखील उपलब्ध आहे. या गावात इंटरनेट सेंटर उपलब्ध आहे. या गावात खाजगी कुरियर सुविधा उपलब्ध आहे. गावात व्यापारी बँक उपलब्ध आहे. या गावात सहकारी बँक उपलब्ध आहे. या गावात कृषी पतसंस्था, मंडई /नियमित बाजार, साप्ताहिक हाट / संधा आणि कृषी विपणन संस्था उपलब्ध आहेत. ग्रामस्थांना उन्हाळ्यात 20 तास आणि हिवाळ्यात 22 तास वीज पुरवठा मिळते, अंगणवाडी केंद्र, आशा, जन्म-मृत्यू नोंदणी कार्यालय, क्रीडा सुविधा, सिनेमा थिएटर आहे व सार्वजनिक वाचनालय, दैनिक वृत्तपत्र आणि मतदान केंद्र या गावातल्या इतर सुविधा आहेत.

4.0 अपेक्षित पर्यावरणीय प्रभाव आणि ते कमी करण्याचे उपाय

4.1 बांधकाम टप्प्यात ओळखले जाणारे परिणाम आणि ते कमी करण्याच्या प्रस्तावित उपाययोजना

तक्ता 4.1. बांधकाम स्टेज दरम्यान प्रभाव

बांधकाम स्टेज	क्रियाकलाप	संभाव्य पर्यावरणीय प्रभाव
अ) बांधकाम-पूर्व उपक्रम	i) माती तपासणी	नगण्य
	ii) पर्यावरण निरीक्षण	नगण्य
b) साइटचे काम / इतर सुविधा	i) साफसफाई आणि ग्रेडिंग	नगण्य
	ii) तात्पुरत्या सुविधा, जसे की शेड, अप्रोच रस्ते, स्वच्छता विषयक सुविधा	मातीची धूप आणि वाहतूक तीव्रतेत बदल
	iii) उत्खनन आणि खंदकांचा समावेश असलेले जमिनीवरील काम	मातीची धूप, रनऑफ, वाहतुकीत वाढ, धुळीचे उत्सर्जन
	iv) फाउंडेशनचे काम, पायलिंग काम आणि ड्रेनेज सिस्टम किंवा चेक डॅमचे बांधकाम	धूळ, दृश्य आणि ध्वनी प्रदूषण
	v) रस्त्यांचे बांधकाम	धूळ आणि ध्वनी प्रदूषण

बांधकाम स्टेज	क्रियाकलाप	संभाव्य पर्यावरणीय प्रभाव
	vi) उपकरणे उभारणी आणि उपयुक्तता प्रणाली	धूळ, आवाज आणि दृश्य प्रभाव

धुळीची पातळी मोठ्या प्रमाणात कमी करण्यासाठी सतत पाणी फवारणीची व्यवस्था केली जाईल. बांधकाम अवस्थेमुळे होणारा परिणाम हा तात्पुरता स्वरूपाचा असून पर्यावरणावर कायमस्वरूपी परिणाम होणार नाही.

4.2 बांधकाम आणि ऑपरेशन फेज दरम्यानचे प्रभाव आणि ते कमी करण्याचे उपाय

टोपोग्राफीवर आणि जमीन पर्यावरणावर परिणाम

कोळशाच्या एकूण उत्खननामुळे सूक्ष्म बेसिन, सबसिडेंस फ्रॅक्चर, रिज, पॉट होल इत्यादी विकसित होऊन स्थलाकृतिमध्ये बदल होऊ शकतात.

खाणकाम करताना भूगर्भात पुरेसे खांब ठेवण्याची काळजी घेतली जाईल जेणेकरुन पृष्ठभागाच्या पाण्याच्या साठ्याचे कोणतेही नुकसान होऊ नये.

मोठ्या प्रमाणात उत्खनन हे जमिनीच्या वापरावर परिणाम होण्याचे मूळ कारण आहे.

शमन उपाय:

- विद्यमान निकषांनुसार खाण प्राधिकरणाशी सल्लामसलत करून लीज सीमा, नदी/नाले, सार्वजनिक रस्ते, रेल्वे आणि शाफ्टच्या निकषांनुसार विविध अडथळे बफर तयार केले जातील.
- खाण विकासातून निर्माण होणारा कचरा खाण लीज क्षेत्रातील कचरा डंप क्षेत्रात स्वतंत्रपणे वाहून नेला जाईल आणि टाकला जाईल.
- न हलणाऱ्या कचऱ्याच्या ढिगाऱ्यांवर हरितपट्टा विकसित केला जाईल, ज्यामुळे डंपची स्थिरता आणि परिसराचे सौंदर्य सुधारेल.
- खाणीचे भूमिगत कामकाज पुरेशा वायुवीजन व्यवस्थेमुळे हवेशीर आहे. खाण सुरक्षा महासंचालक (DGMS) द्वारे या संदर्भात निर्दिष्ट केलेल्या आवश्यकता आणि मानकांचे पालन केले जाईल.

एकूण कार्यक्षम कोळशाचा साठा संपल्यानंतर, भाडेपट्टा क्षेत्रामध्ये, जमिनीच्या बदललेल्या फॉर्मवर शक्य तितक्या चांगल्या जमिनीच्या वापरासाठी खाणकामानंतरच्या पुनर्वसन क्रियाकलापांच्या अधीन केले जाईल.

हवेच्या गुणवत्तेवर परिणाम

खाणकाम केवळ भूगर्भातच मर्यादित आहे. पृष्ठभागावरील हवेच्या गुणवत्तेवर कोणताही लक्षणीय परिणाम होणार नाही, तथापि, खाणीच्या निकासमध्ये मिथेन आणि CO_2 ची किरकोळ टक्केवारी असते, जे सभोवतालच्या वातावरणात सहजपणे पसरतात. खाणीमध्ये CO आणि मिथेनच्या सांद्रतेचे परीक्षण करण्यासाठी खाणीला ऑनलाइन सेन्सर प्रदान केले जातील. खाणीपासून रेल्वे साइडिंगपर्यंत कोळशाच्या वाहतुकीसाठी डंपरच्या (35 टन) हालचालींमुळे अंदाजित रहदारीचे प्रमाण मोजले गेले आहे आणि एका वेळी (35 टन डंपर) दररोज जास्तीत जास्त ट्रिप काढल्या जातील. ट्रकच्या या हालचालींमुळे नायट्रोजन ऑक्साईड्स, कार्बन मोनॉक्साईड आणि पार्टिकुलेट मॅटर मध्ये योगदान अपेक्षित आहे.

शमन उपाय

- कोळशाच्या वाहतुकीसाठी वापरण्यात येणारी सर्व वाहने धुळीचे प्रदूषण टाळण्यासाठी ताडपत्रीने झाकलेली असावीत.
- कोळसा खाण लीज क्षेत्रात कठोर वाहतूक व्यवस्थापन प्रणालीमुळे कोळसा वाहतुकीच्या हालचालींमुळे वायू प्रदूषणाची व्याप्ती कमी होईल या प्रकल्पाच्या आराखड्यात हिरवळीच्या विकासासाठी उदार क्षेत्र निश्चित करण्यात आले आहे. कोळसा खाण लीज क्षेत्रातील उत्सर्जन रोखण्यासाठी हे प्रभावी माध्यम म्हणून काम करेल.
- प्रकल्पाच्या ठिकाणी आणि बाहेर जाणारी वाहने वायू प्रदूषणाचा एक महत्त्वाचा स्रोत आहे. साइटचे नियमन योग्यरित्या न केल्यास, ते मुक्त रहदारीच्या हालचालीमध्ये व्यत्यय निर्माण करू शकते ज्यामुळे वायू प्रदूषणाची समस्या उद्भवू शकते. वाहतुकीचे योग्य नियमन करून आणि प्रकल्पाच्या ठिकाणी कडक आणि शिस्तबद्ध वाहनांची ये-जा आणि ऑपरेशनचे पालन करून ही अडचण बऱ्याच प्रमाणात सोडवली जाऊ शकते. वाहनांच्या उत्सर्जनाचे मानक लागू करून, या समस्येला मोठ्या प्रमाणात आळा बसू शकतो.
- कोळशाच्या वाहतुकीसाठी BS-6 ट्रक/डंपरचा वापर केला जाईल.
- वाहनांमध्ये जीपीएस ट्रॅकिंग आणि स्पीड मॉनिटर्स बसवले जातील.
- ज्या ट्रककडे प्रदूषण नियंत्रण प्रमाणपत्र असल्याचे आढळून येईल त्यांनाच परवानगी दिली जाईल. प्रवासी वाहतुकीसाठीही

खाण क्षेत्रात वापरल्या जाणाऱ्या इतर प्रत्येक वाहनाची विहित वारंवारतेवर नियंत्रणाखालील प्रदूषणासाठी तपासणी केली जाईल.

- मालवाहू वाहनांच्या सुरळीत वाहतुकीसाठी प्रकल्पाच्या ठिकाणी पुरेसे आणि नियोजित रस्त्यांचे जाळे उभारले जाईल.
- हे सुनिश्चित केले जाईल की कार्यक्षेत्रात चालणारी सर्व वाहने योग्यरित्या ट्यून केलेली आहेत आणि उत्सर्जन परवानगी मर्यादेत ठेवण्यासाठी देखभाल केली जाईल. लोडिंग आणि अनलोडिंग पॉईंट्सवर, पाणी शिंपडण्याची व्यवस्था केली जाईल जेणेकरून सामग्रीच्या वाहतुकीदरम्यान धूळ निर्माण कमी होईल.
- खाण क्षेत्रा मधील सर्व अंतर्गत रस्ते मेटल केलेले आहेत; त्यामुळे अंतर्गत रस्त्यांवरून निर्माण होणारी धूळ नगण्य असेल. ग्रीनबेल्ट विकासामुळे फ्युजीटीव उत्सर्जन कमी होण्यास मदत होईल.

4.1.1 सभोवतालच्या आवाजाची पातळी आणि परिणामांवर प्रभाव

खाणकामाची कामे भूगर्भात केली जाणार असल्याने, सभोवतालच्या आवाजाच्या पातळीवर कोणताही महत्त्वपूर्ण परिणाम होणार नाही. आवाजाच्या पातळीला प्रभावित करणारी एकमेव क्रिया पृष्ठभागाच्या खाणीच्या वेंटिलेशन फॅनमुळे असू शकते. परंतु फॅन हाऊसच्या आसपासच्या अलगावमुळे कोणत्याही प्रमाणात कोणत्याही प्रतिकूल आवाज पातळीची कल्पना केलेली नाही. त्यामुळे, खड्ड्यांजवळील सभोवतालच्या वातावरणावर कोणताही स्पष्ट किंवा निश्चित प्रभाव पडत नाही.
ड्रिलिंग, कटिंग, कोळसा क्रशिंग, स्क्रीनिंग आणि त्याच्या हाताळणीतून महत्त्वपूर्ण आवाज निर्माण होऊ शकतो. परंतु हे सर्व विशिष्ट क्षेत्रापुरते मर्यादित आहेत, जे बंदिस्त आहेत. सभोवतालच्या आवाजावर त्याचा कारसा प्रभाव पडत नाही कारण ही सर्व ऑपरेशन्स योग्य बंदिस्तांमध्ये केली जातात.
पुढे असा निष्कर्ष काढला जाऊ शकतो की ध्वनी प्रसाराच्या मार्गामध्ये विविध स्थलाकृतिक वैशिष्ट्यांच्या उपस्थितीमुळे वास्तविक परिस्थितीत आवाजाची पातळी आणखी कमी केली जाईल.

श्रवणशक्ती कमी करण्यासाठी OSHA (व्यावसायिक सुरक्षा आणि आरोग्य प्रशासन) द्वारे लागू केलेले नुकसान जोखीम निकष, 90 dB (A) पर्यंत आवाज पातळी दररोज 8 तासांच्या कामकाजाच्या शिफ्टसाठी स्वीकार्य आहे असे नमूद करते.

शमन उपाय

1. या तंत्रामध्ये मूलत: खाण खनिकर्म उपकरणे डिझाइन करणे देखील समाविष्ट केले आहे ज्याचा उद्देश आवाज उत्सर्जन नियंत्रित करणे आणि कमी करणे आहे. भूगर्भातील खाणकामासाठी पसंतीची किफायतशीर प्रणाली म्हणजे आवाज निर्माण करणाऱ्या युनिट्सच्या ऑपरेटरसाठी वैयक्तिक संरक्षणात्मक प्रणाली इअर मफ्स.
2. तीक्ष्ण ड्रिल बिट्सने ड्रिलिंग केले जाईल जे आवाज कमी करण्यास मदत करतात आणि ते सुरूच ठेवले जाईल.
3. खाणकाम भूगर्भामध्ये केले जाणार असल्याने, पृष्ठभागाच्या आवाजाच्या पातळीवर कोणताही विशेष परिणाम होणार नाही. आवाजाच्या पातळीला प्रभावित करणारी एकमेव क्रिया पृष्ठभागाच्या खाणीच्या वेंटिलेशन फॅनमुळे असू शकते.
4. भूगर्भातील ब्लास्टिंगचा आवाज केवळ क्षणिक असतो आणि डीले डिटोनेटर्सच्या ब्लास्टिंगमुळे जमिनीच्या कंपनांचा प्रभाव कोणत्याही भौतिक नुकसानास नगण्य असतो.
5. 5. उपकरणांद्वारे निर्माण होणारा आवाज योग्य देखभाल करून कमी केला जाऊ शकतो. तसेच उपकरणे खरेदी करताना आवश्यक तपशील म्हणून कमी-आवाज पातळी निर्मितीचे डिझाइन निश्चित केले जाईल.
6. प्रचलित नियमांचे पालन सुनिश्चित करण्यासाठी प्रकल्पाच्या ठिकाणी नियमित आवाजाचे निरीक्षण केले जाईल.
7. वैयक्तिक संरक्षणात्मक उपकरणे (पीपीई) जसे की इअर प्लग/इअर मफ (ear plugs/ear muffs) प्रदान केले जातील.

जमिनीच्या कंपनामुळे होणारे परिणाम

जमिनीवर कंपने विविध कारणांमुळे होतात, जसे ब्लास्टिंग ऑपरेशन्स, मायनिंग ऑपरेशन्स मुळे होणारे खचणे (Subsidence), मोबाईल उपकरणे चालवणे, खडक (rock) फुटणे आणि खडकांचे धक्के यामुळे होतात. स्फोटामुळे हवेतील कंपन लहरी देखील निर्माण होतात. कंपनामुळे संरचनात्मक (स्ट्रक्चरल) नुकसान होऊ शकते, जे कंपनामुळे नियतकालिक प्रवेगवर अवलंबून असते. हवाई स्फोटामुळे संरचनात्मक इत्यादी असुरक्षित इमारतींचे नुकसान होऊ शकते आणि खिडक्यांच्या काचा फुटू शकतात.
यांत्रिक प्रभावामुळे होणारी कंपने अस्तित्वात असलेल्या खडकांवर कार्य करतात आणि त्यांना ताणतणाव , कॉम्प्रेसीव (compressive) आणि शिअरिंग तणावाच्या (shearing stresses) अधीन करतात ज्यामुळे त्यांची यांत्रिक वैशिष्ट्ये त्वरित परिणामासह खराब होतात. ड्रायर, खाणी, क्रशर, ट्रॅफिक आणि ब्लास्टिंग यांसारख्या कायमस्वरूपी स्थापनेमुळे कंपने होतात. या सर्वांमध्ये, ब्लास्टिंग हा कंपनाचा प्रमुख स्रोत आहे.

कंपन नियंत्रण उपाय

खाणीतील ब्लास्टिंग ऑपरेशन्स डीप होल ड्रिलिंग आणि डीले डिटोनेटर वापरून ब्लास्टिंगद्वारे केली जातील, ज्यामुळे जमिनीचे कंपन कमी होते. साधारणपणे पाळले जाणारे आणि सध्या प्रस्तावित केलेले उपाय खाली तपशीलवार आहेत:

- जास्त चार्जिंग टाळण्यासाठी आणि सुरक्षित ब्लास्टिंगसाठी योग्य प्रमाणात स्फोटक, योग्य स्टेमिंग मटेरियल आणि योग्य विलंब प्रणालीचा उपयोग केला जाईल.
- जमिनीवरील कंपन आणि उडणाऱ्या खडकांवर नियंत्रण ठेवण्यासाठी योग्य स्फोट डिझाइन केले जाईल.
- ब्लास्टिंगपासून पुरेसे सुरक्षित अंतर राखले जाईल.
- प्रति विलंब चार्ज कमी केले जाते आणि शक्यतो प्रत्येक स्फोटासाठी अधिक विलंब वापरला जातो.
- ब्लास्टिंग दरम्यान, तत्काळ परिसरातील इतर क्रियाकलाप तात्पुरते थांबवले जातात.
- ओव्हरबर्डन, खोली, व्यास आणि अंतर यांसारखे ड्रिलिंग पॅरामीटर्स योग्य ब्लास्ट देण्यासाठी योग्यरित्या डिझाइन केलेले आहेत.
- ब्लास्टिंग दरम्यान खाणीतील इतर सर्व क्रियाकलाप तात्पुरते थांबवणे,
- ब्लास्टिंग हा स्तर मोकळा करण्यासाठीच केला जाईल, ज्यामुळे प्रत्येक स्फोटासाठी वापरल्या जाणाऱ्या स्फोटकांचे प्रमाण कमी होईल.
- नियंत्रण उपायांच्या परिणामकारकतेचे मूल्यांकन करण्यासाठी जवळच्या गावात जमिनीच्या कंपनांचे नियमित निरीक्षण करणे.

4.1.1 पाण्याच्या पर्यावरणावर परिणाम

भूमिगत खाण II seam, III seam, V seam आणि VIII seam मध्ये विकास आणि डिपिलरिंग म्हणून सुरू आहे. खाणकामामुळे भूजलाचा ऱ्हास होणार आहे. आलेसुर तलाव आणि सुराबर्डी तलाव लीज एरिया मध्ये आहेत जे प्रकल्पासाठी पृष्ठभागाच्या पाण्याची गरज पूर्ण करतील. भूपृष्ठावरील आणि जमिनीच्या खाली असलेल्या जलसाठ्यातील पाणी, स्तरातून झिरपते आणि खाणीच्या कार्यापर्यंत पोहोचते. पाण्याचा साठा stowing water देखील खाणीत प्रवेश करणाऱ्या पाण्याचे प्रमुख स्त्रोत आहे. या खाणीतून नियमितपणे पाणी उपसण्याची गरज आहे. ताबडतोब, सर्व डिपिलरिंग हायड्रॉलिक वाळूच्या साठ्याने (hydraulic sand stowing) ने केले जाणार असल्याने, मान्सूनच्या पर्जन्यमानाचा धोका भूगर्भात काम करत असताना मोठ्या प्रमाणात नियंत्रित होतो. तथापि, खाणीत जाण्यापासून रोखण्यासाठी पृष्ठभागाच्या पाण्याचे व्यवस्थापन करण्यासाठी पृष्ठभागाच्या प्रवाहांकडे लक्ष देणे आवश्यक आहे. गळतीच्या पाण्याव्यतिरिक्त साठलेले पाणी नियमितपणे बाहेर काढावे लागते. खाणकामांमध्ये पाण्याच्या प्रवाहाचे दोन स्त्रोत आहेत, एक इनक्लाइन विकासातून आहे आणि दुसरा खाण कार्यादरम्यान फॉल्ट झोनमधून आहे. खाणीतून बाहेर काढलेल्या पाण्यामध्ये कोळशाचे बारीक कण असतात. त्याचा वापर करण्यापूर्वी त्याला अवसादन आवश्यक आहे आणि नंतर ते नैसर्गिक पाण्याच्या प्रवाहात / मोकळ्या जमिनीत सोडले जाऊ शकते. प्रस्तावित भूमिगत कोळसा खाणीतील वसाहती तलावांसाठी मोठे पर्यावरणीय प्रभाव मूल्यांकन विकसित केले जाईल, खाणीतील पाण्याचा विसर्जन/वापर करण्यापूर्वी त्याचा साठा आणि गाळ काढण्यासाठी; SPCB द्वारे जारी केलेल्या पाण्याच्या संमतीच्या अटींनुसार विहित केलेल्या प्रवाह मानकांची पुष्टी केले जाईल. अतिरिक्त खाणीचे पाणी, जर असेल तर ते जवळच्या टाक्यांमध्ये सोडले जाईल आणि स्थानिक ग्रामस्थांना ते शेतीसाठी वापरता येईल. यामुळे गावांजवळील भूजल पुनर्भरणही वाढेल. पंधरवड्यातून एकदा सांडपाण्याचे नियमित विश्लेषण नियोजित केले आहे.

जल प्रदूषण नियंत्रण उपक्रम आणि शमन उपाय

- खनन कार्यादरम्यान खाणीमधून पंपिंगद्वारे जे पाणी काढल्या जाते त्यामध्ये कोळश्याचे बारीक कण असतात त्यामुळे नैसर्गिक पाणवठे दूषित होऊ नयेत म्हणून नैसर्गिक जलप्रवाहात किंवा मोकळ्या जमिनीवर विसर्जन करण्यापूर्वी सेटल करणे आवश्यक आहे. पुढे, पाण्याची गुणवत्ता CPCB आणि MPCB द्वारे विहित केलेल्या प्रवाह मानकांची पुष्टी करेल.
- खाणीतील पाण्याचा वापर भूगर्भात साठवण आणि पुनर्वापरासाठी केला जाईल; गाळ काढल्यानंतर टाकीतून अतिरिक्त पाणी ओव्हरफ्लो होईल. काही पाण्याचा वापर 2 हेक्टर जमीन क्षेत्रामध्ये हरित पट्टा विकासासाठी केला जाईल. जलशुद्धीकरणासाठी कार्यशाळेत एफ्लुएंट ट्रीटमेंट प्लांट देण्यात येणार आहे. पुढे, ग्रेडियंट प्रवाह राखला जाईल अशा प्रकारे, कोणतेही सांडपाणी प्रक्रिया न करता सोडले जाणार नाही याची खात्री करण्यासाठी पृष्ठभागावरील प्रवाह देखील तलावाकडे वळवला जाईल.
- अतिरिक्त खाणीचे पाणी, जर असेल तर, जवळच्या टाक्यांमध्ये सोडले जाईल आणि ते स्थानिक ग्रामस्थ शेतीच्या कामासाठी वापरू शकतात, यामुळे गावांजवळील भूजल प्रणालीचे पुनर्भरण देखील होते. महिन्यातून एकदा सांडपाण्याचे नियतकालिक विश्लेषण केले जाईल.

- कार्यशाळेच्या परिसरात तेल आणि ग्रीस ट्रॅपची सुविधा असलेले सांडपाणी प्रक्रिया संयंत्र उपलब्ध करून दिले जाईल. प्रक्रिया केलेले पाणी कार्यशाळेत पुन्हा वापरले जाईल. घरगुती सांडपाण्यावर एसटीपीमध्ये प्रक्रिया केली जाईल आणि प्रक्रिया केलेल्या घरगुती पाण्याचा वापर हरित पट्टा विकासासाठी तसेच धुळीपासून बचाव करण्यासाठी केला जाईल.

4.1.1 घातक कचरा आणि द्रवपदार्थांचा प्रभाव

गोंडखरी कोळसा खाणीत खनिज प्रक्रिया होणार नाही. स्फोटकांचा वापर ब्लास्टिंगसाठी केला जाईल आणि कोणताही घातक कचरा निर्माण न करता पूर्णपणे वापरला जाईल. खाण मशिनरीमधून तयार होणारे वापरलेले तेल आणि ग्रीसचे किरकोळ प्रमाण स्वतंत्रपणे गोळा केले जाईल आणि गळतीरोधक कंटेनरमध्ये साठवले जाईल आणि अधिकृत पुनर्वापर करणाऱ्या विक्रेत्यांना विकले जाईल. गोंडखरी कोळसा खाणीत इतर कोणताही घातक कचरा निर्माण होणार नाही.

4.1.7.1 घनकचरा निर्मिती आणि व्यवस्थापन

प्रस्तावित अंडर ग्राउंड खाणीत निर्माण होणारा घनकचरा ओपनकास्ट खाण प्रकल्पापेक्षा लक्षणीयरीत्या कमी आहे. घनकचऱ्याचे तपशील खालीलप्रमाणे आहेत.

❖ **घनकचरा निर्मिती आणि त्याची विल्हेवाट**

इनलाइन ड्रायव्हेज दरम्यान प्रस्तावित प्रकल्पातून निर्माण होणारा घनकचरा उप-मातीमध्ये आणि खाणीच्या प्रवेशासाठी कठीण खडकांमध्ये आणि तसेच हार्ड रॉकमधील क्रॉस-कट्सच्या ड्रायव्हेजमधून निर्माण होणारा घनकचरा अंदाजे 127000 Cum आहे. या ड्रायव्हेज दरम्यान निर्माण होणारा घनकचरा पृष्ठभागावर स्वतंत्रपणे स्टॅक केला जाईल आणि बंधाऱ्यात बँक हेड तयार करण्यासाठी आणि सखल भाग भरण्यासाठी, पायाभूत सुविधांसाठी जमिनीचा विकास आणि हिरवाईच्या विकासासाठी वापरला जाईल. वसाहती आणि सेवा इमारतींमधून निर्माण होणारा घनकचरा सखल भागात टाकला जाईल आणि त्यावर योग्य वृक्षारोपण करण्यात येईल.

❖ **टाकाऊ घनकचरा निर्मिती आणि विल्हेवाट**

निर्माण कार्यादरम्यान केरकचरा, खाद्यपदार्थ कचरा, टाकाऊ कागदपत्रे आणि कार्डबोर्ड इत्यादी स्वरूपात टाकाऊ कचरा 50 किलो/दिवस आणि ऑपरेशन टप्प्यात 170 किलो/दिवस निर्माण होणे अपेक्षित आहे. सुधारित घनकचरा व्यवस्थापन नियम, 2016 नुसार निर्माण होणारा घनकचरा योग्यरित्या गोळा केला जाईल, त्याचे विलगीकरण केले जाईल आणि योग्यरित्या पुनर्वापर / विल्हेवाट लावली जाईल.

❖ **घातक कचरा निर्मिती आणि विल्हेवाट**

वापरलेले तेल आणि वंगण (अंदाजे 5 KL/वर्ष) निर्माण होण्याची शक्यता आहे व घातक आणि इतर कचरा (Management and Trans boundary movement) नियम, 2016 नुसार त्याची विल्हेवाट लावली जाईल. ते अधिकृत पुनर्वापर करणाऱ्यांना दिले जाईल. वापरलेल्या बॅटरी आणि इतर इलेक्ट्रॉनिक कचरा अधिकृत री-प्रोसेसरना दिल्या जाईल.

4.3 जैविक पर्यावरण

पैलू – प्रभाव ओळख आणि शमन उपाय सूचना

अनु क्र.	प्रकल्प पैलू / उपक्रम	परिणाम	सुचविलेले शमन उपाय
१	**साइट तयारी:** बांधकाम टप्पा क्रियाकलाप: शाफ्टचा विकास आणि कलते/भूमिगत प्रवेश, 18 हेक्टर किंगर वन जमिनीच्या आत पायाभूत सुविधा	**परिणाम:** झुडुपे आणि हंगामी लहान वनस्पतींच्या स्वरूपात वनस्पती नष्ट होणे. कोणतीही लक्षणीय झाडे दिसली नाहीत (मानववंशीय क्रियाकलापांमुळे झाडे खुंटलेली आणि वाकडी दिसतात ज्यांची घनता 45 नग./हे..)	**बांधकाम टप्पा:** एकूणच जैविक पर्यावरण अभ्यासातून असे दिसून आले आहे की, हा एक भूमिगत खाण प्रकल्प आहे त्यामुळे प्रकल्पाचा परिणाम किमान किंवा लक्षणीयरीत्या कमी असेल आणि त्यामुळे जैवविविधतेचे निव्वळ नुकसान किंवा प्राप्त पर्यावरणाचा दीर्घकालीन ऱ्हास होण्याची कल्पना केलेली नाही. इकोसिस्टम सर्व्हिसेसचा अहवाल तयार केला आहे आणि त्यानुसार शमन

अनु क्र.	प्रकल्प पैलू / उपक्रम	परिणाम	सुचविलेले शमन उपाय
	पैलू: वनस्पती काढून टाकणे		उपाय लागू केले जातील. 2 हेक्टर क्षेत्रा मध्ये हरित पट्टा विकसित केला जाईल.
२	वाहतूक आणि खाण उपक्रम	**ऑपरेशन टप्पा:** कोर किंवा बफर झोनमध्ये कोणतेही संरक्षित क्षेत्र आढळले नाही. कोअर क्षेत्रामध्ये 87.351 हेक्टर वनजमिनीवर वाहतूक आणि खाणकामामुळे झालेले परिणाम अभ्यास.	**ऑपरेशन टप्पा:** एकूण UG ML क्षेत्र 862 हेक्टर आहे. 87.351 हेक्टर पैकी वनजमिनीमध्ये अनेक लहान विखुरलेले वनपट्टे आहेत. मात्र, संपूर्ण वनजमिनीखाली खाणकामाचे नियोजन करण्यात आले आहे. वनजमिनीमध्ये कोणताही अडथळा येणार नाही तसेच वनजमिनीचा कायदेशीर दर्जाही कायम राहणार आहे. वाहतूक अभ्यासावर आधारित वाहतूक व्यवस्थापन योजना राबविण्यात येणार आहे.
३	जमीन कमी होणे	जमीन कमी झाल्यामुळे वनजमिनीवरील खाणकामांवर परिणाम	IIT, खरगपूर द्वारे केलेल्या जमिनीच्या घटतेचा अभ्यास, संपूर्ण वनजमिनीच्या खाली खाणकामाचे नियोजन करण्यात आले आहे. अंदाजित घटाची सर्वात मोठी तीव्रता 2.158 मीटर आहे, जे वनक्षेत्राखालील खाणकामामुळे निर्माण झालेल्या ताणाशी संबंधित आहे. तथापि, वनक्षेत्रात लक्षणीय घट होण्याची कल्पना नाही.
४	वायु उत्सर्जन	जवळच्या वनस्पती आणि शेतजमिनीवर खाणकामाचा परिणाम अपेक्षित आहे	हवेच्या काही उत्सर्जनामुळे वनस्पतींमध्ये रोग होतात, जवळपासच्या वनस्पती आणि शेतजमिनीवर हवेच्या उत्सर्जनाचा परिणाम हानीकारक आणि लक्षात येण्याजोगा नसेल कारण प्रदूषकांचे प्रमाण निर्धारित मानकांपेक्षा कमी असणे अपेक्षित आहे.
५	पर्यावरणीय बदल	प्रस्तावित भूमिगत खाणकामाच्या कोर आणि बफर झोनमधील प्राण्यांच्या हालचालींवर होणारे परिणाम.	कोर क्षेत्रासह कोणतीही REET प्रजाती आढळली नाही. पुढे, खाणकाम भूमिगत आहे, त्यामुळे स्थानिक प्राण्यांवर क्षुल्लक परिणाम अपेक्षित आहे.
६	खाण क्षेत्रात स्थानिक पक्षी विविधता राखण्यासाठी संवर्धन उपाय.	उन्हाळी ऋतूमध्ये स्थानिक पक्ष्यांसाठी अन्न आणि पाण्याची टंचाई अपेक्षित आहे.	उन्हाळ्याच्या ऋतूमध्ये कृत्रिम घरटी, बर्ड फीडर आणि पाण्यासाठी मातीचे भांडे/भांडी लटकवण्याची शिफारस केली आहे.

4.4 सामाजिक-आर्थिक पर्यावरण

प्रभाव:

- स्थलांतरितांच्या माध्यमातून लोकसंख्येची घनता आणि विविधता बदलल्याने या भागात काही विशिष्ट प्रतिकूल सामाजिक बदल होऊ शकतात. तसेच, लोकसंख्येच्या वाढीमुळे समाजात सामाजिक सुरक्षा समस्या वाढू शकतात.
- घरगुती किंवा स्थानिक व्यावसायिक कारणांसाठी, सिंचन हेतूंसाठी भूजल उपलब्धतेत घट.
- कोळशाच्या धूळ साचल्यामुळे समुदायाची चीड.
- प्रस्तावित प्रकल्पामुळे सध्याच्या रस्त्यांच्या जाव्याच्या वाहतुकीसाठी वाहनांच्या संख्येत वाढ होणार आहे. त्यामुळे खाणीच्या परिसरातील रस्त्यांवर वाहतूक कोंडी किंवा अपघात होण्याची शक्यता नाकारता येत नाही.

शमन उपाय

प्रस्तावित प्रकल्पामुळे आजूबाजूच्या प्रदेशातील सामाजिक, सांस्कृतिक आणि आर्थिक पैलूंवर होणारा प्रतिकूल परिणाम कमी करण्यासाठी आणि जीवनाच्या दर्जात सुधारणा करण्यासाठी खालील उपायांचा अवलंब केला पाहिजे:

- प्रस्तावित प्रकल्पामुळे एकूण 863 व्यक्तींना थेट रोजगाराच्या दृष्टीने लाभ होणार आहे. नियमित कामकाजादरम्यान देखरेखीसाठी मदतनीस म्हणून अप्रत्यक्ष अकुशल रोजगारही निर्माण केला जाईल.

- स्थानिकांना त्यांच्या कौशल्य आणि योग्यतेच्या आधारावर पेट/कंत्राटीवरील रोजगारासाठी प्राधान्य दिले जाईल. CER चा भाग म्हणून सामाजिक विकास कार्यक्रम आयोजित केला जाईल.
- रस्ते अपघात टाळण्यासाठी वाहतूक व्यवस्थापन योजना राबविण्यात येणार आहे.
- उपकरणे व्यवस्थित कार्यरत आहेत याची खात्री करण्यासाठी नियमितपणे देखभाल केली जाईल.
- अपघात टाळण्यासाठी PPE वापर, सुरक्षित कामाची परिस्थिती, वाहतूक नियमांचे पालन इत्यादी सुरक्षिततेच्या बाबींना प्राधान्य दिले जाईल.

5.0 पर्यायी तंत्रज्ञान आणि साइटचे विश्लेषण

खाण प्रकल्प साइट-विशिष्ट आहे, त्यामुळे कोणत्याही पर्यायी साइट्सचा विचार केला गेला नाही. भूगर्भातील कोळसा खाण पद्धतींचे चार वेगवेगळ्या श्रेणींमध्ये वर्गीकरण केले जाऊ शकते जसे की खोली-आणि-स्तंभ, लाँगवॉल , शॉर्टवॉल आणि चिक-सिम. कोळशाच्या सीमची किमान खोली 135 मीटर आहे तर कमाल 400 मीटरच्या पुढे आहे. या अटी ओपन कास्ट मायनिंग नाकारतात कारण कोळशाच्या सीमची किमान खोली 135 च्या पुढे आहे. दुसरा पर्याय फक्त भूमिगत खाण आहे. 1000 मीटर पेक्षा जास्त रुंद आणि 5000 मीटर लांबीचा प्रस्तावित प्रकल्पाचा कोळसा ब्लॉक; ज्यामुळे लाँगवॉल खाण पद्धती उत्खननासाठी प्रस्तावित आहे.

खालील परिस्थितींमुळे लाँगवॉल पद्धतीने खाणकाम केल्यामुळे उत्पादन तांत्रिकदृष्ट्या व्यवहार्य मानले जाते :-

- कोळशाच्या सीमचा 9° ते 22° पर्यंत ग्रेडियंट
- एकाधिक कोळशाच्या सीम (UG पैकी 4)
- स्ट्राइकची लांबी
- पातळ कोळशाचे शिवण (विभाजित झाल्यामुळे)
- ओबी/पार्टिंग्सची व्हेरिएबल जाडी (उच्च पट्टी प्रमाण)
- LW ऑपरेशन्ससाठी विचारात घेतलेली किमान कार्यरत उंची 1.20m आहे आणि 2 पॅनेलमधील अडथळा 45m आहे
- LW पॅनेलची दर्शनी लांबी 120m मानली जाते.
- ड्रायव्हेजसाठी गॅलरीचे माप 4.5 मीटर रुंद आहे आणि जी उंची आहे ती कमाल 3.50 मीटर पर्यंत असेल जी शिवण जाडी अवलंबून असते.

6.0 पर्यावरण निरीक्षण कार्यक्रम

एक पर्यावरण व्यवस्थापन कक्ष पर्यावरण व्यवस्थापन योजनेच्या अंमलबजावणीसाठी आणि खाण ऑपरेशन्स दरम्यान पर्यावरणाच्या स्थितीचे नियमितपणे मूल्यांकन करण्यासाठी महत्त्वपूर्ण आणि निर्णायक पर्यावरणीय मापदंडांचे नियतकालिक पर्यावरण निरीक्षण आयोजित करेल. एमओईएफसीसी मान्यताप्राप्त एजन्सीमार्फत सभोवतालच्या हवेची गुणवत्ता, पाण्याच्या पातळीची खोली, पाण्याची गुणवत्ता, वातावरणातील आवाज पातळी, मातीची गुणवत्ता इत्यादीसाठी पर्यावरणीय निरीक्षण केले जाईल आणि त्याचा अहवाल एमपीसीबी/एमओईएफसीसी ला सादर केला जाईल.

7.0 जोखीम मूल्यांकन आणि आपत्ती व्यवस्थापन योजना

आग, स्फोट, यंत्रसामग्री निकामी होणे, जमीन खचणे, पूर येणे, अत्याधिक गरमी, खाणीतील वायू, झीज होणे इत्यादी धोक्यांसाठी प्रकल्पातील जोखमीचे मूल्यांकन अंदाजित केले गेले आहे आणि EIA/EMP अहवालात त्यासंबंधित शमन उपाय सुचवले आहेत. नैसर्गिक परिणामांमुळे आणि मानवी कारणांमुळे उद्भवणाऱ्या आपत्तींना तोंड देण्यासाठी तपशीलवार आपत्ती व्यवस्थापन योजना तयार केली गेली आहे आणि EIA/EMP अहवालामध्ये जीवनाची सुरक्षा, पर्यावरणाचे संरक्षण, स्थापनेचे संरक्षण सुनिश्चित करण्यासाठी प्राधान्यक्रमाच्या याच क्रमाने समाविष्ट केले आहे. आपत्ती व्यवस्थापन आराखड्याच्या प्रभावी अंमलबजावणीसाठी या आराखड्याचा व्यापक प्रसार केला जात असून या माध्यमातून कर्मचाऱ्यांना प्रशिक्षण देण्याचे काम केले जाणार आहे. आपत्ती व्यवस्थापन आराखड्यात शमन उपाय, साइट सुविधा, कार्यपद्धती, कर्तव्ये आणि जबाबदाऱ्या, दळणवळण इत्यादींचा तपशीलवार विचार केला आहे.

8.0 प्रकल्पाचे फायदे

मेसर्स. अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल) सामाजिक विकास कार्यक्रमांची कल्पना करते ज्यात समाजासाठी आरोग्य सेवा, शैक्षणिक सुविधा विकसित करणे, गावांना पिण्याचे पाणी देणे, परिसरात विद्यमान रस्ते बांधणे/मजबूत करणे आहे.

कंपनीच्या तात्काळ आधीच्या तीन वर्षांच्या सरासरी निव्वळ नफ्याच्या 2% चे CSR बजेट समुदायाच्या मागणीमुळे कंपनीद्वारे नियुक्त केले जाईल.

- प्रकल्पाच्या फायद्यांमध्ये जीएसटी, रोड टॅक्स, ट्रक आणि ट्रेलरच्या नोंदणीद्वारे मिळणारे उत्पन्न, आयकर, कॉर्पोरेट टॅक्स इत्यादींद्वारे राष्ट्रीय आणि राज्याच्या तिजोरीत महसूल जमा होईल.
- पर्यावरणीय अनुपालनांचे पूर्ण पालन करण्यासाठी पालन.
- अशा प्रकारे, परिणामी –
- ❖ पर्यावरणीय मापदंडांचे नियमितपणे निरीक्षण होईल,
- ❖ प्रगतीशीलपणे हरित पट्ट्याचा विकास होईल
- ❖ लक्षणीय घनकचऱ्याची निर्मिती होणार नाही.

अशाप्रकारे, खाण क्षेत्रामध्ये आणि त्याभोवती प्रदूषण नियंत्रण उपाय आणि पर्यावरण संवर्धन उपायांचा अवलंब करून पर्यावरणाचे संरक्षण केल्याने आजूबाजूच्या पर्यावरणात तसेच त्या क्षेत्राच्या सामाजिक-आर्थिक पैलूंमध्ये सुधारणा होईल.

9.0 पर्यावरणीय खर्च लाभ विश्लेषण

एकूण लाभ (वनजमीन वळवण्याच्या फायद्यांचा अंदाज) = **रु. १५७६६.९८ कोटी** ;
एकूण खर्च (जंगलांचे नुकसान + प्रकल्पाची किंमत) = **रु. ००.०० + १३०३.०० = १३०३.०० कोटी.**

म्हणून **लाभ/खर्च गुणोत्तर =१५७६६.९८/१३०३ = १२.१०**
अशा प्रकारे, प्रकल्प सकारात्मक लाभ/खर्च गुणोत्तर देतो. पर्यावरणाच्या नुकसानीपेक्षा प्रकल्पाचे आर्थिक उत्पन्न सकारात्मक आहे.

10.0 पर्यावरणीय व्यवस्थापन योजना

मेसर्स. अदानी पॉवर महाराष्ट्र लिमिटेडच्या प्रस्तावित भूमिगत कोळसा खाणीचा प्रकल्प खर्च **रु. १३०३ कोटी** आहे. ईएमपीची एकूण किंमत रु. 90.60 कोटी आहे. पर्यावरण व्यवस्थापन योजनेच्या भांडवली खर्चासाठी ईएमपीअंतर्गत अर्थसंकल्पीय तरतूद **रु. १०.३५ कोटी** आणि आवर्ती खर्च **रु. २.६ कोटी**. अंदाजांचा तपशीलवार लेखाजोखा **तक्ता 12** मध्ये सादर केला आहे. कंपनी वरील ईएमपी बजेट व्यतिरिक्त, कंपनी कायद्यानुसार CSR साठी तिच्या दायित्वाचे देखील पालन करेल.

तक्ता 12: पर्यावरणीय व्यवस्थापन योजनेसाठी अंदाजपत्रक

अ. क्र.	तपशील	प्रस्तावित ईएमपी खर्च (रु. मध्ये.)	
		भांडवली किंमत	आवर्ती खर्च
१	सांडपाणी व्यवस्थापन, व्हील वॉशिंग सिस्टमसह अवसादन टाकी	०.७५	०.५
२	भूगर्भात आणि पृष्ठभागावर पाणी फवारणीचा खर्च	०.२५	०.२
३	हवेची गुणवत्ता व्यवस्थापन (ड्राय फॉग डस्ट सप्रेशन सिस्टम)	१.६	०.३
४	सौर प्रकाशाची अंमलबजावणी	०.२	०.१
५	जैविक संवर्धन योजनेसह ग्रीनबेल्ट विकास	०.२	०.१८
६	घनकचरा व्यवस्थापन	०.५	०.०२
७	पर्यावरण निरीक्षण आणि व्यवस्थापन	२	०.२
८	पायाभूत सुविधांसाठी भूउपयोग पुनर्संचयित करणे (संरचना नष्ट करणे)	४.५	१
९	**अतिरिक्त अभ्यास**		
	माती संवर्धन योजना आणि तलाव पुनरुज्जीवन उपक्रम	०.१५	०.०५
	जलसंधारण योजना	०.२०	०.०५
	एकूण	**१०.३५**	**२.६**

11.0 निष्कर्ष

मेसर्स. अदानी पॉवर महाराष्ट्र लिमिटेडच्या प्रस्तावित गोडखरी कोळसा खाण (लीज क्षेत्र: ८६२.०० हेक्टर) प्रकल्प, आसपासच्या गावांच्या विकासासाठी उपजीविका, रोजगार आणि महसूल निर्मितीच्या दृष्टीने फायदेशीर ठरेल ज्यामुळे कालांतराने प्रादेशिक

वाढ आणि औद्योगिकीकरणाला चालना मिळते. शिक्षण, रस्ते, पिण्याच्या पाण्याची उपलब्धता, वैद्यकीय सुविधा आणि लगतच्या गावांमध्ये संबंधितांची वाढ यासारख्या पायाभूत सुविधांमध्ये आणखी सुधारणा होईल. खाणकामाची पद्धत भूगर्भात असल्याने हवा, पाणी, माती आणि आवाजाचे कोणतेही लक्षणीय प्रदूषण होणार नाही. काही पर्यावरणीय बाबी जसे की धूळ उत्सर्जन, आवाज, पृष्ठभागावरील घसरणीमुळे होणारा गाळ इत्यादिना आजूबाजूच्या वातावरणावर होणारे परिणाम टाळण्यासाठी परवानगी असलेल्या नियमांमध्ये नियंत्रित करावे लागतील. आवश्यक प्रदूषण नियंत्रण उपकरणे जसे की पाणी शिंपडणे, वृक्षारोपण, वैयक्तिक संरक्षणात्मक उपकरणे इत्यादींचा प्रकल्पामध्ये नियमित अंमलबजावणी होईल. परिसराच्या पर्यावरणावर आणि सामाजिक-आर्थिक वातावरणावर होणारे परिणाम नियंत्रित/कमी करण्यासाठी अतिरिक्त प्रदूषण नियंत्रण उपाय आणि पर्यावरण संवर्धन उपायांचा अवलंब केला जाईल. दाट हरित पट्ट्याचा विकास आणि खाण लीज क्षेत्रात आणि वाहतूक रस्त्यालगत वृक्षारोपण, खाणीत आणि जवळपासच्या गावांमध्ये पावसाचे पाणी साठवणे इत्यादी उपायांची अंमलबजावणी केली जाईल. खाण व्यवस्थापनाद्वारे स्वीकारलेल्या जाणाऱ्या सीएसआर उपायांमुळे जवळपासच्या गावांची सामाजिक, आर्थिक स्थिती सुधारेल.
प्रस्तावित भूमिगत खाणीचे एकूण परिणाम सकारात्मक असतील आणि त्याचा परिणाम जवळपासच्या गावांच्या एकूण सामाजिक-आर्थिक वाढीवर होईल.

12.0 सहभागीदारांचा खुलासा

मेसर्स. अदानी पॉवर महाराष्ट्र लिमिटेडच्या प्रस्तावित गोंडखारी भूमिगत कोळसा खाणीसाठी पर्यावरण अभ्यास मेसर्स. ॲनाकॉन लॅबोरेटरीज प्रा. लि., नागपूर (मेसर्स. एएलपीएल) द्वारे केला गेला. एनाकॉन ची स्थापना 1993 मध्ये विश्लेषणात्मक चाचणी प्रयोगशाळा म्हणून झाली आणि आता मध्य भारतातील पर्यावरण आणि अन्न चाचणी प्रयोगशाळेद्वारे समर्थित एक अग्रगण्य पर्यावरण सहभागीदार कंपनी आहे. मेसर्स. ॲनाकॉन लॅबोरेटरीज प्रा. लि., हा सरकारी संस्थांमधील अनुभवी माजी शास्त्रज्ञांचा समूह आहे आणि विषयातील कौशल्यासह चमकदार कारकीर्द असलेले उत्कृष्ट तरुण शास्त्रज्ञ आहेत. पर्यावरणीय अभ्यास करण्यासाठी पर्यावरण,वन आणि वातावरणीय बदल मंत्रालय, नवी दिल्ली यांनी मान्यता दिली आहे आणि मान्यता प्रमाणपत्र क्रमांक **NABET/EIA/2023/SA0160 (Rev.01)** जे १३ एप्रिल २०२२ पासून २८ मार्च २०२३ पर्यंत वैध आहे. मार्च २९, २०२३ च्या QCI-NABET पत्र क्रमांक QCI/NABET/ENV/ACO/23/2719 नुसार मान्यता प्रमाणपत्राची वैधता २८ जून २०२३ पर्यंत वाढवली आहे.

T.C.

Ax. B

MAHARASHTRA POLLUTION CONTROL BOARD

NOTICE FOR ENVIRONMENTAL PUBLIC HEARING

According to provisions of Ministry of Environment & Forest, Govt. of India Notification dtd. 14.09.2006 and amended Notification 01.12.2009 M/s. Adani Power Maharashtra Limited (APML), have requested Maharashtra Pollution Control Board, to conduct public hearing for their proposed Gondkhari Underground Coal Mine (Kamptee Coalfield), Village Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur having mine lease area 862 Ha, peak production capacity 3 MTPA.

All persons including bonafide residents, Environmental groups & local affected persons and others located at the project site can participate in the public hearing physically as well as by way of online.

Views, comments, responses of the public can be filed at the following address in writing from the date of publication of this notice till the date of public hearing.

Maharashtra Pollution Control Board,
Regional Office / Sub-Regional Office-I, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur. 440001
Ph. No. 0721-2565308 I Email :- sronagpur1@mpcb.gov.in

Public hearing will be conducted physically at site location as well as through online mode using webex platform and details of meeting number and Password and other details are given below. Oral and written views, responses can also be presented during public hearing to be conducted at

Venue	: Kh. NO. 9/5, Near Karli Lake, Vill-Karli, Tal-Kalmeshwar, Dist-Nagpur - 440023.
Date of Public Hearing	: 13/07/2023
Time of Public Hearing	: 11 am
Meeting ID	: 2517 074 7508
Passcode	: 13072023 (13072023 from video systems)
Zoom Meeting link	: https://mpcb.webex.com/mpcb/j.php?MTID=md91f1f585e5d9cea1735c1fdd07508d

Copies of the summary of EIA, executive summary both in English and Marathi and other information/documents are available at the following offices.

1) Environment Department, Govt. of Maharashtra, New Administrative Building, 15 Floor, Madam Kama Marg, Mantralaya, Mumbai-32.
2) Joint Director (Water Pollution Control), Maharashtra Pollution Control Board, Kalpataru Point, 2nd and 4th Floor, Opp. Cine Planet, Near Sion Circle, Sion (E), Mumbai-400022.
3) Ministry of Environment Forest & Climate change Office, Civil Lines, Nagpur.
4) District Collector Office, Civil Lines, Nagpur, Dist-Nagpur.
5) Regional Office, M.P.C.Board, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur.
6) Sub-Regional Office-I, M. P.C. Board, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur.
7) Zilla Parishad Office, Civil Lines, Nagpur.
8) District Industries Center, Udyog Bhavan Civil lines Nagpur.
9) Sub Divisional Office, Kalmeshwar, Tal - Kalmeshwar, Dist - Nagpur.
10) Tahsildar, Tahsil Office, Kalmeshwar, Tal - Kalmeshwar, Dist - Nagpur.
11) Gram Panchayat Pethkalcongri, Nagpur, Dist - Nagpur
12) Gram Panchayat Wyahad, Panchayat Samiti, Nagpur, Dist - Nagpur.
13) Gram Panchayat Surabardi, Panchayat Samiti, Nagpur, Dist - Nagpur.
14) Gram Panchayat Dhamna Linga, Panchayat Samiti, Nagpur, Dist - Nagpur.
15) Gram Panchayat Dawlameti, Panchayat Samiti, Nagpur, Dist - Nagpur
16) Gram Panchayat Dugdhamna, Panchayat Samiti, Nagpur, Dist - Nagpur
17) Gram Panchayat Sonegaon Nipani, Panchayat Samiti, Nagpur, Dist - Nagpur
18) Gram Panchayat Gondkhairi, Kalmeshwar, Dist - Nagpur.
19) Gram Panchayat Mimji, Kalmeshwar, Dist - Nagpur.
20) Gram Panchayat Lonara, Kalmeshwar, Dist - Nagpur.
21) Gram Panchayat Aashtikala, Kalmeshwar, Dist - Nagpur.
22) Gram Panchayat Selu, Kalmeshwar, Dist - Nagpur.
23) Gram Panchayat Upanwahi, Kalmeshwar, Dist - Nagpur.
24) Gram Panchayat Kalambi, Kalmeshwar, Dist - Nagpur.
25) Gram Panchayat Sawangi, Kalmeshwar, Dist - Nagpur.
26) Gram Panchayat Dahegaon, Kalmeshwar, Dist - Nagpur.
27) Gram Panchayat Sahuli, Kalmeshwar, Dist - Nagpur.
28) Gram Panchayat Linga, Kalmeshwar, Dist - Nagpur.
29) Gram Panchayat Raipur, Hingna, Dist - Nagpur.
30) Gram Panchayat Digdoh (Devi), Hingna, Dist - Nagpur.
31) Gram Panchayat Nigdoh, Hingna, Dist - Nagpur.
32) Gram Panchayat Nagalwadi, Hingna, Dist - Nagpur.
33) Gram Panchayat Khairi Pannase, Hingna, Dist - Nagpur.
34) Gram Panchayat Waddhamna, Hingna, Dist - Nagpur.

Concerned persons will be provided access to the summary of the project during office hours at the above-mentioned places.

Sub-Regional Officer,
MPCB, Nagpur-I & Convener,
Environment Public Hearing

T.C.

CamScanner

2463

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

पर्यावरण विषयक जाहीर लोक सुनावणीची सूचना

सुनावणीचे ठिकाण	:- [illegible]
सुनावणीचा दिनांक	:- 10/01/2023
सुनावणीची वेळ	:- 11:00 वाजता
मिटींग आयडी	:- 2517 874 7508
पास कोड	:- 13072023 (13072023 from video systems)
Zoom Meeting link	:- https://mpcb.webex.com/mpcb/j.php?MTID=m6e81fd585e549cea1725c1f48075084

[illegible]

महाराष्ट्र प्रदूषण नियंत्रण मंडळ,
प्रादेशिक कार्यालय /उप-प्रादेशिक कार्यालय-1
5, रा.ह. मार्ग, उदय भवन, सिव्हिल लाईन्स, नागपूर 440001.
फोन नं.: 0721-2565308 | ई मेल :- sronagpur1@mpcb.gov.in

[illegible]

1 पर्यावरण विभाग, मंत्रालय महालक्ष्मी, रा.ह. मार्ग, मंत्रालय [illegible]
2 [illegible]
3 जिल्हाधिकारी कार्यालय, सिव्हिल लाईन्स, जि. नागपूर
4 [illegible]
5 प्रादेशिक कार्यालय, रा.ह.जि. मंडळ, रा.ह. मार्ग, उदय भवन, सिव्हिल लाईन्स, नागपूर
6 उप-प्रादेशिक कार्यालय-1, महाराष्ट्र प्रदूषण नियंत्रण मंडळ, 5 रा.ह. मार्ग, उदय भवन, सिव्हिल लाईन्स, नागपूर
7 जिल्हा परिषद, सिव्हिल लाईन्स, नागपूर, जि. नागपूर
8 जिल्हा उद्योग केंद्र, उदय भवन, सिव्हिल लाईन्स, नागपूर, जि. नागपूर
9 उप विभागीय अधिकारी, सावनेर, ता. सावनेर, जि. नागपूर
10 [illegible]
11 ग्रामपंचायत [illegible]
12 ग्रामपंचायत [illegible]
13 ग्रामपंचायत [illegible]
14 ग्रामपंचायत [illegible]
15 ग्रामपंचायत [illegible]
16 ग्रामपंचायत [illegible]
17 ग्रामपंचायत [illegible]
18 ग्रामपंचायत [illegible]
19 ग्रामपंचायत [illegible]
20 ग्रामपंचायत [illegible]
21 ग्रामपंचायत [illegible]
22 ग्रामपंचायत [illegible]
23 ग्रामपंचायत [illegible]
24 ग्रामपंचायत [illegible]
25 ग्रामपंचायत [illegible]
26 ग्रामपंचायत [illegible]
27 ग्रामपंचायत [illegible]
28 ग्रामपंचायत [illegible]
29 ग्रामपंचायत [illegible]
30 ग्रामपंचायत [illegible]
31 ग्रामपंचायत [illegible]
32 ग्रामपंचायत [illegible]
33 ग्रामपंचायत [illegible]
34 ग्रामपंचायत [illegible]

उप-प्रादेशिक अधिकारी
म. प्र. नि. मंडळ, नागपूर शाखा कार्यालय
पर्यावरण विषयक जनसुनावणी

T.C.

2464 **Ax. C**

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

फोन. २५६०१३९
फॅक्स नं. २५६०८५१

उप-प्रादेशिक कार्यालय-१,
५ वा माळा, उद्योग भवन,
सिव्हिल लाईन्स, नागपूर.

दिनांक 09/6/2022

जा.क्र. मप्रनि/उप्राकाना-१/E-02/2023

प्रति,

१. पर्यावरण विभाग, नवीन प्रशासन भवन, १५ वा मजला, मादाम कामा मार्ग, मंत्रालय, मुंबई-३२.
२. सह संचालक (जल प्रदूषण नियंत्रण), महाराष्ट्र प्रदूषण नियंत्रण मंडळ, कल्पतरु पाईट, २ रा व ४ था माळा, सिनेप्लानेट सिनेमा समोर, सायन सर्कल जवळ (पू) मुंबई—४०००२२.
३. जिल्हाधिकारी कार्यालय,सिव्हिल लाईन्स, जि.नागपूर.
४. पर्यावरण व खातावरणीय बदल, कार्यालय, सिव्हील लाईन, नागपूर.
५. प्रादेशिक कार्यालय, म.प्र.नि.मंडळ, ५ वा माळा, उद्योग भवन, सिव्हिल लाईन्स, नागपूर.
६. उप-प्रादेशिक कार्यालय-१, महाराष्ट्र प्रदूषण नियंत्रण मंडळ, ५ वा माळा, उद्योग भवन, सिव्हिल लाईन्स, नागपूर.
७. जिल्हा परिषद, सिव्हिल लाईन्स, नागपूर, जि. नागपूर.
८. जिल्हा उद्योग केंद्र, उद्योग भवन, सिव्हिल लाईन्स, नागपूर, जि. नागपूर.
९. उप-विभागीय अधिकारी, कळमेश्वर, ता. कळमेश्वर, जि. नागपूर. Nagpur (Rural)
१०. तहसिलदार कार्यालय, तहसिल कार्यालय, कळमेश्वर, ता. कळमेश्वर, जि.नागपूर. Kalmeshwar / Nagpur (Rural)
११. ग्रामपंचायत पेठ कालडोंगरी, पंचायत समिती, नागपूर, जिल्हा - नागपूर.
१२. ग्रामपंचायत घाहाड, पंचायत समिती, नागपूर, जिल्हा - नागपूर.
१३. ग्रामपंचायत सुरावर्डी, पंचायत समिती, नागपूर, जिल्हा — नागपूर.
१४. ग्रामपंचायत धामणा लिंगा, पंचायत समिती, नागपूर, जिल्हा — नागपूर.
१५. ग्रामपंचायत दलालमेटी, पंचायत समिती, नागपूर, जिल्हा - नागपूर.
१६. ग्रामपंचायत दुर्गाधामणा, पंचायत समिती, नागपूर, जिल्हा - नागपूर.
१७. ग्रामपंचायत सोनेगाव निपाणी, पंचायत समिती, नागपूर, जिल्हा - नागपूर.
१८. ग्रामपंचायत गोंडखैरी, कळमेश्वर, जिल्हा - नागपूर.
१९. ग्रामपंचायत निमजी, कळमेश्वर, जिल्हा —नागपूर.
२०. ग्रामपंचायत लोणारा, कळमेश्वर, जिल्हा—नागपूर.
२१. ग्रामपंचायत आष्टिकला, कळमेश्वर, जिल्हा—नागपूर.
२२. ग्रामपंचायत सेलू, कळमेश्वर, जिल्हा—नागपूर.
२३. ग्रामपंचायत उपरवाही, कळमेश्वर, जिल्हा—नागपूर.
२४. ग्रामपंचायत कळंभी, कळमेश्वर, जिल्हा —नागपूर.
२५. ग्रामपंचायत सातांगी, कळमेश्वर, जिल्हा—नागपूर.
२६. ग्रामपंचायत दहेगांव, कळमेश्वर, जिल्हा—नागपूर.
२७. ग्रामपंचायत साहुली, कळमेश्वर, जिल्हा—नागपूर.
२८. ग्रामपंचायत लिंगा, कळमेश्वर, जिल्हा —नागपूर.
२९. ग्रामपंचायत रामपुर, हिंगणा, जिल्हा—नागपूर.
३०. ग्रामपंचायत डिगडोह (देवी), हिंगणा, जिल्हा—नागपूर.
३१. ग्रामपंचायत निलडोह, हिंगणा, जिल्हा—नागपूर.
३२. ग्रामपंचायत नागलवाडी, हिंगणा, जिल्हा—नागपूर.
३३. ग्रामपंचायत खैरी पन्नासे, हिंगणा, जिल्हा—नागपूर.
३४. ग्रामपंचायत वडधामना, हिंगणा, जिल्हा—नागपूर.

T.C.

विषय :- मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपुर यांच्या गोंडखैरी भूमिगत कोळसा खाण, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा —

महोदय,

मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपुर यच्या गोंडखैरी भूमिगत कोळसा खाण, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा –नागपूर, यांनी महाराष्ट्र प्रदूषण नियंत्रण मंडळास पर्यावरण विषयक जाहीर लोकसुनावणी घेण्याबाबत अर्ज केला आहे. या खदाणीची उत्पादन क्षमता ३ मिलीयनटन/वर्ष प्रस्तावित आहे व खदानीचे क्षेत्र ८६२ हेक्टर आहे. सदर प्रस्तावित प्रकल्पाची पर्यावरण विषयक जाहिर लोक सुनावणी आयोजीत करण्यात येत आहे. पर्यावरण विभागाच्या अधिसुचने दि. १४/०९/२००६ नुसार सदर प्रकल्पाबाबतची माहिती पुस्तके जनतेच्या अवलोकनार्थ जाहीर लोकसुनावणीच्या दिनांकापर्यंत उपलब्ध करावी लागतात. त्याप्रमाणे सदर प्रकल्पाबाबतचे दस्तावेज त्यामध्ये EIA, कार्यकारी सारांश इंग्रजी व मराठी या पत्रासोबत पुरविण्यात येत आहे. आपणास विनंती आहे की, सदर दस्तावेजन इच्छुक व्यक्तीस उपलब्ध करण्याची व या बाबत सुचना फलक दर्शनी भागात लावण्याची व्यवस्था करावी. तसेच सदर प्रकल्पाच्या जाहीर लोकसुणावणीबाबत आपल्या कार्यालयीन स्तरावर आवश्यक तो प्रचार व प्रसार करावा.

सदर पर्यावरण विषयक जाहीर लोकसुनावणी मा. जिल्हाधिकारी, नागपूर यांचे अध्यक्षतेखाली दि. १३/०७/२०२३ रोजी दुपारी –११:०० वाजता सुनावणीचे ठिकाण :- ख. न. ९/५ कारली तलावाच्या बाजुला, गाव.कारली, ता. कळमेश्वर, जि. नागपुर-४४००२३ येथे आयोजित करण्यात आली आहे. ऑनलाईन लिंक तपशिल खालीलप्रमाणे आहे :-

मिटींग आयडी :- 2517 074 7508
पासवर्ड :- 13072023 (13072023 from video systems)

ZoomMeetinglink:
https://mpcb.webex.com/mpcb/j.php?MTID=mdd91f1585e5d9cea1735c11dd07508d

सहपत्र : १) EIA/EMP Report २) Executive summery English
३) Executive summery Marathi 4) C.D
5) वर्तमान पत्र जाहीरातीची प्रत.

(उ. भ. भादुले)
उप-प्रादेशिक अधिकारी,
म.प्र.नि. मंडळ, नागपूर-१

प्रत सविनय सादर :- प्रादेशिक अधिकारी, म. प्र. नि. मंडळ, नागपुर – माहितीसाठी सादर.

M/s. Adani Power Maharashtra Limited (APML), have requested Maharashtra Pollution Control Board, to conduct public hearing for their proposed Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur having mine lease area 862 Ha, peak production capacity 3 MTPA.

Sr. No.	Office Name	Signature
1		
2		
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9 (i) (ii)	अपर जावल निवीक उपविभागीय अधिकारी कार्यालय सावनेर Received/Issued	12/06/2023
10	Date 12/06/2023 Clerk Sub Divisional Officer Name अवर्गीकृत तहसिल कार्यालय सावनेर	12/6/23
11	तहसिल ग्रामपंचायत पंचायत (ग्रामपंचायत)	
12	उपविभागीय ग्रा.प. सावनेर	
13	ग्राम पंचायत सुरादेवी अवक क्र. दिनांक	10/06/2023

14		12/06/2023 ग्रा.प. कार्यालय
15		12/06/2023 सरपंच ग्रामपंचायत दवलामेटी
16		10/6/2023
17		12/6/2023
18		
19		12/06/2023
20		सचिव ग्रामपंचायत लोणारा प.स.सावनेर जि.नागपुर

21		सहित सहायक आयुक्त आयुर्वेदालय ए स कलमेश्वर जि नागपूर 12/6/23
22		A.P.Anle सहायक सहायक आयुक्त कार्यालय ए स कलमेश्वर
23		सहित सहायक आयुक्त आयुर्वेद ए स कलमेश्वर 12.6.23
24		E.O. Kimoper Dy. Ayurvedic Officer Dt. 12/06/2023
25		M.D. Bhatkar सा. प. अधिकारी आयुर्वेद दवाखाना Mob — 12.673.1.30
26		Rajesh L. Lanjewar वै.प. अधिकारी 12/6/23
27		साहा पंचायत समिति अधिकारी/कर्मचारी यांचेकडे 12/6/2023
28		सहायक आयुक्त 12/6/2023

29	ग्राम पंचायत, रायपूर प.स. हिंगणा	दि. 01/12/2023
30	ग्रामपंचायत सिलझोर (टेकेपार) एच.आय.डी.पी. हरित ता. हिंगणा जि. नागपूर	13/06/2023
31	ग्रामपंचायत निलडोह ता. हिंगणा, जि. नागपूर	आवक लिपीक ग्रामपंचायत निलडोह
32	13728841048	दिलीप शंकरराव गुजे ग्रा.प. कर्मचारी लिपीक 12/6/2023
33	ग्रामपंचायत अंतरगाव (सावंगी) प.स. हिंगणा	ग्रामसेवक अंतरगाव (सावंगी) ता. हिंगणा जि. नागपूर दि. 22/05/2023
34	ग्रामपंचायत कार्यालय ता. हिंगणा जि. नागपूर	मोहन मसकरे (लिपीक) ग्रा.पं. कार्यालय मो. 9637539963

35	महाविद्यालय परिसर 13/6/023	
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Ax. D

F. No. 22-57/2016-IA-III
Government of India
Ministry of Environment, Forests & Climate Change
(IA Division)

Indira Paryavaran Bhawan
Ali Ganj, Jor Bagh Road
New Delhi- 110003.
Email: yogendra78@nic.in
Dated: 22nd June, 2016

To,

Paras Power & Coal Benificiation Ltd.
Lakhmi Towers, Near Triveni Bhawan
Vyapar Vihar
Bilaspur- 495001
Chhattisgarh

Sub: Clarification sought regarding preparation of draft EIA report in Hindi Language-Public Hearing for the proposed 0.96 MTPA Coal washery at Baloda Village & Tahsil, Janjgir Champa District Chhattisgarh-reg.

This refers to your letter dated 29th April 2016 seeking clarification regarding preparation of draft EIA report in Hindi Language under the provisions of the EIA Notification 2006 to conduct Public Hearing for the proposed 0.96 MTPA Coal washery at Baloda Village & Tahsil, Janjgir Champa District Chhattisgarh.

2. In this context, your kind reference is drawn to Appendix IV of the EIA Notification, 2006 as amended, providing the procedure for conduct of Public Hearing, wherein it has been clearly mentioned under para 2.2 that *"The Applicant shall enclose with the letter of request, at least 10 hard copies and an equivalent number of soft (electronic) copies of the draft EIA Report with the generic structure given in Appendix III including the Summary Environment Impact Assessment report in English and* ***in the official language of the state*** */ local language, prepared strictly in accordance with the Terms of Reference communicated after Scoping (Stage-2)."* Relevant portion of the notification enclosed for kind reference.

4. In view of the above, it is clarified that the EIA Notification, 2006 under Appendix IV only mandates the preparation of Summary Environment Impact Assessment report, condensed to ten A4 size pages at the maximum necessarily covering in brief the chapters of EIA report as provided in Appendix III A of EIA Notification, 2006 in the official language of the State/ local language. The EIA Notification, 2006 does not mandate preparation of full EIA report in official language of the State/ local language.

(Yogendra Pal Singh)
Scientist 'D'

Copy to:
1. Member Secretary, Chhattisgarh Environment Conservation Board, Commercial Complex, Chhattisgarh Housing Board Colony, Kabir Nagar, Raipur, Chhattisgarh- 492099

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APPENDIX IV

(See paragraph 7)

PROCEDURE FOR CONDUCT OF PUBLIC HEARING

1.0 The Public Hearing shall be arranged in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site(s) or in its close proximity District -wise, by the concerned State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC).

2. 0 **The Process:**

2.1 The Applicant shall make a request through a simple letter to the Member Secretary of the SPCB or Union Territory Pollution Control Committee, in whose jurisdiction the project is located, to arrange the public hearing within the prescribed statutory period. In case the project site is extending beyond a State or Union Territory, the public hearing is mandated in each State or Union Territory in which the project is sited and the Applicant shall make separate requests to each concerned SPCB or UTPCC for holding the public hearing as per this procedure.

2.2 The Applicant shall enclose with the letter of request, at least 10 hard copies and an equivalent number of soft (electronic) copies of the draft EIA Report with the generic structure given in Appendix III including the Summary Environment Impact Assessment report in English and in the local language, prepared strictly in accordance with the Terms of Reference communicated after Scoping (Stage-2). Simultaneously the applicant shall arrange to forward copies, one hard and one soft, of the above draft EIA Report along with the Summary EIA report to the Ministry of Environment and Forests and to the following authorities or offices, within whose jurisdiction the project will be located:

(a) District Magistrate/s
(b) Zila Parishad or Municipal Corporation
(c) District Industries Office
(d) Concerned Regional Office of the Ministry of Environment and Forests

2.3 On receiving the draft Environmental Impact Assessment report, the above-mentioned authorities except the MoEF, shall arrange to widely publicize it within their respective jurisdictions requesting the interested persons to send their comments to the concerned regulatory authorities. They shall also make available the draft EIA Report for inspection electronically or otherwise to the public during normal office hours till the Public Hearing is over. The Ministry of Environment and Forests shall promptly display the Summary of the draft Environmental Impact Assessment report on its website, and also make the full draft EIA available for reference at a notified place during normal office hours in the Ministry at Delhi.

2.4 The SPCB or UTPCC concerned shall also make similar arrangements for giving publicity about the project within the State/Union Territory and make available the Summary of the draft Environmental Impact Assessment report (Appendix III A) for inspection in select offices or public libraries or panchayats etc. They shall also additionally

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गोंडखैरी खाणीसाठी गावकरी अनुकूल!

[illegible]

फक्त १८ हेक्टरसाठी प्रक्रिया

गोंडखैरी खाण ८५२ हेक्टरमध्ये पसरलेली आहे आणि तिच्या २० वर्षांच्या कालावधीत सध्या एकूण खोद उत्खनन हा बोळजा तसेच बरल्याच भोवत आहे. त्यामुळे, या खाणीच्या केवळ एक छोटासा भाग, म्हणजेच १८ हेक्टर, भूमिगत खाणीच्या विकासासाठी आणि ओपनेलसाठी वापरला जाईल. त्यामुळे या प्रस्तावित खाणीचा कमीत कमी परिणाम होईल. अशाने पहिल्या भूमिगत खाण प्रक्रियेसाठी फक्त, यांत्रिक लोडिंगसह वेंटजम साधू करता आल्याने महाराष्ट्र प्रदूषण नियंत्रण मंडळाचे म्हणणे आहे.

देशमुखांना विरोध

मागे पुनर्वसने व्यवस्थित अंतिम देशमुख यांनी आपोप लेखी या देशन या प्रोजेक्ट खाणीला विरोध दर्शविला होता. आज वस्तुस्थितीत त्यांचे पुत्र हरदा व खाणीमुळे नेमका फायदा आणि त्यामुळे गावकरी व वेळक त्यांचे काय नुकसान होऊ शकते याची माहिती दिली. खाणीमुळे अनेक वेगवेगळ्या पद्धतीने जिल्हाधिकारी यांनी नेमा पेक्षन आयला विरोध दर्शविला आहे.

गोंडखैरी खाणीसाठी गावकरी अनुकूल!

प्रदूषण नियंत्रण मंडळाचा दावा : नेत्यांचा मात्र विरोध



नागपूर : खाणीला भितेभ दर्शविताना अनिल देशमुख सोबतसह रमेश बंग.

▸ सकाळ वृत्तसेवा

नागपूर, दि. १३ : गोंडखैरी चुनिपत्थर कोळसा खाणीच्या पर्यावरण संघर्षामुळे महाराष्ट्र प्रदूषण नियंत्रण मंडळाने ठाकर जनसुनावणी घेतली. गोंदखैरी, कलंभे, पेंढरी, खुरसापरी, सोंडा, म्यासी, आलेसूर आणि पवनारमध्ये या जनसुनावणीच्या वेळी बाधितांपैकी मोजक्या नागरिकांनी लेखी स्वरूपात काही आक्षेप नोंदविले. मात्र, या जनसुनावणीत बहुसंख्य नागरिकांनी खाणीला पाठिंबा दर्शविला. त्यामुळे खाणीसाठी गावकरी अनुकूल असल्याचा दावा प्रदूषण नियंत्रण मंडळाने केला आहे. दरम्यान, स्थानिक नेत्यांनी मांडलेल्या विरोधी मतांची मंडळाने नोंदसुद्धा घेतली.

विभागीय अधिकाऱ्यांच्या सूत्रांनुसार चौधरी, एसडीओंच्या उपस्थितीत जनसुनावणी झाली. या जनसुनावणीला खाणीचे प्रकल्प अधिकारी हेमंत देशपांडे यांच्या अनुपस्थितीत एसीसी-अंबुजा सिमेंटचे उपाध्यक्ष (पर्यावरण) अनिल देशमुख आणि एसीसीचे उपाध्यक्ष (खाणकाम) रमेश बंग उपस्थित होते. या जनसुनावणीत खाणीच्या पर्यावरणविषयक बाबींवर चर्चा झाली. खाणीमुळे होणारे प्रदूषण, त्याचे परिणाम आणि त्यावर उपाययोजना याबाबत नागरिकांनी आपले मत मांडले. या जनसुनावणीत खाणीच्या पर्यावरणविषयक बाबींवर चर्चा झाली. खाणीमुळे होणारे प्रदूषण, त्याचे परिणाम आणि त्यावर उपाययोजना याबाबत नागरिकांनी आपले मत मांडले. या जनसुनावणीत खाणीच्या पर्यावरणविषयक बाबींवर चर्चा झाली. खाणीमुळे होणारे प्रदूषण, त्याचे परिणाम आणि त्यावर उपाययोजना याबाबत नागरिकांनी आपले मत मांडले.

जास्त वाचा

2477

२४ ग्रामपंचायतींचा जनसुनावणीत विरोध; आंदोलन करण्याचा इशारा

गौंडखैरी खाणीविरोधात जनआक्रोश

› सकाळ वृत्तसेवा

इंग्रजीत दिली नोटीस

■ खाणीत भागीदार असलेल्यांनी इंग्रजी वापरत बैठ नसल्याचा पवित्रा प्रदूषण मंडळाने घेतला. त्यामुळेच तीन इंग्रजी पानी नोटीस पाठविण्यात आली. याचा विरोध ग्रामसभांनीने केला. ग्रामसभांची दिशाभूल करण्यासाठी हा प्रकार होत असल्याचा आरोपही यावेळी करण्यात आला. ग्रामसभा सुरीक नेवारे यांनी मराठीमध्ये नोटीस देण्याची मागणी केली. तसेच खाणीसंदर्भात स्थानिक देण्यासाठी बाजूनीही सकिती करण्यात आली.



काली : प्रदूषण टाळण्यासाठी एकवटले २४ ग्रामपंचायतीचे ग्रामसभा.

भंडारा, दि. १३ : गौंडखैरी येथील प्रस्तावित खाणीसंदर्भात महाराष्ट्र प्रदूषण नियंत्रण मंडळाने आज, गुरुवारी घेतलेली तहकूब जनसुनावणी ऐनवेळी रद्द करण्यात आली. जनसुनावणीमध्ये २४ ग्रामपंचायतींसह हजारो नागरिक उपस्थित होते. यावेळी ग्रामस्थांनी या प्रकल्पाला विरोध केला आहे. सुरुवातीलाच सेकडो ग्रामस्थ घोषणा देत सभास्थळी उपस्थित होते.

यापूर्वीच्या जनसुनावणीमध्ये प्रचंड गोंधळ झाल्याने सुनावणी पुढे ढकलण्यात आली होती. या पार्श्वभूमीवर ही सभा कोठारीच्या आहे की कोलारीच्या हे स्पष्ट होत नव्हते. जनसुनावणीपूर्वी मंडळाने या ग्रामसभा अडचणीच्या ठरत असल्याने त्यांना डावलण्याचे षड्यंत्र रचल्याचा आरोप ग्रामस्थांनी केला. त्यामुळे गावकऱ्यांमध्ये संतापाचे वातावरण निर्माण झाले आहे. महाराष्ट्र प्रदूषण नियंत्रण मंडळाने येथील अंतरी परिसरात खाणीसाठी जनसुनावणीचाचा खाणकामांना यांचे भूमिका खाणीसाठी केवळ २५० एकर जमिनीची चाच पडले, मात्र, या खाणीसाठी ८५२ हेक्टर म्हणजे २ हजार १५ एकर जमीन प्रस्तावित असल्याचे म्हटले आहे.

सुनावणीसाठी जनसुनावणीसाठी प्रशासन, कंपनीकडून आणि ग्रामसभा यांच्याकडून २१ ग्रामपंचायतींना ऐनवेळी नोटीस देऊन १२ जुलैला हजर राहण्याचा आदेशित होते. मात्र, हा ग्रामसभा नोटीस जनसुनावणीच्या शेवटच्या दिवशी मिळाल्याने संतप्त झाल्याचे सांगितले. यामुळे ग्रामसभांना २१ ग्रामपंचायतींना मार्गदर्शन झाले, जेणेकरून सर्वसामान्यांना सभेला, असे खोडेबोल सुरीक नेवारे यांनी सुनावणीदरम्यान दिले. नागरिकांनी एकंच प्रतिवाद देऊन मार्गदर्शन घेतल्याचा आरोप केला, तसेच गोंधळामुळे जेर पाय.

या खाणीतून ३ मिलियन टन प्रतिवर्ष उत्खनन होणार असल्याचा दावा करण्यात आला आहे. यात भूमिगत खाणीतून वर्षे उत्खनन होणे शक्य नाही, तिथल भूमिका खाणीसाठी एकदाच नोटीसची नागरिकांना मिळाली. अशाही जनसुनावणी प्रकल्पाला आपले का त्यांना केले. या प्रकल्पाने जलिनीतील पाणी शोषा पाणी होईल, शिल्लक शेतजमीन पूर्णतः नष्ट होईल, प्रदूषण वाढेल, वन्यजीवन धोक्यात येईल, पाणीसंकट जीव मुळीच पेंडन जाणे लागेल, अशीही सभा नागरिकांनी मांडले.

यावेळी सभेचे अधिकारी सुरीक नेवारे, सहाय्यक अधिकारी दीपाली मोरे, सभेचे प्रेक्षक चंद्र, खनिकर्म विभागाचे पंचायत समितीचे पाचपाखी, सभासदांचे, जिल्हा परिषद सदस्य, पंचायत समितीचे सदस्य, सरपंच, उपसरपंच, तलाठी, ग्रामसेवक, पोलीस, प्रतिनिधी उपस्थित होते. खनिकर्म (खनिज)अधिकारी दुरुक्षकर, मोरेश्वर (निलमे), दाभारमेटा, सुनयार्ड, लखारा, पेंड, सावरटोली, खापरी डिंगा यासह परिसरातील गौंडखैरी, किन्ही, खापरी, पालेवी, पोलेवा, अंजी मदत, लोणारा, पुनापार, मेंढु, सालेवी, उचलवाडी, डिंगेरा , डिंगा यासह परिसरातील गडेगावच्या, खापरवाडी, सौंदी पालांदे, डिंगडोह, रोजडोह, एचपू सर्वपंचायत इतरांच्या पंचायतीचे ग्रामसभापुर उपस्थित होता.

अदानी की कोयला खदान का निषेध

गोंडखैरी में हुई पर्यावरण जनसुनवाई में उभरा तीव्र विरोध

■ कलमेश्वर, संवाददाता. कलमेश्वर के समीप गोंडखैरी में अदानी समूह की कंपनी द्वारा शुरू की जाने वाली भूमिगत कोयला खदान का गुरुवार को गोंडखैरी में हुई जनसुनवाई में तीव्र विरोध किया गया. इस दौरान 'अदानी हटाओ, कोयला खदान नहीं होने देंगे' की नारेबाजी भी की गई. जनसुनवाई में काफी देर तक विरोध व हंगामा होता रहा. सुरक्षा की दृष्टि से पुलिस का बंदोबस्त किया गया था. गोंडखैरी भूमिगत कोयला खदान (कामठी कोयला क्षेत्र) अदानी समूह की कंपनी को हस्तांतरित की गई है. इस संदर्भ में पर्यावरण संबंधी जनसुनवाई काराठी तालाब के समीप गोंडखैरी में गुरुवार को रखी गई. महाराष्ट्र प्रदूषण नियंत्रण मंडल के उपप्रादेशिक अधिकारी के निर्देश पर तहसीलदार ने जाहिरनामा प्रसिद्ध कर जनसुनवाई का आयोजन किया था. इस अवसर पर उपजिलाधीश सुभाष चौधरी, प्रदूषण नियंत्रण मंडल के पाटिल, देशपांडे, तहसीलदार मकवाने सहित ग्राम पंचायतों के सचिव, सरपंच व नागरिक उपस्थित थे.

जनभावना का रखें ध्यान : केदार

इस समय सभी को ईएलए की अंग्रेजी की कॉपी दी गई. देखते ही देखते 'अदानी हटाओ, गोंडखैरी की कोयला खदान हटाओ' के जोरदार नारे शुरू हो गए. इसी बीच विधायक सुनील केदार पहुंचे व अधिकारियों को कहा कि जनता की भावना को ध्यान में रखकर उसके अनुसार कार्यवाही करें व खदान का कार्य बंद करें. काटोल के विधायक अनिल देशमुख, पूर्व मंत्री रमेश बंग सहित शंकरराव देशमुख, जिप सदस्य देवानंद कोहले, सरपंच, सचिव सदस्य व कार्यकर्ता उपस्थित थे. उसके बाद आनन-फानन में सभा समाप्त कर दी.

करीब 24 ग्राम पंचायतें हैं इसके खिलाफ



अनिल देशमुख ने 12 जुलाई को महाराष्ट्र प्रदूषण नियंत्रण मंडल को अपने पत्र में बताया था कि मेसर्स अदानी पावर गोंडखैरी में भूमिगत कोयला खदान के अंतर्गत मेट्रो रीजन आता है. आगे 100 साल एनएमआरडीए का नियोजन है. खदान क्षेत्र में वेणा जलाशय है व गोंडखैरी क्षेत्र के गांवों में अमरावती मार्ग के गांवों सहित केंद्र शासन की आर्डिनेंस फैक्टरी में वेणा का पानी जाता है तथा सभी क्षेत्र निमशहरी क्षेत्र में आते हैं. परिसर के नागरिकों का खदान के लिए विरोध व आक्रोश है. करीब क्षेत्र की 23-24 ग्राम पंचायतें इसके खिलाफ हैं. मेट्रो क्षेत्र के 22 व खदान के आसपास 80 के ऊपर गांव हैं. उन सब पर कोयला खदान के कारण असर पड़ सकता है.

18 हेक्टेयर का होगा ऑपरेशनल उपयोग

जानकारी के अनुसार, कोल मंत्रालय द्वारा वर्ष 20-21 में की गई नीलामी में अदानी पावर लिमिटेड ने कलमेश्वर के कोल खदान में सर्वाधिक बोली लगाकर अपने नाम की थी. इसके पर्यावरण मंजूरी के लिए महाराष्ट्र प्रदूषण नियंत्रण मंडल को अर्ज किया था. इस संदर्भ में एमपीसीबी ने जनसुनवाई ली जिसमें गोंडखैरी, कलंबी, पेंढरी, सुरादेवी, नांदा, कार्ली, आलेसुर व वड़यामना इन 8 गांवों के स्थानीय नागरिकों के साथ ही स्थानीय नेताओं सहित कंपनी अधिकारियों की उपस्थिति रही. निवासी उपजिलाधिकारी सुभाष चौधरी एमपीसीबी की प्रादेशिक अधिकारी हेमा देशपांडे, उप प्रादेशिक अधिकारी राजेन्द्र पाटिल की अध्यक्षता में जनसुनवाई हुई. कंपनी के अधिकारियों ने प्रकल्प के बाधितों को नौकरी, सीएसआर फंड से स्वास्थ्य सुविधाएं, डोरस्टेप मल्टीस्पेशालिटी मेडिकल कैम्प, स्थानीय युवाओं के प्लेसमेंट के लिए स्किल डेवलपमेंट, कृषि आधारित पर्यायी आय के साधन, मूलभूत सुविधाएं उपलब्ध करने संबंधित जानकारी सुनवाई के दौरान प्रस्तुत की. बताया गया कि खदान 862 हेक्टेयर में फैला हुआ है जिसमें से 30 वर्ष की अवधि में हर वर्ष 2 मेट्रिक टन कोल उत्पादन का अंदाज है लेकिन जमीन का एक छोटा सा भाग 18 हेक्टेयर भूमिगत खदान विकास व ऑपरेशन के लिए उपयोग किया जाएगा और परिसर में कम से कम परिणाम होगा. खदान में अत्याधुनिक तकनीक का उपयोग होगा.

2479

MPCB द्वारे आयोजित गोंडखैरी खाणीसाठी जनसुनावणी

नागपूर : गोंडखैरी भूमिगत कोळसा खाणीच्या पर्यावरण मंजुरीसाठी महाराष्ट्र प्रदूषण नियंत्रण मंडळाने (एमपीसीबी) आज जनसुनावणी घेतली. ला कळमेश्वर तहसीलच्या गोंडखैरी, कळंबी, पेंढरी, सुराबर्डी, नांदा, कार्ली, आलेसुर आणि वडधामना या आसपासच्या आठ गावांतील स्थानिकांकडून अनुकूल अर्ज प्राप्त झाले. स्थानिक नेत्यांनी मांडलेल्या चिंताही मंडळाने नोंदवल्या.

सुभाष एन चौधरी, निवासी उपजिल्हाधिकारी, नागपूर, एमपीसीबीच्या प्रादेशिक अधिकारी हेमा देशपांडे यांच्या अध्यक्षतेखाली आणि एमपीसीबीचे उपप्रादेशिक अधिकारी राजेंद्र यू पाटील यांच्या अध्यक्षतेखाली ही जनसुनावणी झाली. खाण क्षमता, संभाव्य गुंतवणूक आणि नोकरीच्या संधी या प्रकल्पाची वैशिष्ट्ये स्पष्ट करण्यासाठी अधिकाऱ्यांनी संबंधित कागदपत्रे रेकॉर्डवर ठेवली. जनसुनावणीपर्यंत, MPCB ने नियामक तरतुदींच्या तरतुदींनुसार पर्यावरण प्रभाव अहवालाच्या प्रती आणि त्याचा मराठी सारांश वितरित केला.

गोंडखैरी खाण ८६२ हेक्टरमध्ये पसरलेली आहे आणि तिच्या ३० वर्षांच्या कालावधीत दरवर्षी एकूण २ दशलक्ष टन कोळसा तयार करण्याचा अंदाज आहे. तथापि, या जमिनीचा केवळ एक छोटासा भाग, विशेषत: १८ हेक्टर, भूमिगत खाणीच्या विकासासाठी आणि ऑपरेशनसाठी वापरला जाईल. त्यामुळे या प्रदेशात खाणीचा कमीत कमी परिणाम होईल. अदानी पॉवर भूमिगत खाण प्रक्रियेसाठी प्रगत, यांत्रिक लाँगवॉल तंत्रज्ञान लागू करणार आहे. कोळसा मंत्रालयाने आयोजित केलेल्या २०२१ च्या लिलावात अदानी पॉवर लिमिटेडने खाण जिंकली आणि पर्यावरण मंजुरीसाठी अर्ज केला.

जनसुनवाई रद्द...

अदाणी कोयला खदान पर जमकर बवाल दिन भर होनी थी सुनवाई, डेढ़ घंटे में खत्म

मुख्य संवाददाता | नागपुर

कलमेश्वर तहसील में प्रस्तावित अदाणी कोयला खदान को लेकर गुरुवार को जमकर हंगामा हुआ। जनसुनवाई में जनप्रतिनिधि, ग्रामीण सहित पर्यावरणविदों ने इसका विरोध करते हुए प्रकल्प को ही रद्द करने की मांग की। बवाल इतना मचा की दिन भर चलने वाली जनसुनवाई को प्रशासन ने डेढ़ घंटे में खत्म कर दिया। खदान की रिपोर्ट ग्रामीणों को मराठी में नहीं मिलने पर आपत्ति जताते हुए कानूनी प्रक्रिया का भी पालन नहीं करने का आरोप लगाया। पर्यावरणविदों के भारी विरोध के कारण आखिरकार जनसुनवाई रद्द करनी पड़ी।

गोंडखैरी में भूमिगत कोयला खदान है प्रस्तावित

जनप्रतिनिधि, ग्रामीणों व पर्यावरणविदों का विरोध



समर्थन में नहीं उठा कोई हाथ : सुनवाई में जमकर लोगों ने विरोध दर्ज कराया। इस दौरान अधिकारियों ने समर्थन वालों से हाथ उठाने की अपील की, लेकिन किसी ने हाथ ऊपर नहीं किया। चर्चा और सन्नाटा रहा। विरोध दिखाना है, यह पूछे जाने पर सभी ने एका सख्त हाथ ऊपर कर नारेबाजी की। 'बंद करो, बंद करो' के नारे लगाते हुए प्रकल्प रद्द करने की मांग की।

रिपोर्ट अंग्रेजी में, लोगों को मराठी में उपलब्ध कराने की मांग : सुनील केदार ने आपत्ति जताते हुए कहा कि खदान की रिपोर्ट अंग्रेजी में होने से ग्रामीणों को समझने में इसे दिक्कतें आ रही है। रिपोर्ट मराठी में नहीं होने से वैध नहीं मानी जाएं। लोगों ने 'बंद करो, बंद करो, कोयला खदान बंद करो' नारेबाजी कर अपना विरोध दर्ज कराया। अखिल भारतीय किसान सभा के महासचिव डॉ. अशोक ढवळे ने कहा कि खदान क्षेत्र में देगव नदी बहती है, जिसका पानी खा लाखों लोग खेती उपयोग करते हैं। नदी दूषित होने से एनजीटी ने 100 करोड़ का जुर्माना भी किया है। खदान के खिलाफ सैकड़ों गांव और शहर बंद होंगे। इस दौरान जनविरोधी विभोरहा सुनवाई पर्यावरण ने एमपीसीबी को पेंचवाड़ा की दिन पहले से बंद होने का मुद्दा उठाया। पेंचवाड़ा बंद होने से व्यापारिक लोगों ने सभी की रिपोर्ट नहीं देखी। सुनवाई में अधिकारी भी उपस्थित नहीं रह पाए। जिसमें खदान की रिपोर्ट तैयार की, उसी व्यक्ति से सुनवाई में प्रस्तुतिकरण होने की अपेक्षा थी, लेकिन एक प्रतिनिधि के प्रेजेंटेशन द्वारा खदान की रिपोर्ट पेश करने पर आपत्ति दर्ज की गई। ग्रामीणों का भारी विरोध देखते हुए उपजीती तुकाराम चौधरी ने अधिकारियों जनसुनवाई रद्द करने की घोषणा की।

100 से ज्यादा गांव वालों ने जताया विरोध

नागपुर से लगभग 20 किलोमीटर दूरी पर स्थित कलमेश्वर तहसील के गोंडखैरी में भूमिगत कोयला खदान प्रस्तावित है। गोंडखैरी परिसर में कोयला खदान का पट्टा अदाणी पावर महाराष्ट्र लिमिटेड को दिया गया है। इस भूमिगत कोयला खदान शुरू [illegible] किलोमीटर क्षेत्रफल में स्थित है, जिसमें इस कोयला खदान के अंतर्गत 24 ग्रामीण गांव और 80 से ज्यादा छोटे गांवों ने विरोध किया है। खदान के अंतर्गत के बाद महाराष्ट्र प्रदूषण नियंत्रण मंडल (एमपीसीबी) ने तुलनात्मक को कलमेश्वर तहसील की खदानों खदान के पास जनसुनवाई का आयोजन किया था। सुनवाई अधिकारी के रूप में नियोजे उपविभागीयाधारी सुनंदा चौधरी, एमपीसीबी की क्षेत्रीय अधिकारी हेमा देशपांडे, एसडीओ राजेंद्र पाटील सहित खनन से अधिकारी भी उपस्थित थे। जनसुनवाई के लिए 30 से ज्यादा आवेदन आए थे। हालांकि जनसुनवाई से पहले ही 24 खनगांवकरों ने अपनी समस्याएं व प्रस्तावित परियोजना खदान को लिखित स्वरूप में एमपीसीबी को दिया था। अपेक्षा अनुसार विरोध करने वाले ज्यादातर गांव के खनगांवकरों ने एकत्रित होकर एकजुट समिति, जिला परिषद सदस्य और सुनवाई में उपस्थित थे। इस आयोजन पर संचालन के जिम्मेदार तुलसी बेवनकर, तहसीलदार जितेन्द्र डुडुलकर व पूर्व जिलाध्यक्ष रमेश बंग सहित कलमेश्वर पंचायत समिति सभापति प्रभाकर पंचम, उपसभापति श्रीधरराव पानसे, जिला सदस्य भारती लांजेवार, संजू कुशे, गिरीश खापरखेडे, उदेश रामगुंडे आदि उपस्थित थे।





अनावश्यक सवाल कर जनसुनवाई बाधित की

जन सुनवाई जनसुनवाई को बाधित किया गया। ऐसे स्थान बैठे गए, जो अवैधानिक है। पर्यावरणीय स्वरूप के लिए सरकारी एजेंसियों को निर्देशक बनाया गया। पर्यावरणविद् सतीश कोतवे ने लोगों को सुनाया विरोध। रिपोर्ट मराठी में नहीं है, इसे लेकर सवाल किए गए। लेकिन जब अंग्रेजी में प्रस्तुतिकरण किया जा रहा था तो अधिकारियों अधिकारियों उपस्थित नहीं थे, इसे लेकर आक्रोश व्यक्त किया। जनसुनवाई में दुर्व्यवहार किया गया, जो बेहद आपत्तिजनक है। व्यवस्थित पर्यावरण कार्यालयों जैसे को राष्ट्र विरोधी और विकास विरोधी गतिविधियों के लिए मुनासिब कर रहे हैं।

-डॉ. एस.डी. गारपवे, निदेशक, एनीकॉन लेबोरेटरीज प्र. लि. नागपुर

विरोध के कारण सुनवाई रद्द

जनसुनवाई के लिए 30 से ज्यादा आवेदन आए थे। इस दौरान अधिकारियों, और ग्रामीणों का भारी विरोध होने के कारण जनसुनवाई स्थगित करनी पड़ी। लोगों ने खदान की रिपोर्ट का प्रस्तुतिकरण बंद कराया। बवाल में सुनवाई होती या नहीं इस बारे में अभी कुछ नहीं बताया।

-हेमंत देशपांडे, क्षेत्रीय अधिकारी, एमपीसीबी

LOKMAT TIMES

Public hearing on Adani's coal mines issue cancelled

Villagers demand copy of EIA report in local language

MPCB website was down for the last two days and many people were unable to read the EIA report

LOKMAT NEWS NETWORK
NAGPUR

In a major jolt to Adani Power, the public hearing for granting environmental clearance to its Gondkhairi underground coal mine on Thursday was disrupted by locals and had to be cancelled.

The villagers said that copies of the environment impact assessment (EIA) report had not been made available in Marathi and they were unable to comprehend the English report.



A woman raises a point during the public hearing on Adani coal mines in Godkhairi on Thursday.

The hearing had been organized by Maharashtra Pollution Control Board (MPCB) near Karli lake in Kalmeshwar taluka. Environmentalist Sudhir Paliwal raised the objection that not distributing copies of EIA reports in the local language was a gross violation of EIA notification issued in 2009. Moreover, the person giving the presentation in the public hearing was not authorized to do so. He charged that the MPCB website was down for the last two days and many people were unable to read the EIA report due to this reason.

Saoner MLA Sunil Kedar, Katol MLA Anil Deshmukh, former minister Ramesh Bang and their supporters raised similar objections. Not a single person spoke in favour of the mine. Some time later, several residents of 24 major villages and 80 small villages started raising slogans against the mine. Villagers are dead against the mine right from the beginning.

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कार्यालय
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पंचायत समिती नागपुर
स्थापना - १.११.१९९९






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स्थापना
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पंचायत समिती हिंगणा, जिल्हा परिषद नागपूर.
सुस्वागतम






adani
Foundation


ग्राम सचिवालय गोंडखैरी
adani

against the ... civic body

NETAL RATHI

Ahead of public hearing for coal block, locals lured with freebies

Vijay.Pinjarkar
@timesgroup.com



GAINING GROUND: Adani Foundation distributed saplings to locals

Nagpur: Even as opposition to Adani's underground coal block in Gondkhairi on the city outskirts continues to grow, the Adani Power Maharashtra Limited (APML), days ahead of the public hearing, is luring the villagers by launching a host of initiatives under the corporate social responsibility (CSR).

The coal block is spread over 862 hectares, of which 87.351 hectares is forest land. The MPCB will hold a public hearing for the coal block at 11am on July 13 near Karli Lake in Kalmeshwar. Ahead of the hearing, the APML through its Adani Foundation launched several social activities in Gondkhairi, Waddhamna, Surabardi, Alesur, Sahuli, and Kalambi.

Adani officials said the foundation has designed the programme with a focus on health, hygiene, education, empowerment, and rural infrastructure development among others. "We have prepared a detailed CSR plan after a three-month study and a survey of about 4,000 households in these six villages surrounding the Gondkhairi underground mine," they said.

The officials informed that a health camp was held last week in Gandhari, where specialists in gynaecology, general medicine, and dentistry from a charitable hospital, examined patients and provided free medicines. During the coming week, similar health camps will be organized in Alesur and Kalambi gram panchayat areas.

GOING ALL OUT

In addition, Adani Foundation will also distribute hundreds of school bags, water filters, musical instruments, sports equipment, and plants, which will benefit thousands of people in the above six villages.

However, opposing the mine, Aam Aadmi Party (AAP) district sanghatan mantri Pratap Goswami said, "The company is carrying out activities to win over the gullible villagers and to stop them from opposing the mine. The locals have scientifically failed to understand the dangers of coal mining. They will come to know only when wells will go dry, pollution will increase inviting health hazards."

Sudhir Paliwal, convenor, Vidarbha Environment Action Group (VEAG) said that mining will lead to many environmental problems in the area. "Various studies have proved that unlike open mining, underground mines extracting coal resources usually lead to land subsidence, water resources destruction, soil erosion, air pollution, and biodiversity reduction. These problems will speed up environmental deterioration in the area," Paliwal said.

"The Vena Lake dam, which is a major water source to nearby ordnance factory, industries, agriculture, and drinking water, is just 3km from the coal block and is a notified wetland protected as per Supreme Court guidelines. Another water body, Surabardi Lake may also go dry. The depleting groundwater table will increase the dependency of villagers on coal mine discharge water. It will increase metal concentration in river water, especially in the non-monsoon period," said Paliwal.

However, Adani officials said that the project aims to create thousands of direct and indirect employment opportunities. The project doesn't involve any resettlement of locals as only 18 hectares of land will be required for the development of the underground mine spread across 862 hectares.

अदाणी फाउंडेशनचे विविध सीएसआर कार्यक्रम सुरू



नागपूर, २९ जून २०२३: अदाणी फाउंडेशनने नागपूरमधील अदाणी पॉवर महाराष्ट्र लिमिटेडच्या प्रस्तावित गोंडखैरी भूमिगत खाण प्रकल्पाच्या शेजारच्या गावांमध्ये कॉर्पोरेट सोशल रिस्पॉन्सिबिलिटी (सीएसआर) पुढाकार घेतला. गोंडखैरी भूमिगत खाण प्रकल्पाच्या संयुक्त विद्यमाने अदाणी फाऊंडेशनने हाती घेतलेले सीएसआर कार्यक्रम आणि हजारो रोजगाराच्या संधींचा गोंडखैरी, वडदमणा, सुराबर्डी, आलेसुर, साहुली आणि कळंबी या गावांतील स्थानिक लोकांना मोठा फायदा होणार आहे.

अदाणी फाऊंडेशनने आरोग्य, स्वच्छता, शिक्षण, सक्षमीकरण आणि ग्रामीण पायाभूत सुविधांवर लक्ष केंद्रित करून कार्यक्रमाची रचना केली आहे. गोंडखैरी भूमिगत खाणीजवळील सहा गावांतर्गत येणाऱ्या सुमारे ४,००० कुटुंबांचा तीन महिन्यांच्या अभ्यासानंतर फाऊंडेशनने तपशीलवार सीएसआर योजना तयार केली आहे. अदाणी फाऊंडेशनने सेंटम फाऊंडेशनला शिक्षणाच्या पायाभूत सुविधा, सार्वजनिक आरोग्य स्थिती, ग्रामीण पायाभूत सुविधा आणि तरुणांच्या आकांक्षा विषयांबद्दल सहा गावांमध्ये दहा सर्वेक्षणकर्त्यांची टीम तैनात केली.

बुधवारी, फाऊंडेशनने आपल्या सीएसआर उपक्रमाची सुरुवात गोंडखैरी येथील पहिल्या आरोग्य शिबिराने केली, जिथे स्त्रीरोग, सामान्य औषध आणि दंतचिकित्सा या विषयात तज्ज्ञ असलेल्या मिशन इंडिया रुग्णालयातील तीन डॉक्टरांनी रुग्णांची तपासणी केली आणि मोफत औषधे दिली. येत्या आठवडाभरात आलेसूर आणि कळंबी ग्रामपंचायत क्षेत्रातही अशीच आरोग्य शिबिरे घेण्यात येणार आहेत. याशिवाय, अदाणी फाऊंडेशनने शेकडो स्कूल बॅग, वॉटर फिल्टर, वाद्य, खेळाचे साहित्य आणि रोपे वाटपाची तयारी केली आहे, ज्याचा फायदा गोंडखैरी, वडदमणा, सुराबर्डी, आलेसूर, साहुली आणि क[illegible]ांतील हजारो लोकांना होणार आहे.

अदाणी फाउंडेशनचे गोंडखैरी खाणीजवळ विविध सीएसआर कार्यक्रम सुरू

नागपूर, २९ जून २०२१: अदाणी फाउंडेशनने नागपूरमधील अदाणी सिमेंट महाराष्ट्र लिमिटेडच्या प्रस्तावित गोंडखैरी भूमिगत खाण प्रकल्पाच्या परिसरच्या गावांमध्ये कॉर्पोरेट सोशल रिस्पॉन्सिबिलिटी (सीएसआर) उपक्रम हाती घेतला. गोंडखैरी भूमिगत खाण प्रकल्पाच्या संयुक्त विद्यमाने अदाणी फाउंडेशनने हाती घेतलेले सीएसआर कार्यक्रम आणि हजारो रोजगाराच्या संधींचा गोंडखैरी, वडदमणा, सुराबर्डी, आलेसूर, साहुली आणि कळंबी या गावांतील स्थानिक लोकांना मोठा फायदा होणार आहे.



अदाणी फाउंडेशनने आरोग्य, स्वच्छता, शिक्षण, सक्षमीकरण आणि ग्रामीण पायाभूत सुविधांवर लक्ष केंद्रित करून कार्यक्रमाची रचना केली आहे. गोंडखैरी भूमिगत खाणीजवळील सहा गावांतर्गत येणाऱ्या सुमारे ४,००० कुटुंबांचा तीन महिन्यांच्या अभ्यासानंतर फाउंडेशनने तपशीलवार सीएसआर योजना तयार केली आहे. अदाणी फाउंडेशनने सेंटम फाउंडेशनला शिक्षणाच्या पायाभूत सुविधा, सार्वजनिक आरोग्य स्थिती, ग्रामीण पायाभूत सुविधा आणि तरुणांच्या आकांक्षा विषयांबद्दल सहा गावांमध्ये दहा सर्वेक्षणकर्त्यांची टीम तैनात केली.

बुधवारी, फाउंडेशनने आपल्या सीएसआर उपक्रमाची सुरुवात गोंडखैरी येथील पहिल्या आरोग्य शिबिराने केली, जिथे स्त्रीरोग, सामान्य औषध आणि दंतचिकित्सा या विषयात तज्ज्ञ असलेल्या मिशन इंडिया रुग्णालयातील तीन डॉक्टरांनी रुग्णांची तपासणी केली आणि मोफत औषधे दिली. येत्या आठवडाभरात आलेसूर आणि कळंबी ग्रामपंचायत क्षेत्रातही अशीच आरोग्य शिबिरे घेण्यात येणार आहेत. याशिवाय, अदाणी फाउंडेशनने शेकडो स्कूल बॅग, बॉटर फिल्टर, वाद्य, खेळाचे साहित्य आणि रोपे वाटपाची तयारी केली आहे, ज्याचा फायदा गोंडखैरी, वडदमणा, सुराबर्डी, आलेसूर, साहुली आणि कळंबी या गावांतील हजारो लोकांना होणार आहे.

आरोग्य शिबिराबाबत गोंडखैरी येथील सरपंच सौ. वर्षा विजय अतकरी म्हणाल्या, जे गरजू लोक तज्ज्ञ डॉक्टरांचा सल्ला घेण्यासाठी प्रवास करू शकत नाहीत त्यांच्यासाठी हे वैद्यकीय शिबिर उपयुक्त ठरले. यासोबतच तज्ज्ञ डॉक्टरांच्या सल्ल्याचाही ग्रामस्थांना फायदा झाला. आम्ही आमच्या गावात अदाणी पॉवर कडून अशाच लोककल्याणकारी कार्यक्रमांची अपेक्षा करतो. ते म्हणाले की, पावसाळ्यात आजाराची प्रकरणे वाढत असताना आरोग्य शिबिर गावकऱ्यांमध्ये जागृती करेल. ग्रामविकास अधिकारी हितेंद्र फुले, मिशन इंडिया चॅरिटेबल हॉस्पिटलचे संचालक डॉ. रेगी लुकोसे आणि मिशन इंडिया चॅरिटेबल हॉस्पिटलचे संचालक डॉ. बी.ओ. तावडे यांच्या उपस्थितीत हे आरोग्य शिबिर यशस्वीरित्या पार पडले.

हे लक्षात घेण्यासारखे आहे की अदाणी पॉवर महाराष्ट्राच्या प्रकल्पामध्ये स्थानिक लोकांचे कोणतेही पुनर्वसन समाविष्ट होणार नाही कारण ८६२ हेक्टरमध्ये पसरलेल्या भूमिगत खाणीच्या विकासासाठी केवळ १८ हेक्टर जमिनीची आवश्यकता असेल. गोंडखैरी ब्लॉकच्या विकासाचा वन्यजीवांसह स्थानिक पर्यावरणावर कोणताही प्रतिकूल परिणाम होणार नाही, कारण त्यात कोणत्याही प्रकारची वनभूमी अर्जित केली जाणार नाही. त्यावरोबर खाणीच्या विकास कामामध्ये स्फोटके हि वापरली जाणार नाहोत.

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विभिन्न सीएसआर कार्यक्रम शुरू किए

नागपुर। अदाणी फाउंडेशन ने नागपुर में अदाणी पावर महाराष्ट्र लिमिटेड द्वारा प्रस्तावित गोंडखरी भूमिगत खनन परियोजना के पड़ोसी गांवों में अपनी कॉर्पोरेट सोशल रेस्पोंसिबिलिटी (सीएसआर) की पहल की. अदाणी फाउंडेशन द्वारा गोंडखरी अंडरग्राउंड माइनिंग परियोजना के सहयोग से होने वाले सीएसआर कार्यक्रमों और रोजगार के हजारों अवसर से गोंडखैरी, वड्डमना, सुराबर्डी, अलेसुर, सहुली और कलांबी गांवों के स्थानीय लोगों को काफी लाभ होगा. अदाणी फाउंडेशन ने कार्यक्रम की रुपरेखा स्वास्थ्य और स्वच्छता, शिक्षा और सशक्तिकरण और ग्रामीण बुनियादी ढांचे को केंद्र में रख कर किया है.

अदानी फाउंडेशनचे गोंडखैरी खाणीजवळ विविध सीएसआर कार्यक्रम सुरू

नागपूर ■अदानी फाउंडेशनने नागपूरमधील अदानी पॉवर महाराष्ट्र लिमिटेडच्या प्रस्तावित गोंडखैरी भूमिगत खाण प्रकल्पाच्या शेजारच्या गावांमध्ये कॉर्पोरेट सोशल रिस्पॉन्सिबिलिटी (सीएसआर) पुढाकार घेतला. गोंडखैरी भूमिगत खाण प्रकल्पाच्या संयुक्त विद्यमाने अदानी फाउंडेशनने हाती घेतलेले सीएसआर कार्यक्रम आणि हजारो रोजगाराच्या संधीचा गोंडखैरी, वडधामना, सुराबर्डी, आलेसूर, साहुली आणि कळंबी या गावांतील स्थानिक लोकांना मोठा फायदा होणार आहे.

अदानी फाउंडेशनने आरोग्य, स्वच्छता, शिक्षण, सक्षमीकरण आणि ग्रामीण पायाभूत सुविधांवर लक्ष केंद्रित करून कार्यक्रमाची रचना केली आहे. गोंडखैरी भूमिगत खाणीजवळील सहा गावांतर्गत येणाऱ्या सुमारे ४,००० कुटुंबांचा तीन महिन्यांच्या अभ्यासानंतर फाउंडेशनने तपशीलवार सीएसआर योजना तयार केली आहे. अदानी फाउंडेशनने सेंटम फाउंडेशनला शिक्षणाच्या पायाभूत सुविधा, सार्वजनिक आरोग्य स्थिती, ग्रामीण पायाभूत सुविधा आणि तरुणांच्या आकांक्षा विषयांबद्दल सहा गावांमध्ये दहा सर्वेक्षणकर्त्यांची टीम तैनात केली.

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Adani Foundation launches various CSR programs near Gondkhari mine



Nagpur, June 29, : Adani Foundation took its Corporate Social Responsibility (CSR) initiative to neighboring villages of the proposed Gondkhiari Underground Mining Project by Adani Power Maharashtra Limited in Nagpur. The villages of Gondkhairi, Waddhamna, Surabardi, Alesur, Sahuli and Kalambi will benefit immensely from Adani Foundation's CSR programmes coupled with thousands of direct and indirect employment opportunities to be generated by the underground mining project.

Adani Foundation has designed the programme with a focus on health and hygiene, education and empowerment and rural infrastructure among others. The Foundation has prepared a detailed CSR plan after a three-month study and survey of about 4,000 households in the six villages near the Gondkhairi underground mine.

अदाणीतर्फे गोंडखैरीत सीएसआर कार्यक्रम

नागपूर : अदाणी फाऊंडेशनने नागपुरातील अदाणी पॉवर महाराष्ट्र लिमिटेडच्या प्रस्तावित गोंडखैरी भूमिगत खाण प्रकल्पाच्या शेजारच्या गावात कॉर्पोरेट सोशल रिस्पॉन्सिबिलीटी पुढाकार घेतला आहे. गोंडखैरी, वडधामना, चुराबर्डी, आलेसूर, साहुली, कळंबी गावात सीएसआर कार्यक्रम हाती घेतला आहे. भूमिगत खाणीजवळील सहा गावात सुमारे ४ हजार कुटुंबांचा तीन महिन्यांच्या अभ्यासानंतर फाऊंडेशनने तपशीलवार सीएसआर योजना तयारी केली आहे. अदाणी फाऊंडेशनला शिक्षणाच्या पायाभूत सुविधा, सार्वजनिक आरोग्य स्थिती, ग्रामीण पायाभूत सुविधा आणि तरुणांच्या आकांक्षा विषयांबद्दल सहा गावात दहा सर्वेक्षणकर्त्यांची चमू तैनात केली आहे. येथे आरोग्य शिबिर झाले. याविषयी सरपंच वर्षा अतकरी यांनी समाधान व्यक्त केले आहे. त्या म्हणाल्या, आम्हाला अदाणी कंपनीकडून विविध लोककल्याणकारी कार्यक्रमाची अपेक्षा आहे. ग्रामविकास अधिकारी हितेंद्र फुले, मिशन इंडियाचे डॉ. रेगी लुकोसे, डॉ. बी.ओ.तायडे यांच्या उपस्थितीत आरोग्य शिबिर घेण्यात आले. भूमिगत खाण ८६२ हेक्टरमध्ये पसरलेली आहे. पण याकरिता केवळ १८ हेक्टर जमिनीची गरज पडेल. यामुळे कुठलाही परिणाम पर्यावरणावर राहणार नाही, असेही अदाणी कंपनीतर्फे स्पष्ट केले आहे. ■



Adani Foundation took its Corporate Social Responsibility (CSR) initiative to neighboring villages of the proposed Gondkhari Underground Mining Project by Adani Power Maharashtra Limited in Nagpur. The villages of Gondkhairi, Waddhamna, Surabardi, Alesur, Sahuli and Kalambi will benefit immensely from Adani Foundation's CSR programmes coupled with thousands of direct and indirect employment opportunities to be generated by the underground mining project.

Adani Foundation has designed the programme with a focus on health and hygiene, education and empowerment and rural infrastructure among others. The Foundation has prepared a detailed CSR plan after a three-month study and survey of about 4,000 households in the six villages near the Gondkhairi underground mine. The Adani Foundation engaged the Centum Foundation, which deployed a team of ten surveyors to map education infrastructure, public health status, community infrastructure and youth aspirations.

On Wednesday, the Foundation began its CSR initiatives with the first health camp in Gandhari, where three doctors from Mission India Hospital, specialising in gynaecology, general medicine and dentistry, examined patients and provided free medicines. During the coming week, similar health camps will be organised in Alesur and Kalambi gram panchayat areas. In addition, Adani Foundation has prepared to distribute hundreds of school bags, water filters, musical instruments, sports equipment and plants, which will benefit thousands of people in the people of Gondkhairi, Waddhamna, Surabardi, Alesur, Sahuli and Kalamba.

On the health camp, Mrs. Varsha Vijay Atkari, Sarpanch, Gondkhairi said, "The medical camp was particularly helpful for the needy people who cannot travel to consult specialist doctors. The villagers also benefited from the advice of expert doctors. We look forward to the similar public welfare programmes by Adani Power in our village." He said that the health camp would also spread awareness among the villagers when cases of disease are on the rise during monsoon. The health camp was successfully organised in the presence of Village Development Officer Mr Hitendra Phule, Dr. Reggie Lukose, Director, Mission India Charitable Hospital and Dr. BD Tayde, Director, Mission India Charitable Hospital.

It is noteworthy that Adani Power Maharashtra's project will not involve any resettlement of local people as only 18 hectares of land will be required for development of the underground mine spread across 862 hectares. Due to non-requirement of forest land for the development of Gondkhairi block, there will be no adverse impact on the local environment. Also there will

वन्यजीवांचे भ्रमणमार्ग सुरक्षित राहणार

नागपूर : गोंडखैरी येथील अदानीच्या खाणीमुळे जिल्हा आणि ऊर्जा क्षेत्राला गुंतवणुकीत लक्षणीय वाढ होणार आहे. लोकांना विस्थापित न करता किंवा वनजमीन न वळवता आणि वन्यजीवांवर कोणताही परिणाम न करता प्रत्यक्षात ही खाण साकारणार आहे. अदानी पॉवरने २०२२ मध्ये स्पर्धात्मक बोलीद्वारे ही खाण विकत घेतली आहे.

या खाणीसाठी फक्त १८ हेक्टर जमीन संपादित केली जाईल. पायाभूत सुविधा, कार्यालय आणि विस्तीर्ण हरित पट्ट्यासाठी जमीन संपादित केली जाणार आहे. अदानी पॉवरने महाराष्ट्रात सामाजिक बांधिलकीतून आरोग्य, शिक्षण आणि इतर क्षेत्रांसह सक्षमीकरणासाठी विस्तृत योजना विकसित केली आहे असा दावा कंपनीने केला आहे.

गोंडखरी भूमिगत खाण प्रकल्पातून एकही व्यक्ती विस्थापित होणार नाही

नागपूर, २३ जून : गोंडखरी ब्लॉकिन्स संदर्भात महाराष्ट्र शासन विरुद्ध मेंढ्यालाच्या नुकत्याच प्रसिद्ध झालेल्या जाहिरातीत गोंडखरी भूमिगत खाण प्रकल्पाची अवास्तवपणे झाल्याचा उल्लेख मुद्दामी केला आहे. हा प्रकल्प भूमिगत खाणकाम आहे आणि त्यामुळे स्थानिक लोक विस्थापित होणार नाहीत, ही चिंता व्यक्त केल्याचे मुद्दामी स्पष्ट केले. गोंडखरी भूमिगत कोळसा खाणीमुळे कोणत्याही व्यक्तीला विस्थापित न करता किंवा वनजमिनीचा वापर न करता आणि वन्यजीवांवर कोणताही परिणाम न करता विकसित केला जाईल.

भारत सरकारच्या कोळसा मंत्रालयाने अतीकेंद्रित स्पर्धात्मक लिलावाद्वारे गोंडखरी ब्लॉक अदानी पॉवर महाराष्ट्र लिमिटेड (APML) ला दिला. हा ब्लॉक अनेक दशकांपासून कोळशाला जात आहे परंतु स्थानिक लोकांच्या मालकीतही तो अविकसित आहे. एपीएमएलने अत्यंत सुरक्षितरीत्या मोठ्या प्रमाणात उत्खननासाठी सिद्ध तंत्रज्ञान, अत्यंत यांत्रिकीकृत खाणकाम आणि भूमिगत खाणी यशस्विपणाची योजना आखली आहे. मशीनद्वारे अत्याधुनिक पादर्शकतेसाठी प्रकल्प क्षेत्राच्या ३.० किमी परिघात असलेल्या ग्रामपंचायतींसह सर्व संबंधित सरकारी कार्यालयांना याबद्दल विहित करण्यात आला आहे.

आता याबद्दल विलाजान्सार, गोंडखरी भूमिगत खाण प्रकल्प नागपूर जिल्ह्यात आणि आजूबाजूला हजारो प्रत्यक्ष आणि अप्रत्यक्ष उपजीविकेच्या संधी निर्माण करण्यासाठी सज्ज आहे. स्थानिक किंवा वन्यप्रजातींच्या पर्यावरणाला धक्का न पोहोचवता उच्च मूल्याच्या उच्चतम आर्थिक क्षमतेचा लक्षात घेऊन या प्रकल्पाला समुदायाच्या नेतृत्वाकडून स्थानिक लोकांकडून जबरदस्त पाठिंबा मिळाला आहे. APML ने विकसित गोंडखरी प्रकल्पासाठी पर्यावरणीय नियमांचे काटेकोर पालन करून मानकांचा एक आदर्श खाण व्यवस्थापनासाठी महत्त्वपूर्ण गुंतवणूक करण्याची योजना आखली आहे.

कोळसा मंत्रालयाने आधीच २ MTPA -साठी (भूमिगत) खाण योजना मंजूर केली आहे आणि ते APML विनंतीनुसार परवानगी दिलेल्या विविध तांत्रिक मुल्यांकनांवर आधारित २MTPA -/३MTPA -पीक रेट क्षमतेच्या उत्पादन क्षमतेसाठी पर्यावरण मंजुरीसाठी अर्ज केला आहे.

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गोंडखैरी भूमिगत खाणीमुळे पायाभूत सुविधा मजबूत होणार

अदानी समूहाचा दावा

लोकसत्ता प्रतिनिधी

नागपूर : गोंडखैरी भूमिगत कोळसा खाण नागपूरच्या ग्रामीण भागातील पायाभूत सुविधा मजबूत करेल. ही खाण स्थानिक लोकांना विस्थापित करणार नाही. येथे जंगलतोड किंवा स्फोटही केले जाणार नाही, असा दावा अदानी समूहाने केला आहे.

खाण प्रकल्प जिल्हा आणि ऊर्जा क्षेत्रातील गुंतवणुकीत वाढ करेल. सोबत रोजगार निर्मिती करेल. अदानी पॉवर महाराष्ट्राने २०२२ मध्ये स्पर्धात्मक बोलीद्वारे ही खाण मिळवली. या प्रकल्पातून सरकारी तिजोरीत सुमारे ५ हजार कोटी रुपयांचा अतिरिक्त महसूल जमा होण्याचा अंदाजही अदानी समूहाकडून वर्तवला गेला. सोबत सामाजिक दायित्व निधीतून नागरिकांसाठी शिक्षण, आरोग्य, उपजीविका आणि ग्रामीण पायाभूत सुविधाही उपलब्ध केल्या जातील, असेही अदानी समूहाकडून सांगण्यात आले.

सतत पाऊस, निरोगी वातावरण आणि चांगल्या भविष्यासाठी भूमिगत कोळसा खाण आवश्यक आहे

नागपूर : तंत्रज्ञानाच्या प्रगतीमुळे, भूगर्भातील खाणी अधिक सुरक्षित होत असताना, कोळशाचे उत्पादन वाढवण्यावर भर दिला जात आहे, जेणेकरून पर्यावरणीय धोकेही कमी करता येतील. भूमिगत खाणीच्या आसपास आवाज, हवा, पाणी आणि मातीचे कोणतेही लक्षणीय प्रदूषण होणार नाही. काही पर्यावरणीय घटक जसे की धूळ उत्सर्जन, ध्वनी इ. सभोवतालच्या वातावरणावर प्रतिकूल परिणाम टाळण्यासाठी दिलेल्या मर्यादेत नियंत्रित केले जातील.

भारतात कोळशाचा जगातील सर्वात मोठा साठा आहे आणि जगातील दुसऱ्या क्रमांकाची लोकसंख्या आहे. अशा स्थितीत कोळसा हा भारतासाठी पुढील दोन ते तीन दशकांपर्यंत विजेचा मुख्य स्रोत राहील.भूमिगत कोळसा खाणीत फार कमी लोकांना विस्थापित करण्याची गरज आहे, परंतु जेथे कोळसा प्रकल्प सुरू होईल, तेथे स्थानिक लोकांना त्यांच्या विस्थापनासाठी भूसंपादनाच्या बदल्यात पुरेशी मोबदला देऊन त्यांचे विशेष पुनर्वसन केले जाईल. आणि पुनर्वसन धोरण तयार केले जाईल जेणेकरून ते आणि त्याच्या कुटुंबाला कोणतीही अडचण येत नाही. या अंतर्गत विस्थापित कुटुंबांसाठी घरे आणि भूखंड, वैद्यकीय सुविधा, मुलांसाठी चांगल्या शाळा, शिष्यवृत्ती इत्यादींची व्यवस्था केली जाते आणि मूलभूत गरजांची विशेष काळजी घेतली जाते.

अशा परिस्थितीत भारत सरकारच्या कोळसा मंत्रालयाने महाराष्ट्रातील प्रस्तावित गोंडखरी भूमिगत कोळसा खाण प्रकल्प अदानी पॉवर महाराष्ट्र लिमिटेडला स्पर्धेद्वारे व्यावसायिक खाणकामांतर्गत दिला आहे. ही कोळसा खाण ८६२ हेक्टर क्षेत्रात पसरलेली आहे, परंतु भूमिगत खाण असल्याने तिला फक्त काही एकर जमीन लागेल आणि कमीत कमी विस्थापन होईल. हा प्रकल्प नागपूर विभागात २६ वर्षांसाठी रोजगाराचा स्रोत बनेल. दरवर्षी सुमारे २० लाख टन कोळशाचे उत्पादन होत असल्याने या आधुनिक खाणीचा प्रत्यक्ष आणि अप्रत्यक्षपणे हजारो लोकांना फायदा होणार आहे.या खाण प्रकल्पाच्या कार्यादरम्यान पुरेसा रोजगार निर्माण होईल, परिणामी उत्पन्नात वाढ होऊन लोकांचे जीवनमान उंचावेल.

YUVA RASHTRA DARSHAN
Date 24 June 2013
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बेहतर भविष्य के लिए भूमिगत कोयला खदान जरूरी

नागपुर। तकनीकी विकास के साथ जैसे जैसे भूमिगत खदाने सुरक्षित बनती जा रही है, उससे कोयला उत्पादन बढ़ाने पर जोर दिया जा रहा है ताकि पर्यावरणीय जोखिमों को भी कम किया जा सके। भूमिगत खदान के आसपास शोर, हवा, जल और मिट्टी कोई खास प्रदूषित नहीं होगा। भारत के पास कोयले का विश्व में सबसे बड़ा भण्डार है और विश्व की दूसरी सबसे बड़ी जनसख्या। ऐसे में आने दो से तीन दशकों तक कोयला भारत के लिए बिजली का मुख्य स्रोत रहेगा। भूमिगत कोयला खदान में बहुत कम लोगों को विस्थापित होने की जरूरत होती है लेकिन जहां कहीं भी कोल परियोजना की शुरुआत होती है, वहां के स्थानीय लोगों को भूमि अर्जन के बदले समुचित मुआवजा की राशि दिए जाने के बाद उनके विस्थापन के लिए विशेष तौर पर पुनर्वास एवं पुनर्व्यवस्थापन नीति तैयार की जाती है ताकि उन्हें और उनके परिवार को कोई परेशानियां नहीं हो। भारत सरकार के कोयला मंत्रायलय ने महाराष्ट्र स्थित प्रस्तावित गोंडखरी अंडरग्राउंड कोल माइन परियोजना को द्वारा कमर्शियल माइनिंग के तहत अदानी पॉवर महाराष्ट्र लिमिटेड को प्रतिस्पर्धा के द्वारा दिया है। यह कोयला खदान ८६२ हेक्टेयर क्षेत्र में विस्तृत है पर भूमिगत खदान होने के कारण उसे बस कुछ ही एकड़ जमीं की जरुरत पड़ेगी और कमसे कम विस्थापन होगा। यह परियोजना २६ वर्षों तक नागपुर क्षेत्र में रोजगार का स्रोत बनेगी। हर साल करीब २० लाख टन कोयला पैदा होने से यह आधुनिक खदान हज़ारो लोगो को प्रत्यक्ष और परोक्ष तरीके से लाभान्वित करेगी।

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भविष्य के लिए जरूरी है भूमिगत कोयला खदान

मुंबई .

तकनिकी विकास के साथ जैसे जैसे भूमिगत खदाने सुरक्षित बनती जा रही है, उससे कोयला उत्पादन बढ़ाने पर जोर दिया जा रहाहै ताकि पर्यावरणीय जोखिमों को भी कम किया जा सके। भूमिगत खदान के आसपास शोर, हवा, जल और मिट्टी कोई खास प्रदूषित नहीं होगा। आसपास के वातावरण पर प्रतिकूल प्रभाव से बचने के लिए कुछ पर्यावरणीय कारकों जैसे धूल सर्जन, शोर इत्यादि को दिए गए सीमा के भीतर नियंत्रित किया जायेगा। भारत के पास कोयले का विश्व में सबसे बड़ा भण्डार है और विश्व की दूसरी सबसे बड़ी जनसख्या। ऐसे में आने दो से तीन दशकों तक कोयला भारत के लिए बिजली का मुख्य स्रोत रहेगा।भूमिगत कोयला खदान में बहुत कम लोगों को विस्थापित होने की जरूरत होती है लेकिन जहां कहीं भी कोल परियोजना की शुरुआत होती है, वहां के स्थानीय लोगों को भूमि अर्जन के बदले समुचित मुआवजा की राशि दिए जाने के बाद उनके विस्थापन के लिए विशेष तौर पर पुनर्वास एवं पुनर्व्यवस्थापन नीति तैयार की जाती है ताकि उन्हें और उनके परिवार को कोई परेशानियां नहीं हो।

इसके तहत विस्थापित परिवारों के लिए मकान और प्लॉट की व्यवस्था, चिकित्सा सुविधा, बच्चों के लिए बेहतर स्कूल, छात्रवृत्ति इत्यादि सुनिश्चित किया जाता है और बुनियादी जरूरतों का खास ख्याल रखा जाता है।

ऐसे में भारत सरकार के कोयला मंत्रायलय ने महाराष्ट्र स्थित प्रस्तावित गोंडखरी अंडरग्राउंड कोल माइन परियोजना को द्वारा कमर्शियल माइनिंग के तहत अदानी पॉवर महाराष्ट्र लिमिटेड को प्रतिस्पर्धा के द्वारा दिया है। यह कोयला खदान 862 हेक्टेयर क्षेत्र में विस्तृत है पर भूमिगत खदान होने के कारण उसे बस कुछ ही एकड़ जमीं की जरुरत पड़ेगी और कमसे कम विस्थापन होगा। यह परियोजना 26 वर्षों तक नागपुर क्षेत्र में रोजगार का स्रोत बनेगी। हर साल करीब 20 लाख टन कोयला पैदा होने से यह आधुनिक खदान हज़ारो लोगो को प्रत्यक्ष और परोक्ष तरीके से लाभान्वित करेगी।

केंद्र सरकार को वर्ष 2030 तक लगभग पांच सौ खदानों की नीलामी से डेढ करोड़ लोगों को रोजगार मिलने की आशा है। वहीं स्थानीय स्तर पर शिक्षा, स्वास्थ्य, तथा कौशल विकास के साथ-साथ जरूरतमंद महिलाओं के लिए महिला उद्यमी बहुउद्देशीय सहकारी समिति का संचालन से क्षेत्र का सर्वांगीण विकास हो रहा है।भूमिगत परियोजना में आवश्यक प्रदूषण नियंत्रण उपकरण जैसे जल छिड़काव, वृक्षारोपण, व्यक्तिगत सुरक्षा उपकरण आदि नियमित रूप से लागू किए जाएंगे।

सतत वीज, निरोगी वातावरण आणि चांगल्या भविष्यासाठी भूमिगत कोळसा खाण आवश्यक आहे

नागपूर : तंत्रज्ञानाच्या प्रगतीमुळे, भूगर्भातील खाणी अधिक सुरक्षित होत असताना, कोळशाचे उत्पादन वाढवण्यावर भर दिला जात आहे, जेणेकरून पर्यावरणीय धोकेही कमी करता येतील. भूमिगत खाणीच्या आसपास आवाज, हवा, पाणी आणि मातीचे कोणतेही लक्षणीय प्रदूषण होणार नाही. काही पर्यावरणीय घटक जसे की धूळ उत्सर्जन, ध्वनी इ. सभोवतालच्या वातावरणावर प्रतिकूल परिणाम टाळण्यासाठी दिलेल्या मर्यादित नियंत्रित केले जातील. भारतात कोळशाचा जगातील सर्वात मोठा साठा आहे आणि जगातील दुसऱ्या क्रमांकाची लोकसंख्या आहे. अशा स्थितीत कोळसा हा भारतासाठी पुढील दोन ते तीन दशकांपर्यंत विजेचा मुख्य स्रोत राहील. भूमिगत कोळसा खाणीत फार कमी लोकांना विस्थापित करण्याची गरज आहे, परंतु जेथे कोळसा प्रकल्प सुरू होईल, तेथे स्थानिक लोकांना त्यांच्या विस्थापनासाठी भूसंपादनाच्या बदल्यात पुरेशी मोबदला देऊन त्यांचे विशेष पुनर्वसन केले जाईल. आणि पुनर्वसन धोरण तयार केले जाईल जेणेकरून ते आणि त्याच्या कुटुंबाला कोणतीही अडचण येत नाही. या अंतर्गत विस्थापित कुटुंबांसाठी घरे आणि भूखंड, वैद्यकीय सुविधा, मुलांसाठी चांगल्या शाळा, शिष्यवृत्ती इत्यादींची व्यवस्था केली जाते आणि मूलभूत गरजांची विशेष काळजी घेतली जाते.

अशा परिस्थितीत भारत सरकारच्या कोळसा मंत्रालयाने महाराष्ट्रातील प्रस्तावित गोंडखरी भूमिगत कोळसा खाण प्रकल्प अदानी पॉवर महाराष्ट्र लिमिटेडला स्पर्धेद्वारे व्यावसायिक खाणकामांतर्गत दिला आहे. ही कोळसा खाण ८६२ हेक्टर क्षेत्रात पसरलेली आहे, परंतु भूमिगत खाण असल्याने तिला फक्त काही एकर जमीन लागेल आणि कमीत कमी विस्थापन होईल. हा प्रकल्प नागपूर विभागात २६ वर्षांसाठी रोजगाराचा स्रोत बनेल. दरवर्षी सुमारे २० लाख टन कोळशाचे उत्पादन होत असल्याने या आधुनिक खाणीचा प्रत्यक्ष आणि अप्रत्यक्षपणे हजारो लोकांना फायदा होणार आहे. या खाण प्रकल्पाच्या कार्यादरम्यान पुरेसा रोजगार निर्माण होईल, परिणामी उत्पन्नात वाढ होऊन लोकांचे जीवनमान उंचावेल. अदानी पॉवर महाराष्ट्र लिमिटेड लिमिटेड पुनर्वसन आणि पुनर्वसनासाठी एक फायदेशीर पॅकेज तयार करेल, ज्यामध्ये गोंडखेरी परिसरात आरोग्य, शिक्षण, पिण्याचे पाणी यासारख्या मूलभूत सुविधांची व्यवस्था केली जाईल. खाण क्षेत्रातील हवेची गुणवत्ता, पाण्याची गुणवत्ता, ध्वनी पातळी, जमिनीचे वातावरण, मातीची गुणवत्ता या विविध बाबींचा पर्यावरण, वन आणि हवामान बदल मंत्रालयाने ठरवलेल्या मानकांच्या आधारे अभ्यास केला आणि सर्व विहित मानकांच्या मर्यादेत असल्याचे आढळून आले.

गोंडखैरी खाणीने प्रदूषणाचा धोका

काँग्रेससह पर्यावरणवाद्यांचा विरोध; जनसुनावणीच्या पार्श्वभूमीवर प्रशासनाला सवाल

म.टा. विशेष प्रतिनिधी, नागपूर

अदानी पॉवर कंपनीसाठी गोंडखैरी येथील प्रस्तावित कोळसा खाणीबाबत येत्या १० जुलै रोजी जनसुनावणी होणार असल्याचे जाहीर झाल्यापासून पर्यावरणवाद्यांसह काँग्रेस नेतेही सरसावले आहेत. प्रकल्पामुळे जल, वायू आणि आवाजाच्या प्रदूषणाचा धोका उद्भवण्याची भीती व्यक्त केली जात आहे.

कळमेश्वर येथील कारली तलावाजवळ होणाऱ्या सुनावणीसाठी २४ ग्रामपंचायतीतील नागरिकांना उपस्थित राहण्याचे आवाहन करण्यात आले आहे. गावकऱ्यांनी खाणीविरोधात आवाज उठवला असून आंदोलनाची तयारी सुरू केली. राज्य प्रदूषण नियंत्रण मंडळाने ही खाण कोळशाची की मँगनिझची याबाबत कुठलाही खुलासा केलेला नाही. मंडळाने प्रकल्प अहवालही सादर केला नाही. या खाणीसाठी सुमारे ८६२ हेक्टर अर्थात सुमारे सव्वादोन हजार एकर जमीन प्रस्तावित केली आहे. त्यामुळे गावकरी संभ्रमात आहेत. भूमिगत खाणीसाठी अडीचशे एकरची गरज असते, असे मानले जाते.



प्रदूषण नियंत्रण मंडळाच्या अधिकाऱ्यांसोबत चर्चा करताना काँग्रेसचे नाना गावंडे व इतर.

काँग्रेसचे प्रदेश उपाध्यक्ष नाना गावंडे यांनी गोंडखैरीतील प्रस्तावित खाणीबाबत प्रश्न उपस्थित केले. यासंदर्भात त्यांनी प्रदूषण नियंत्रण मंडळाला पत्र लिहिले आहे. ही खाण कोळसा की मँगनिझची आहे, अशी विचारणा त्यांनी केली. कोळसा खाण असल्यास भूमिगत की खुली, तीन दशलक्ष टन भूमिगत खाणीतून शक्य नाही, खाणीसाठी ८६२ हेक्टर क्षेत्र प्रस्तावित आहे. या क्षेत्रात किती गाव व घरे येणार आहेत, त्यांचे पुनर्वसन कसे होईल, प्रकल्पबाधितांना नोकरी देण्यात येणार का, असे सवाल करून खाण प्रकल्प अहवालाची मागणी केली.

यावेळी जिल्हा परिषद सदस्य भारती पाटील, संजय बगताप, अविनाश पारधी, रेखा वरठी, सुलोचना ढोके, किशोर मिरे, वंदना थुटूरकार, तेजस्विनी भुर्वे, शैलेश कडू, मनोहरराव येलेकार, बॉनी शेलारे, सिद्धार्थ ढोके आदी उपस्थित होते. कोळसा खाणीमुळे प्रदूषणाचा प्रश्न निर्माण होईल. त्यामुळे सरकारने याबाबत योग्य विचार करावा, असे नाना गावंडे म्हणाले.

प्रभावित गावे

नागपूर ग्रामीण, कळमेश्वर व हिंगणा तालुक्यांतील २४ ग्रामपंचायतींना सुनावणीसाठी बोलावण्यात आले आहे.

- **कळमेश्वर तालुका :** गोंडखैरी, निमजी, साहुली, कळंबी, दहेगाव, आष्टीकला, लोणारा, गमुथळा, सेलू सावंगी, उपरवाही, लिंगा
- **नागपूर ग्रामीण :** सोनेगाव निपाणी, दवलामेटी, दुगधामणा, सुराबर्डी, व्याहार, पेठ, कालडोंगरी, धामणालिंगा
- **हिंगणा :** वडधामणा, नागलवाडी, खैरी पन्नासे, डिगडोह, नीलडोह, रायपूर

2503

महाराष्ट्र प्रदेश काँग्रेस कमिटी

टिळक भवन, दादासाहेब गायकवाड मार्ग, दादर, मुंबई - ४०० ०२५.
दूरध्वनी- २४३०१३०१
२४३०१३६१
फॅक्स- २४२२५०३३

दिनांक:-१६/०६/२०२३

प्रति,

महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशिक कार्यालय / उप-प्रादेशिक कार्यालय-१
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर - ४४०००१

विषय:- मैसर्स अदानी पॉवर, गॉडखैरी, ता. कळमेश्वर, जि. नागपूर भूमिगत कोळसा खानीबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १०.०७.२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर, जिल्हा नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे, त्याबाबत खालीलप्रमाणे मुद्येनिहाय माहिती उपलब्ध करुन देण्यात यावी.

१) सदर खान ही कोळसा खान आहे की मॅग्नीज खान आहे हे जाहिरातीमध्ये स्पष्ट होत नाही.
२) जर खान कोळसा खान आहे तर सदरची खान भुमिगत आहे की खुली आहे. कारण ३ मिलियन टन प्रतिवर्ष कोळसा भूमिगत खानीमधुन उत्खनन करणे संभव नाही असे वाटते.
३) जी खान उघडण्यात येणार आहे त्यासंबंधी प्रोजेक्ट रिपोर्टची सत्यप्रत मिळावी.
४) मोठ्या संख्येने जी जमीन अधिग्रहीत केल्या जाईल त्याबाबत मोबदला किंवा नौकरी बाबत काय प्रावधान राहील?
५) खान ८६२ हेक्टर क्षेत्र प्रस्तावित आहे, त्या जमिनीवर कोणते गाव किंवा घर येत आहे की? जर येत असेल तर त्या गावाचे किंवा घराचे पुर्नवसनाबाबत काय उपाययोजना करण्यात आलेल्या आहे?

तरी उपरोक्त मुद्येनिहाय सुस्पष्ट माहिती उपलब्ध करुन द्यावी, ही विनंती.

जावक आवक लिपिक
प्रादेशिक कार्यालय
महाराष्ट्र प्रदूषण नियंत्रण मंडळ
16 JUN 2023
उद्योग भवन ५ वा माळा,
सिव्हील लाईन्स, नागपूर

(नाना गावंडे)
उपाध्यक्ष
महाराष्ट्र प्रदेश काँग्रेस कमिटी
मो. नं.:-९८५०२५५१९९

2504

सतत वीज, निरोगी वातावरण, चांगल्या भविष्यासाठी भूमिगत कोळसा खान आवश्यक

देशोन्नती वृत्तसंकलन...

नागपूर ■ सतत वीज, निरोगी वातावरण आणि चांगल्या भविष्यासाठी भूमिगत कोळसा खाण आवश्यक आहे. यामुळे खाणीच्या आसपास आवाज, हवा, पाणी आणि मातीचे प्रदुषण होणार नाही.

भारतात कोळशाचा जगातील सर्वात मोठा साठा आहे. आणि जगातील दुसऱ्या क्रमांकाची लोकसंख्या आहे. भूमिगत कोळसा खाणीसाठी खूप कमी लोकांचे विस्थापन होते. लोकांना भूसंपादनाच्या बदल्यात पुरेसा मोबदला देऊन त्यांचे पुनर्वसन केले जाते. विस्थापित कुटुंबांसाठी घरे, भूखंड, वैद्यकीय सुविधा, शाळा, शिष्यवृत्तीची व्यवस्था केली जाते. तसेच मुलभूत गरजांचीही काळजी घेतली जाते.

भारत सरकारच्या कोळसा मंत्रालयाने महाराष्ट्रातील प्रस्तावित गोंडखरी भूमिगत कोळसा खाण प्रकल्प अदानी पॉवर महाराष्ट्र लिमिटेडला स्पर्धेद्वारे व्यावसायिक खाणकामांतर्गत दिला आहे. ही कोळसा खान ८६२ हेक्टर क्षेत्रात पसरली आहे. भूमिगत खाण असल्याने फक्त काही एकर जमीन लागेल आणि कमीतकमी लोकांचे विस्थापन होईल. लोकांना प्रत्यक्ष व अप्रत्यक्ष रोजगार मिळेल.

२०३० सालापर्यंत केंद्र सरकारला सुमारे ५०० खाणींचा लिलाव करून १.५ कोटी लोकांना रोजगार उपलब्ध करून देण्याची अपेक्षा आहे. प्रदुषण नियंत्रण उपकरणे जसे-पाणी शिंपडणे, वृक्षारोपण, वैयक्तिक संरक्षक उपकरणे इत्यादी भूमिगत प्रकल्पांमध्ये नियमितपणे कार्यान्वित केली जातील. परिसरातील पर्यावरणावर आणि सामाजिक-आर्थिक वातावरणावर होणारा परिणाम नियंत्रित करण्यासाठी अतिरिक्त प्रदूषण नियंत्रण उपाय आणि पर्यावरण संरक्षण उपायांचा अवलंब केला जाईल. दाट हिरवे क्षेत्र विकसित करणे आणि खाण लीज क्षेत्रासह वृक्षारोपण आणि वाहतूक, रस्ते, खाण आणि आसपासच्या गावांमध्ये पावसाचे पाणी साठवणे यासारख्या उपायोजना राबविण्यात येणार आहेत.

DESHONNATI
Date- 22 JUNE-23
Page No-2

RASHTRAPRAKASH - NAGPUR
Date - 22, June - 2023
Page No. 6

जरूरी है भूमिगत कोयला खदान

नागपुर। तकनीकी विकास के साथ जैसे-जैसे भूमिगत खदानें सुरक्षित बनती जा रही हैं, उससे कोयला उत्पादन बढ़ाने पर जोर दिया जा रहा है, ताकि पर्यावरणीय जोखिमों को भी कम किया जा सके. भूमिगत खदान के आसपास शोर, हवा, जल और मिट्टी कोई खास प्रदूषित नहीं होगा. ऐसे में भारत सरकार के कोयला मंत्रालय ने महाराष्ट्र स्थित प्रस्तावित गोंडखरी अंडरग्राउंड कोल माइन परियोजना को कमर्शियल माइनिंग के तहत अदानी पॉवर महाराष्ट्र लिमिटेड को दिया है. यह परियोजना 26 वर्षों तक नागपुर क्षेत्र में रोजगार का स्त्रोत बनेगी.

TOI
22 June-2023
Front page

2 mths before retirement, CCF granted clearance to Gondkhairi coal mine

No Wildlife In Area, No Trees To Be Cut, He Says

Vijay.Pinjarkar@timesgroup.com

Nagpur: The Adani Power Maharashtra Limited's (APML) proposal of forest clearance for its underground coal mine project in Gondkhari near the city may be in the preliminary stages, but getting the clearance seems to be a mere formality since forest officials have already recommended it.

Documents with TOI show that clearance for 87.351 hectare forest land for the mine has already been recommended by former chief conservator of forest (CCF) Rangnath Naikade on March 28, two months before his retirement on May 31 this year.

Talking to TOI, Naikade said there is no wildlife in the proposed area and not a single tree will be cut as the opening of the mine will be on non-forest land.

"The aerial distance of the mine is 34km from Mansingh-deo sanctuary and 20km from Bor Tiger Reserve. No deforestation will be done as the latest technology will be used and afforestation will be done in the block area. The project will boost economy in the area. Hence, we recommended it," said Naikade.

However, there is a lot of opposition to the project from activists and green crusaders, who fear the coal mine will cause air, noise, and water pollution.

MPCC vice-president Nana Gawande, who opposed the project, said, "Adani coal mine will be located in 862 hectare, which is too big. In areas like Saoner, Parsheoni, and Murpaar (Chimur) underground coal mines, people are facing severe water crises and village wells have gone dry. High pollution is expected as most of the mined coal will be transported in open trucks."

Gawande added the mine will certainly affect neighbouring Vena and Surabardi lakes. The Vena reservoir, spread over 550 hectare and supplying water to ordnance factories and industries, is 3km from the project site. "These companies make tall promises but are poor in delivering," he added.

▶ Generate livelihood, P 4

SETTING ASIDE OBJECTIONS

- Adani Power Maharashtra Limited has sought forest clearance for its underground coal mine project in Gondkhari
- Activists and green crusaders fear the coal mine will cause air, noise, and water pollution
- MPCC vice-president Nana Gawande claims that project will lead to heavy pollution as mined coal will be transported in open trucks
- The mine will also affect the nearby Vena & Surabardi lakes

TOI
22 June 2023
Page No 4

'Project will generate livelihood for thousands'

▶Continued from P 1

Adani officials countered the fears of activists. Talking to TOI, they said the Gondkhairi block development will not affect local surroundings, including humans and wildlife, since there will be no deforestation or blasting.

"Gondkhairi block was waiting to be developed for over 15 years and it will generate much-needed livelihood for thousands in rural Nagpur throughout the life of the mine. Being an underground mine, it will also not displace people," they said.

The officials said, "Of the 862 hectare, only 18 hectare of land will be effectively mined. We will develop 2 hectares green belt around the mines. An elaborate plan for CSR covering health, education, and empowerment among other areas has been developed."

A senior APML official said, "Gondkhairi project is being developed with strict adherence to environmental regulations. In its submissions for the regulatory process, the state-of-the-art mining method promises to ensure there will not be any adverse impact on water bodies, roads, buildings, and forests. The company will procure minimum private land for basic infrastructure, office buildings, and green belts."

2509





2510





2511







महाराष्ट्र प्रदूषण नियंत्रण मंडळ, नागपूर

पर्यावरण विषयक जाहिर लोकसुनावणीची सुचना

शुध्दीपत्रक

या कार्यालयाने मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोडखैरी भूमिगत कोळसा खा
(कन्हाळी कोळसा क्षेत्र), ता. कळमेश्वर जिल्हा -नागपूर यांच्या लोकसुनावणी सूचनेची जाहिरात
10/06/2023 रोजी दैनिक लोकमत, नागपूर येथे प्रकाशित केली. त्यामध्ये लोकसुनावणीची तारीख चुकी
दि. 10/07/2023 अशी छापण्यात आली. तरी सर्व संबंधितांनी लोकसुनावणीची तारीख 13/07/2023 अ
वाचावी. कृपया याची नोंद घ्यावी.

स्वा/-

उप-प्रादेशिक अधिकारी, म. प्र. नि. मंडळ, नागपूर तथा समन्वयक, पर्यावरण विषयक जनसुनाव

लोकमत

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

पर्यावरण विषयक जाहीर लोक सुनावणीची सूचना

यांनी ई पर्यावरण अभियांत्रिकी, आठवा मजला, आठवा मजला यांनी अधिसूचना दि. 14.09.2006 व सुधारित अधिसूचना दि. 01.12.2009 अन्वये केलेले अटींचे पालन महाराष्ट्र लिमिटेड, मालकुहे यांच्या गोंडखैरी भूमिगत कोळसा खाण, (आऊटी कोळसा खंड), गाव गोंडखैरी, तालुका-कळमेश्वर जिल्हा -नागपूर, करीता यांनी महाराष्ट्र प्रदूषण नियंत्रण मंडळास पर्यावरण विषयक जाहीर लोकसुनावणी घेण्याबाबत अर्ज केला आहे. गोंडखैरी, गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा -नागपूर या संलग्नित्री उत्पादन क्षमता 3 मिलियनटन/वर्ष प्रस्तावित आहे व सध्यातरी कोल वॉश हेवेस्टर आहे. सदर प्रस्तावित प्रकल्पाची पर्यावरण विषयक जाहीर लोक सुनावणी आयोजीत करण्यात येत आहे.

सदर सुनावणीचा परिसरातील संबंधित, पर्यावरण विषयी काम करणारा संस्था, सदर प्रकल्पामुळे अन्य प्रकारे प्रभावित होणारे व्यक्ती, ग्राम पंचायत पातळ सदर प्रस्तावा संबंधी विचार, टिका, टिप्पणी, आक्षेप, लेखी किंवा तोंडी स्वरूपात जाहिरसुनावणी दरम्यान मांडणेत येतील. सदर सुनावणीमध्ये प्रस्तावक व अधिकारीक पदाधिरी देखिल त्यांचे म्हणे मांडणेत येत आहे.

लोकसुनावणीचे ठिकाण, दिनांक वेळ खालीलप्रमाणे नमूद केलेली आहे.

सुनावणीचेठिकाण	:-क्र. न.9/5, कारली ग्रामपंचायत कार्यालय, गाव.कारली, ता. कळमेश्वर, जि. नागपुर-440023.
सुनावणीचीतारीख	:-10/01/2023
सुनावणीचेवेळ	:-११:00 वाजता
मिटींग आयडी	:-2517 074 7508
पासकोड	:-13072023(13072023 from video systems)
Zoom Meeting link	: https://mpcb.webex.com/mpcb/j.php?MTID=md031ff1585e5d9cea1735c11d07508d

सदर प्रकल्पाबाबत लेखी स्वरूपात विचार, टिका, आक्षेप, टिप्पणी हे जाहीरात प्रसिध्द झाल्यापासून ३०दिवसपर्यंत अध्यक्ष,महाराष्ट्र प्रदूषण नियंत्रण मंडळ, यांचेकडे पुढील पत्त्यावर लिहून पाठविण्यात यावेत.

महाराष्ट्र प्रदूषण नियंत्रण मंडळ,
प्रादेशिक कार्यालय /उप-प्रादेशिक कार्यालय-1
5, वा मजला, उद्योग भवन, सिव्हिल लाईन्स, नागपूर 440001.
फोन नं.: 0721-2565308 / ई मेल :- sronagpur1@mpcb.gov.in

सदर प्रकल्पाविषयी व पर्यावरण सुनावणी बाबतच्या सदर अर्जाची माहिती अहवाले पहावयास (प्रती व जादा प्रती सशु) खालील कार्यालयामध्ये उपलब्ध आहेत. अधिक माहिती खालील कार्यालया मध्ये सदर कामाचे कार्यालयीन वेळेत उपलब्ध होऊ शकेल.

1.पर्यावरण विभाग, मंत्रालय,महालक्ष्मी,मुंबई, 15 वा मजला, मादाम कामा मार्ग, मंत्रालय, मुंबई-32.
2.सह-संचालक (उद्योग प्रदूषण नियंत्रण), महाराष्ट्र प्रदूषण नियंत्रण मंडळ, उद्योगभवन पार्ट, 2 रा व 4 था माळा, सिव्हिललाईंट लिमिटेड लाईन्स, मालवीय सर्कल समोर, मुंबई-400022.
3.जिल्हाधिकारी कार्यालय,सिव्हिल लाईन्स, जि.नागपुर.
4.अति. पर्यावरण व दंडाधिकारी कक्ष, कार्यालय, सिव्हील लाईन्स, नागपुर.
5.अतिरिक्त कार्यालय, क्र.५ जि.नागपुर, 5 वा माळा, उद्योग भवन, सिव्हिल लाईन्स, नागपुर.
6.उप प्रादेशिक कार्यालय-1, महाराष्ट्र प्रदूषण नियंत्रण मंडळ, 5 वा माळा, उद्योग भवन, सिव्हिल लाईन्स, नागपुर.
7.जिल्हा परिषद, सिव्हिल लाईन्स, नागपुर जि. नागपुर.
8.जिल्हा उद्योग केंद्र, उद्योग भवन, सिव्हिल लाईन्स, नागपुर, जि. नागपुर.
9.उप-विभागीय अधिकारी, कळमेश्वर, ता. कळमेश्वर, जि. नागपुर.
10.तहसिलदार कार्यालय, तहसिल कार्यालय, कळमेश्वर, ता. कळमेश्वर, जि.नागपुर.
11.ग्रामपंचायत पो कारलाकोही, पंचायत समिती, नागपुर, जिल्हा -नागपुर.
12.ग्रामपंचायत वाहद, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
13.ग्रामपंचायत सुरगाव, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
14. ग्रामपंचायत पांढरना लिंगा, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
15. ग्रामपंचायत रायलोही, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
16. ग्रामपंचायत दुगाधरण, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
17. ग्रामपंचायत सोनेगाव लिंगार्गी, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
18. ग्रामपंचायत गोंडखैरी, कळमेश्वर, जिल्हा -नागपुर.
19. ग्रामपंचायत सिरसी, कळमेश्वर, जिल्हा-नागपुर.
20. ग्रामपंचायत लोणारा, कळमेश्वर, जिल्हा-नागपुर.
21. ग्रामपंचायत आदासा, कळमेश्वर, जिल्हा-नागपुर.
22. ग्रामपंचायत सोनु, कळमेश्वर, जिल्हा-नागपुर.
23. ग्रामपंचायत उपरवाही, कळमेश्वर, जिल्हा-नागपुर.
24. ग्रामपंचायत कारली, कळमेश्वर, जिल्हा-नागपुर.
25. ग्रामपंचायत सातोरी, कळमेश्वर, जिल्हा-नागपुर.
26. ग्रामपंचायत वडोरा, कळमेश्वर, जिल्हा-नागपुर.
27. ग्रामपंचायत साहुली, कळमेश्वर, जिल्हा-नागपुर.
28. ग्रामपंचायत लिंगा, कळमेश्वर, जिल्हा-नागपुर.
29. ग्रामपंचायत सरपुर, हिंगणा, जिल्हा-नागपुर.
30. ग्रामपंचायत डिगडोह (देवी), हिंगणा, जिल्हा-नागपुर.
31. ग्रामपंचायत जिलहोह, हिंगणा, जिल्हा-नागपुर.
32. ग्रामपंचायत खापरखेडी, हिंगणा, जिल्हा-नागपुर.
33. ग्रामपंचायत डोंगरी मानापुरे, हिंगणा, जिल्हा-नागपुर.
34. ग्रामपंचायत वडधामना, हिंगणा, जिल्हा-नागपुर.

उप-प्रादेशिक अधिकारी
म. प्र. नि. मंडळ, नागपुर तथा समन्वयक,
पर्यावरण विषयक जनसुनावणी

THE TIMES OF INDIA, NAGPUR
SATURDAY, JUNE 10, 2023

MAHARASHTRA POLLUTION CONTROL BOARD

NOTICE FOR ENVIRONMENTAL PUBLIC HEARING

According to provisions of Ministry of Environment & Forest, Govt. of India Notification dtd. 14.09.2006 and amended Notification 01.12.2009 M/s. Adani Power Maharashtra Limited (APML), have requested Maharashtra Pollution Control Board, to conduct public hearing for their proposed Gondkhari Underground Coal Mine (Kamptee Coalfield), Village Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur having mine lease area 862 Ha, peak production capacity 3 MTPA.

All persons including bonafide residents, Environmental groups & local affected persons and others located at the project site can participate in the public hearing physically as well as by way of online.

Views, comments, responses of the public can be filed at the following address in writing from the date of publication of this notice till the date of public hearing.

Maharashtra Pollution Control Board,
Regional Office / Sub-Regional Office-I, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur. 440001
Ph. No. 0721-2565308 | Email :- sronagpur1@mpcb.gov.in

Public hearing will be conducted physically at site location as well as through online mode using webex platform and details of meeting number and Password and other details are given below. Oral and written views, responses can also be presented during public hearing to be conducted at

Venue	: Kh. NO. 9/5, Near Karli Lake, Vill-Karli, Tal-Kalmeshwar, Dist-Nagpur-440023.
Date of Public Hearing	: 13/07/2023
Time of Public Hearing	: 11 am
Meeting ID	: 2517 074 7508
Passcode	: 13072023 (13072023 from video systems)
Zoom Meeting link	: https://mpcb.webex.com/mpcb/j.php?MTID=mdd91ff585e5d9cea1735c1ddd7588d

Copies of the summary of EIA, executive summary both in English and Marathi and other information/documents are available at the following offices.

1) Environment Department, Govt. of Maharashtra, New Administrative Building, 15 Floor, Madam Kama Marg, Mantralaya, Mumbai -32.
2) Joint Director (Water Pollution Control), Maharashtra Pollution Control Board, Kalpataru Point, 2nd and 4th Floor, Opp. Cine Planet, Near Sion Circle, Sion (E), Mumbai-400022.
3) Ministry of Environment Forest & Climate change Office, Civil Lines, Nagpur.
4) District Collector Office, Civil Lines, Nagpur, Dist-Nagpur.
5) Regional Office, M.P.C.Board, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur.
6) Sub-Regional Office-I, M.P. C. Board, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur.
7) Zilla Parishad Office, Civil Lines, Nagpur.
8) District Industries Center, Udyog Bhavan Civillines Nagpur.
9) Sub Divisional Office, Kalmeshwar, Tal - Kalmeshwar, Dist - Nagpur.
10) Tahsildar, Tahsil Office, Kalmeshwar, Tal - Kalmeshwar, Dist - Nagpur.
11) Gram Panchayat Peth Kardongri, Nagpur, Dist - Nagpur
12) Gram Panchayat Wyahad, Panchayat Samiti, Nagpur, Dist - Nagpur.
13) Gram Panchayat Surabardi, Panchayat Samiti, Nagpur, Dist - Nagpur.
14) Gram Panchayat Dhamna Linga, Panchayat Samiti, Nagpur, Dist - Nagpur.
15) Gram Panchayat Dawlameti, Panchayat Samiti, Nagpur, Dist - Nagpur.
16) Gram Panchayat Dugdhamna, Panchayat Samiti, Nagpur, Dist - Nagpur.
17) Gram Panchayat Sonegaon Nipani, Panchayat Samiti, Nagpur, Dist - Nagpur.
18) Gram Panchayat Gondkhairi, Kalmeshwar, Dist - Nagpur.
19) Gram Panchayat Nimji, Kalmeshwar, Dist - Nagpur.
20) Gram Panchayat Lonara, Kalmeshwar, Dist - Nagpur.
21) Gram Panchayat Aashtikala, Kalmeshwar, Dist - Nagpur.
22) Gram Panchayat Setu, Kalmeshwar, Dist - Nagpur.
23) Gram Panchayat Upanwahi, Kalmeshwar, Dist - Nagpur.
24) Gram Panchayat Kalamti, Kalmeshwar, Dist - Nagpur.
25) Gram Panchayat Sawangi, Kalmeshwar, Dist - Nagpur.
26) Gram Panchayat Dahegaon, Kalmeshwar, Dist - Nagpur.
27) Gram Panchayat Sahuli, Kalmeshwar, Dist - Nagpur.
28) Gram Panchayat Linga, Kalmeshwar, Dist - Nagpur.
29) Gram Panchayat Raipur, Hingna, Dist - Nagpur.
30) Gram Panchayat Digdoh (Devi.), Hingna, Dist - Nagpur.
31) Gram Panchayat Nigdoh, Hingna, Dist - Nagpur.
32) Gram Panchayat Nagalwadi, Hingna, Dist - Nagpur.
33) Gram Panchayat Khairi Pannase, Hingna, Dist - Nagpur.
34) Gram Panchayat Waddhamna, Hingna, Dist - Nagpur.

Concerned persons will be provided access to the summary of the project during office hours at the above-mentioned places.

Sub-Regional Officer,
MPCB, Nagpur-I & Convener,
Environment Public Hearing

COLNGP-13/161/2023-HOME-COLL-NGP

तात्काळ/प्राथम्याने
I/67882/2023पर्यावरण विषयक सुनावणीबाबत)

क्रं.अजिदं/गृह/अ.का.-२/लोकसुनावणी/कावि- /२०२३
जिल्हाधिकारी तथा जिल्हादंडाधिकारी यांचे कार्यालय,
नागपूर दिनांक : /०६/२०२३

प्रति,

उपविभागीय अधिकारी,
नागपूर सावनेर

विषय :- Regarding Environmental Public Hearing of M/s. Adani Power Maharashtra Limited (APML), to be counducted for their proposed mine namely Gondkhairi Underground Coal Mine (Kamptee Coalfield), Located At- Vill- Gondkhairi Tahsil-Kalmeshwar, Dist-Nagpur as per EIA Notification, 2006 and amended time to time.

संदर्भ :- १. उप प्रादेशिक अधिकारी-१, महाराष्ट्र प्रदुषण नियंत्रण मंडळ, नागपूर यांचे पत्र क्र. MPCB/SRONR /५४५/२०२३ दि. ३०/०५/२०२३
२. उप प्रादेशिक अधिकारी-१, महाराष्ट्र प्रदुषण नियंत्रण मंडळ, नागपूर यांचे पत्र क्र. O. A. No. ०३ दि. २५/०५/२०२३

उपरोक्त संदर्भिय विषयाच्या अनुषंगाने **मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल) च्या ८६२.०० हेक्टर खाणीच्या लीज क्षेत्रात उत्पादन क्षमता २.० एमटीपीए (निर्धारित क्षमता)/ ३.० एमटीपीए (सर्वोच्च क्षमता) गोंडखैरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र) गाव गोंडखैरी, तहसिल कळमेश्वर, जिल्हा नागपूर येथिल** पर्यावरण विषयक जाहिर लोकसुनावणी बाबतचा प्रस्ताव महाराष्ट्र प्रदुषण नियंत्रण मंडळाकडे सादर झालेला आहे. सदर प्रस्तावासंबंधी पर्यावरण विषयक सुचना, विचार, टिका, टिप्पणी तसेच आक्षेप नोंदविण्यासाठी जाहिर लोकसुनावणीचे आयोजन करण्यात येत आहे. **सदर लोकसुनावणी दिनांक १३/०७/२०२३ रोजी दुपारी १९.०० वाजता प्रकल्प स्थळी गोंडखैरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र) गाव गोंडखैरी, ता. कळमेश्वर, जि. नागपूर** घेण्यात येणार आहे.

सदर प्रकल्पाविषयी लोकांना माहिती उपलब्ध करुन देणे आवश्यक आहे. त्यासाठी सदर प्रकल्पासंबंधी तसेच पर्यावरण मुल्यांकन अहवालासंबंधी माहिती असलेले कार्यकारी सारांशाची मराठी व इंग्रजीमधील, तसेच पर्यावरण मुल्यांकन अहवालाचा मसुदा व इतर कागदपत्रे सोबत जोडण्यात आले आहे. करिता उपरोक्त लोकसुनावणीची योग्य प्रसिध्दी आपले कार्यालयातर्फे करावी, तसेच परिसरातील नागरिकांना उपरोक्त कागदपत्रे कार्यालयीन वेळेत अभ्यासण्यासाठी उपलब्ध करुन द्यावी. लोकसुनावणीच्या दिनांकास प्रकल्प स्थळी आपली तसेच तहसिलदार यांची उपस्थिती अनिर्वाय आहे, याबाबतची नोंद घेण्यात यावी.

तसेच प्रस्तावीत लोकसुनावणीच्या स्थळी कायदा व सुव्यवस्थेच्या अनुषंगाने आपले कार्यक्षेत्रातील पोलिस निरीक्षकांना पोलीस बंदोबस्त पुरविण्याबाबत आवश्यक निर्देश देण्यात यावे.

सहपत्र:- वरिल प्रमाणे.

(विजया बनकर)
अतिरिक्त जिल्हादंडाधिकारी,
नागपूर.

प्रतिलिपी :- १. उपविभागीय पोलीस अधिकारी, सावनेर यांना माहिती तथा आवश्यक कार्यवाही करीता अग्रेषित.
२. उप प्रादेशिक अधिकारी, महाराष्ट्र प्रदुषण नियंत्रण मंडळ, उप-प्रादेशिक कार्यालय-१, सिव्हील लाईन, नागपूर यांना माहितीस्तव.

Signed by Vijaya Vinayak Bankar
Date: 07-06-2023 13:02:13

अतिरिक्त जिल्हादंडाधिकारी,
नागपूर.

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

फोन. २५६०१३९
फॅक्स नं. २५६०८५१

उप-प्रादेशिक कार्यालय-१,
५ वा माळा, उद्योग भवन,
सिव्हिल लाईन्स , नागपूर.

जा.क्र. मप्रनि/उप्राकाना-१/E.02/2023 दिनांक 03/E/2022

प्रति,

१. पर्यावरण विभाग, नवीन प्रशासन भवन, १५ वा मजला, मादाम कामा मार्ग, मंत्रालय, मुंबई-३२.
२. सह-संचालक (जल प्रदूषण नियंत्रण), महाराष्ट्र प्रदूषण नियंत्रण मंडळ, कल्पतरु पाईंट, २ रा व ४ था माळा, सिनेप्लानेट सिनेमा समोर, सायन सर्कल जवळ (पू) मुंबई–४०००२२.
३. जिल्हाधिकारी कार्यालय,सिव्हिल लाईन्स, जि.नागपुर.
४. वने, पर्यावरण व वातावरणीय बदल, कार्यालय, सिव्हील लाईन, नागपुर.
५. प्रादेशिक कार्यालय, म.प्र.नि.मंडळ, ५ वा माळा, उद्योग भवन, सिव्हिल लाईन्स, नागपूर.
६. उप-प्रादेशिक कार्यालय-१, महाराष्ट्र प्रदूषण नियंत्रण मंडळ, ५ वा माळा, उदयोग भवन, सिव्हिल लाईन्स, नागपूर.
७. जिल्हा परिषद, सिव्हिल लाईन्स, नागपुर, जि. नागपुर.
८. जिल्हा उद्योग केंद्र, उद्योग भवन, सिव्हिल लाईन्स, नागपूर, जि. नागपुर.
९. उप-विभागीय अधिकारी, कळमेश्वर, ता. कळमेश्वर, जि. नागपुर. नागपुर (ग्रा.)
१०. तहसिलदार कार्यालय, तहसिल कार्यालय, कळमेश्वर, ता. कळमेश्वर, जि.नागपुर. तहसिलदार नागपुर (ग्रा.)
११. ग्रामपंचायत पेठ कालडोंगरी, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
१२. ग्रामपंचायत व्याहाड, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
१३. ग्रामपंचायत सुराबर्डी, पंचायत समिती, नागपुर, जिल्हा – नागपुर.
१४. ग्रामपंचायत धामणा लिंगा, पंचायत समिती, नागपुर, जिल्हा – नागपुर.
१५. ग्रामपंचायत दवलामेटी, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
१६. ग्रामपंचायत डुग्धामणा, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
१७. ग्रामपंचायत सोनेगाव निपाणी, पंचायत समिती, नागपुर, जिल्हा - नागपुर.
१८. ग्रामपंचायत गोंडखैरी, कळमेश्वर, जिल्हा - नागपुर.
१९. ग्रामपंचायत निमजी, कळमेश्वर, जिल्हा–नागपुर.
२०. ग्रामपंचायत लोणारा, कळमेश्वर, जिल्हा–नागपुर.
२१. ग्रामपंचायत आष्टिकला, कळमेश्वर, जिल्हा–नागपुर.
२२. ग्रामपंचायत सेलु, कळमेश्वर, जिल्हा–नागपुर.
२३. ग्रामपंचायत उपरवाही, कळमेश्वर, जिल्हा–नागपुर.
२४. ग्रामपंचायत कळंबी, कळमेश्वर, जिल्हा–नागपुर.
२५. ग्रामपंचायत सावंगी, कळमेश्वर, जिल्हा–नागपुर.
२६. ग्रामपंचायत दहेगांव, कळमेश्वर, जिल्हा–नागपुर.
२७. ग्रामपंचायत साहुली, कळमेश्वर, जिल्हा–नागपुर.
२८. ग्रामपंचायत लिंगा, कळमेश्वर, जिल्हा–नागपुर.
२९. ग्रामपंचायत रायपुर, हिंगणा, जिल्हा–नागपुर.
३०. ग्रामपंचायत डिगडोह (देवी), हिंगणा, जिल्हा–नागपुर.
३१. ग्रामपंचायत निलडोह, हिंगणा, जिल्हा–नागपुर.
३२. ग्रामपंचायत नागलवाडी, हिंगणा, जिल्हा–नागपुर.
३३. ग्रामपंचायत खैरी पन्नासे, हिंगणा, जिल्हा–नागपुर.
३४. ग्रामपंचायत वडधामना, हिंगणा, जिल्हा–नागपुर.

विषय :- मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपुर यांच्या गोंडखैरी भूमिगत कोळसा खाण, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा –नागपुर, यांच्या पर्यावरण विषयक जाहीर

14		12/06/2023 ग्रा.प. कर्मचारी
15		सरपंच ग्रामपंचायत दवलामेटी
16		10/6/2023
17		ग्रामपंचायत सोनेवाह, निवाणी प.स.लाखांदूर
18		ग्रामपंचायत प.स. लाखांदूर
19		12/06/2023 ग्रामपंचायत शिवणी प.स. लाखांदूर
20		सचिव ग्रामपंचायत सोनाडा प.स.लाखांदूर जि.भंडारा

29	ग्राम पंचायत, रायपुर पं.स. हिरापुर	24/05/2023
30	ग्रामपंचायत सेंगाडीह (देवीचे) ग्रा.आय.डी.सी. सरिया ता. हिरापुर जि. रायपुर	13/06/2023
31	ग्रामपंचायत निलडोह पं. हिरापुर, जि. रायपुर	आपक लिपीक ग्रामपंचायत निलडोह
32	9372884048	12/6/2023
33		दि. 24/05/2023
34		मो. 3637539963

M M/s. Adani Power Maharashtra Limited (APML), have requested Maharashtra Pollution Control Board, to conduct public hearing for their proposed Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur having mine lease area 862 Ha, peak production capacity 3 MTPA.

Sr. No.	Office Name	Signature
1		
2		
3		
4		
5		
6		

MAHARASHTRA POLLUTION CONTROL BOARD

Ph.No. 2560139
Fax No. 2560851
E-mail: - sronagpur1@mpcb.gov.in

Sub Regional Office-I
5th Floor, Udyog Bhawan
Civil Lines Nagpur.

No. MPCB/SRON-I/548/2023

Date: 31/05/2023

To
1] The Tahsildar,
Kalmeshwar Tahsil Office,
Dist - Nagpur.
2] The Tahsildar,
Hingna Tahsil Office,
Dist – Nagpur.
3] The Tahsildar,
Nagpur Rural,
Dist – Nagpur.

Sub : Names of Grampanchayats required for Environmental Public Hearing.

Ref :- Application for conducting Environmental public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Underground Coal Mine at-Gondkhairi, Tah-Kalmeshwar, Dist-Nagpur.

Sir

This office received application for environmental public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Project namely Gondkhairi Underground Coal Mine (Kamptee Coalfield), Vill-Gondkhairy, Tah-Kalmeshwar, Dist-Nagpur. According to the provisions of EIA notification of 14/9/2006 it is mandatory to keep copies of EIA,EMP, Executive Summery in English & Marathi in the offices of gram panchayats, Gat Grampanchayat & local bodies covered within 10 km radius from the said Mine Location.

It is therefore requested to provide us the names and addresses of gram panchayats, Gat Grampanchayat & local bodies covered within 10 km radius from the said mine project, as early as possible, for further process. Treat this as urgent.

DA: - NIL

(U.S. Bhadule)
Sub Regional Officer
M.P. C. Board, Nagpur-I

Copy submitted to: Regional Officer MPCB Nagpur – For information.

31/05/23
प्राप्त झाले
आपक जावक शाखा
सहविस नागपूर (प्रादेशिक)

MAHARASHTRA POLLUTION CONTROL BOARD

Ph.No. 2560139
Fax No. 2560851
E-mail - sronagpur1@mpcb.gov.in

Sub Regional Office-I
5th Floor, Udyog Bhawan
Civil Lines Nagpur.

No. MPCB/SRO(N-I)/ [illegible] 2023

Date: 31/5/2023

To
1) The Tahsildar,
Kalmeshwar Tahsil Office,
Dist - Nagpur.
2) The Tahsildar,
Hingna Tahsil Office,
Dist - Nagpur.
3) The Tahsildar,
Nagpur Rural,
Dist - Nagpur.

Sub : - Names of Grampanchayats required for Environmental Public Hearing.

Ref :- Application for conducting Environmental public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Underground Coal Mine at-Gondkhairi, Tah-Kalmeshwar, Dist. Nagpur.

Sir

This office received application for Environmental public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Project namely Gondkhairi Underground Coal Mine (Kamptee Coalfield), Vill-Gondkhairy, Tah-Kalmeshwar, Dist-Nagpur. According to the provisions of EIA notification of 14/9/2006 it is mandatory to keep copies of EIA,EMP, Executive Summery in English & Marathi in the offices of gram panchayats, Gat Grampanchayat & local bodies covered within 10 km radius from the said Mine Location.

It is therefore requested to provide us the names and addresses of gram panchayats, Gat Grampanchayat & local bodies covered within 10 km radius from the said mine project, as early as possible, for further process. Treat this as urgent.

DA: - Nil.

(U.B. Bhadule)
Sub-Regional Officer
M.P. C. Board, Nagpur-I

Copy submitted to: Regional Officer MPCB Nagpur – For information.

31/5/2023

MAHARASHTRA POLLUTION CONTROL BOARD

Ph.No. 2560139
Fax No. 2560851
E-mail: - sronagpur1@mpcb.gov.in

Sub Regional Office-I
5th Floor, Udyog Bhawan
Civil Lines Nagpur.

No. MPCB/SRON-I/548/2023

Date: 31/5/2023

To
1) The Tahsildar,
Kalmeshwar Tahsil Office,
Dist - Nagpur.
2) The Tahsildar,
Hingna Tahsil Office,
Dist – Nagpur.
3) The Tahsildar,
Nagpur Rural,
Dist – Nagpur.

Sub : - Names of Grampanchayats required for Environmental Public Hearing.

Ref :- Application for conducting Environmental public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Underground Coal Mine at-Gondkhairi, Tah-Kalmeshwar, Dist-Nagpur.

Sir

This office received application for Environmental public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Project namely Gondkhairi Underground Coal Mine (Kamptee Coalfield), Vill-Gondkhairy, Tah-Kalmeshwar, Dist-Nagpur. According to the provisions of EIA notification of 14/9/2006 it is mandatory to keep copies of EIA,EMP, Executive Summery in English & Marathi in the offices of gram panchayats, Gat Grampanchayat & local bodies covered within 10 km radius from the said Mine Location.

It is therefore requested to provide us the names and addresses of gram panchayats, Gat Grampanchayat & local bodies covered within 10 km radius from the said mine proejct, as early as possible, for further process. Treat this as urgent.

DA: - Nil.

(U.B. Bhadule)
Sub-Regional Officer
M.P. C. Board, Nagpur-I

Copy submitted to: Regional Officer MPCB Nagpur – For information.

31/5/23

T.C.

2524

MAHARASHTRA POLLUTION CONTROL BOARD

Phone No. 24010437 / 24020781
Visit us at : http://mpcb.gov.in
Email : jdwaterdivision@mpcb.gov.in

Kalptaru Point 2nd floor,
Sion Matunga Scheme Road
No. 8, Infant of Sion Cercal,
Sion (E), Mumbai – 400 022.

"Your Service is our Duty"

No./MPCB/JD(WPC)/ENV/PH/B-230912-FTS-0060 /09/2023

Date: 12.09.2023

Ax. F

To,
Ministry of Environment,
Forests & Climate Change Indira Paryavaran Bhavan,
Jor Bagh Road, New Delhi-110 003.

Sub: Environmental Clearance - Proceedings of Public Hearing in respect of **Proposed** Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur. **Proposed by** M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Maharashtra.

Ref: Sub-Regional Nagpur-I letter dtd-22.08.2023 received on 08.09.2023.

Sir,

The Public Hearing for the **Proposed** Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur. **Proposed by** M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Maharashtra.

Environmental public hearing extended on dtd. **13.07.2023, Time-11.00 A.M, at Kh.No.9/5, Near Karli Lake, Vill-Karli, Tal-Kalmeshwar, Dist-Nagpur, Maharashtra.** The minutes of the public hearing approved and duly signed by the Public hearing panel along with the proceedings are enclosed

a. Minutes of public hearing duly signed by the Chairman of public hearing panel in (English & Marathi)
b. Copy of Office Order
c. Video DVD and Photograph of Public Hearing.
d. List of participants.
e. Newspaper Notices for Environmental Public Hearing in English & Marathi.

This is submitted for further necessary action please.

Yours Sincerely,

12/9

Dr. J. B. Sangewar
Joint Director (WPC)

Encl: As above

Copy submitted for Information to:

The Member Secretary, MPCB, Mumbai.

Copy for information & necessary action to:

1) The Regional Officer, MPCB, Nagpur.
2) The Sub Regional Office, MPCB, Nagpur-I.
3) EIC, M.P. C. Board, Mumbai - For information & display of Minutes on website.

Copy to the applicant of the project:

M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Maharashtra.

T.C.

CamScanner

Ax. G

सत्यमेव जयते

Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(Coal Mining)
***

Minutes of AGENDA FOR 1 st MEETING OF THE EXPERT APPRAISAL COMMITTEE (COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 17th OCTOBER, 2023 THROUGH PHYSICAL MODE meeting Coal Mining held from 17/10/2023 to 17/10/2023

Date: 28/10/2023

MoM ID: EC/MOM/EAC/826925/10/2023

Agenda ID: EC/AGENDA/EAC/826925/10/2023

Meeting Venue: Conference Hall (Narmada), Jal Wing, Ground Floor, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi - 110003

Meeting Mode: Physical

Date & Time:

17/10/2023	10:00 AM	05:30 PM

1. Opening remarks

Opening Remarks of the Chairman: At the outset, the Chairman welcomed the Expert members of newly constituted Expert Appraisal Committee (EAC) alongwith other participants and requested Member Secretary (coal) to give a detailed presentation and brief the members about mandate of Committee and challenges in the coal sector. Accordingly, Member Secretary gave a detailed presentation by outlining the regulatory provision in schedule of EIA, Notification, 2006 with Ministry's Office Memorandum separately issued for coal sector and process of EC being adopted at State and Central level as per the applicable rules. Member Secretary also briefed the list of permissions & other areas to be seen by Committee while examining the proposal. Finally, Member Secretary explained major challenges, normally being faced during appraisal process with regard to compliances of environment protection measures. Member Secretary also emphasized for taking considered view on those projects already set for target from energy security angle with the environment safety measures to be adopted/being adopted by them. Later, the Chairman asked EAC to start the proceeding as per the agenda adopted for this meeting.

2. Confirmation of the minutes of previous meeting

Consideration of Proposals: The 1st meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 17th October 2023 through Video Conferencing. The EAC considered proposals as per agenda adopted for the meeting incorporated for discussion with chair. List of participant attended the meeting is annexed. The details of deliberations held & decisions taken in the meeting are as under.

3. Details of proposals considered by the committee

Day 1 -17/10/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

T.C.

Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 MTPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023 by **ADANI POWER MAHARASHTRA LIMITED** located at **NAGPUR,MAHARASHTRA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/CMIN/444481/2023	IA-J-11011/46/2022-IA. II(M)	21/09/2023	Mining of minerals (1(a))

3.1.2. Project Salient Features

1.1.1 The proposal is for Environmental Clearance for Gondkhari Underground Coal Mine of production capacity 2 MTPA/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).

1.1.2 Details of the proposal, as ascertained from the proposal documents submitted by PP and as revealed from the discussions held during the meeting, are given as under:

Pre-mining land use details (Area in 862 Ha)

Mining Activity	**Proposed Land Use Area (ha)**	**Land Use (End of Life) Area**	**Post Mining Land Use (ha)**					
			Agriculture Land	**Plantation**	**Water Body**	**Public Use**	**Forest land (Returned)**	**Undisturbed**
Settling pond	0.08	0.08	0.08	-	-	-	-	-
Road & Infrastructure area	13.845	13.845	13.845	-	-	-	-	-
Embankment	0.075	0.075	0.075	-	-	-	-	-
Green Belt	2	2	2	-	-	-	-	-
UG entry	2	2	2	-	-	-	-	-
Total (excluding rights for UG mine) (1)	18	18	18	-	-	-	-	-
Undisturbed/UG mining right (2)	844	-	-	-	-	-	-	-
Grand Total (1+2)	862							

	Particulars	**Location (Name of School/Village/Area)**	**Year-1 (In Lakhs)**	**Year-2 (In Lakhs)**	**Total (In Lakhs)**

1	Infrastructure creation for Drinking Water supply	Location: Village - Gondkhari, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work: Installation Community R.O. Water Units with Solar net-metering, deepening of village ponds for improving water storage and availability, Construction/ repair of hand pumps/ dug wells in nearby villages, drinking water supply through tankers for nearby villages during summer season, Solar Drinking water structure (Bore well with Motor fitting) including Soak Pit for Water Recharging in villages/schools.	33	20	13
2	Sanitation	-	-	-	-
3	Education	Location: Village - at Z.p Primary School (old) gond Gondkhari and Surabardi Village. Physical Work: Donation of computers, books, furniture to village schools, Construction of E-Class Room at Govt. School and Waiting Shed for Z.P. Primary School, Construction of 10 Toilets (4 Nos. for boys & 6 Nos. for Girls).	46	33	20
4	Skill Development	Location: Village- Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work: Contribute to Direct Implementation in partnership with ITI and MSME, Involvement of women's in Mason training and breaking stereotypes, 7 Self Help Groups in eight villages and 155 women engage in the SHGs.	20	13	13
5	Roads	Location: Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work: Strengthening/ maintenance of village roads, Rain Water Harvesting at Community Area, Provision of Plantation and streetlights in Community Area, Provision Training for recycle SWM and Sale of recyclable waste to scrap merchants.	65	52	24
6	Cross drains	-	-	-	-
7	Electrification including solar power	-	-	-	-
8	Solid waste management facilities	Already covered under above point no. 5	-	-	-
9	Scientific support and awareness to local farmers to increase yield of crop and fodder	Location: villages Gondkhari and Kalambi. Physical Work: Donation of seeds, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities, Construction of farm ponds for needy farmers, Training related to Modern Agricultural techniques to the farmers.	39	26	13

10	Rain water Harvesting	Already covered under above point no 5.	-	-	-
11	Soil moisture conservation works	As per CAT & Soil Moisture Conservation plan	5	5	5
12	Avenue plantation	-	-	-	-
13	Plantation in community areas	Greenbelt Development including biological conservation Plan	10	5	5
14	Infrastructure	Already covered under above point no 5.	-	-	-
15	Health	Location: villages Gondkhari and Kalambi. Physical work: Establishment of Ambulance Room and Health Centre, Free Medical camps and Medicine Distribute by hiring a MBBS doctor to treat patients in nearby 7 villages, Arrange Waterborne diseases camp and Cancer detection camps.	117	65	39
16	Art, Culture & Sports	-	-	-	-
17	Livelihood	-	-	-	-
	Agricultural programme:	Already mentioned in above point no. 9	-	-	-
		Subtotal	335	219	132
		Total		**686.0**	

1.1.3 The committee during deliberations noted following: -

3.1.3. Deliberations by the EAC in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

1.1.4 *The EAC after deliberations observed that the instant proposal is a greenfield underground coal mine project. As observed by Committee from KML file, most of mine lease area belongs to Agriculture land that is engaged in fruit plantation particularly Oranges. Additionally, the Committee advised PP that forest area of 87.351 ha in the mine lease area shall not be disturbed and shall not be used for any infrastructure. Further quality of forest shall be improved in collaboration with State Forest Department.*

It was observed that several water bodies exist within mine lease such as Streams/Nallah and also in vicinity of ML area named as Surabardi Dam &reservoir, Karle lake, Alesur lake and Wena Dam & Reservoir. PP was required to submit the point-wise TOR compliance. However, due to lack of drone video/photographs of lake/reservoir, which is one of Tor conditions, the Committee could not capture real ground reality. On enquiry about water profiles in the area, the consultant could explain properly the water management/its profiles in catchment area, to be impacted due to mining activities.

On the lake rejuvenation issue, PP was required to submit the concrete plan with activities,

however PP submitted merely 15 lakhs budget for management of surface lakes without adequate action plan. The EAC advised that the same needs to be revised substantially with concrete plan. The rejuvenation plan should include de-silting & aqua fishing activities, bio-remediation if required. The Committee found higher BOD level (Biochemical oxygen demand) in the lake which needs to be addressed as a target under the rejuvenation plan. The Committee was of the view that for development and enhancement of water harvesting facility, PP shall have to submit the construction of new ponds/recharging well within or outside the ML area and after rejuvenation of the lake , there is need to fix water supply in the near village area..

Subsequently, the committee asked the PP to re-assess the traffic impact study which should now be based on 40 to 45 tonnes (payload) of trucks in place of 30-35 tonnes for the transportation of coal until construction of mechanized system

In view of the above, the Committee desired that the project proponent must rework on the proposal and submit the following documents: -

i. *PP to submit the Drone videos & Photographs of the Forest area (lying within the ML area) including Lake/Reservoir/Dam and the other sensitive zone.*

Status of Forest Clearance for 87.351 ha of forest land involved in the ML area of 862 ha.

iii. *PP shall submit Letter of Intent from concerned State Government as per Ministry's OM dated 7th October, 2014.*

iv. *PP shall submit the approved Mine Plan chart for 3 MTPA peak capacity with calendar plan.*

v. *Details of Pre-mine land use and post mine land use plan keeping the area occupied by Dam/Lake/Reservoir to be same with all protection measures.*

vi. *PP shall submit the Geo-tagged location of the lake/reservoir/Dam namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake w.r.t. the ML area.*

vii. *As suggested by EAC, PP shall submit lake rejuvenation plan with detailed plan with adequate budgetary allocation.*

viii. *PP shall submit details of new water harvesting facilities (ponds) with protection of Dam/Lake/Reservoir lying within the ML area & in Buffer zone.*

ix. *PP shall submit proper layout surface plan for construction of infrastructure on the Mine lease without affecting forest land.*

x. *PP shall re-asses option analysis to reduce the distance being covered for the transportation of coal through road and with mid-term plan of railway siding by rail transportation.*

xi. *PP shall submit compliance of ToR specific conditions (xiii), (xvii) and (xix) with detail analysis and report with certificate from PCCF regarding absence of schedule-I specifies as per WPA 1972 and 2022. Further, the comparison of existing mining practices of Underground mine across the world mainly in terms of extraction of higher coal efficiency and in terms of consumption of lesser fuels.*

xii. *PP shall submit the signed copy of Corporate Environment Policy from its Board of Directors.*

xiii. *PP shall analyse the possible adverse impacts on forest corridors and forest areas and their mitigation measures by fencing all along the forest area, due to transportation activity.*

xiv. *PP shall submit the location of Ambazari Ordinance Factory w.r.t. ML area and mitigation measures considering the sensitivity of this location.*

xv. *PP shall document the exact number of persons/families under socio economic survey living within the ML area and living within the Buffer zone of the ML area.*

xvi. *PP shall submit mitigation plan for nearby villages w.r.t. higher observed value of pollutants in the Gondkhari area.*

xvii. *PP shall submit the adequate monitoring data as prescribed condition no. 11 of TOR regarding additional monitoring station after grant of ToR (i.e. additional locations of Sahuli & Drugdhamna).*

xviii. *PP shall submit the revised EMP cost after considering all above issues (if any) along with the cost of mitigation measures pertaining to Air and water.*

xix. *PP shall also submit the activity-wise budget addressing the all the issues highlighted during the Public hearing along with recurring cost.*

xx. PP shall submit the plan for Green belt development on 33% area of the total ML area either within/outside the ML area.

xxi. PP shall submit the elaborated water balance sheet covering the complete utilization of water.

xxii. PP shall submit the dedicated plan for drinking water to near village through pipeline system.

*In view of the above, the project was **deferred** to submit the above observation.*

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

DULANGA COAL MINING PROJECT, NTPC LTD. by **NTPC LIMITED** located at **SUNDARGARH,ODISHA**			
Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/OR/CMIN/446984/2023	J-11015/1140/2007-IA.II(M)	05/10/2023	Mining of minerals (1(a))

3.2.2. Project Salient Features

1.3.1 The proposal is for amendment in Environment Clearance (EC) for Dulanga Opencast Coal Mining Project of production capacity 7.0 MTPA in the ML area of 785.37 ha of M/s National Thermal Power Corporation Limited located in Ib Valley Coalfields, District Sundargarh (Odisha).

Broadly, PP has requested to change in project area from 785.37 to 762.42 ha by citing the reason of without environmental impact due to mining.

1.3.2 The EAC during deliberations noted the following:

Earlier, Environment Clearance was granted vide Ministry's letter No J-11015/1140/2007-IA. II(M) dated 03.03.2014 for 7 MTPA in an area of 785.37 ha.

Dulanga Coal Mine was deallocated by Hon'ble Supreme Court of India vide Judgment dated 24.08.2014 read with order dated 24.09.2014 and reallocated by Ministry of Coal vide MOC Allotment Order No. 103/32/2015/NA dated 08.09.2015.

EC dated 03.03.2014 was transferred & revalidated vide Ministry's letter No. J-11015/1140/2007-IA. II(M) dated 28.10.2015 based on reallocation of coal block to M/s NTPC.

Amendments in Environment Clearance were obtained for Dulanga Coal mine at different time interval vide letters dated 09.02.2016, 08.08.2018, 04.07.2019 & 07.01.2020 regarding relaxation in EC conditions for transportation of coal roads instead of MGR system.

Now, PP has requested for the amendment in EC w.r.t. change in project area from 785.37 ha to 762.42 ha area as given below:

S. No.	Area Description	Project Area in EC dated 03.03.2014 (in Ha)	Amendment of Project Area (Ha) in EC
1.	Mine Lease Area	567.19	567.19

2.	Outside ML Area	218.18	195.23
	TOTAL	**785.37**	**762.42**

PP has mentioned that the reduction in project area from 785.37ha to 762.42ha has no impact on mining as the area of 22.95 Ha reduced from the outside mining lease area i.e it is comprising of area envisaged for colony and in village Khapurikachhar. Total net project area is 762.42 ha.

Earlier, the Mining Plan for 7 MTPA production was prepared and approved by Ministry of Coal (MOC) vide letter no. 13016/29/2003-CA-I (Vol. II) dated 30.07.2009. The revised Mining Plan and Mine Closure Plan for 7 MTPA of Dulanga Coal Mine was also approved by Ministry of Coal (MoC) vide letter no. 13016/27/2012-CA-I dated 14.08.2012.

Total 304.75 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980. FC was obtained vide F. No. 8-23/2013-FC dated 23.12.2015.

Wildlife conservation plan for schedule-I species has been submitted to Competent Authority and get approved vide letter no. 7480/1WL(C)SSP-270/2012 dated 30.09.2014

3.2.3. Deliberations by the EAC in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The Committee, after detailed deliberations, observed that the instant proposal of amendment of EC dated 03.03.2014 is in respect of reduction in Mine area from 785.37 ha to 762.42 ha. It has been noted that that in total project area i.e. 762.42 ha, an area measuring 567.19 ha from coal block has been acquired under CBA Act 1957 and 195.23 ha (based on authenticated land schedule & same has been lying outside the ML area) as a non-coal bearing area for dumping of overburden and infrastructure purposes. The Committee inferred that only 567.19 ha is covered under actual Mine lease area against the total area of 762.42 ha. However, PP has assumed significant portion of block area as acquired by them, a part of mine lease area without obtaining valid document from State. Therefore, it was concluded that the proposed amendment of project area is inconsistent Mine lease area.

It is to be mentioned here that instant proposal of amendment has been applied in a view to fulfill the conditional requirements contained in OM dated 11.04.2022 wherein expansion are allowed to those project which has mine lease and mine area are consistent and there is no change in area while availing expansion under said OM. PP has separately applied proposal bearing no. IA/OR/CMIN/434835/2023 for expansion; however the same was deferred for clarification in terms of mine areas. While examining that proposal, the then EAC asked PP the followings in its 48th meeting held during 25-28th August 2023;

"PP shall submit the Mine lease area documents and other valid documents clarifying for different ML area with the valid documents. Land use discrepancies may first be removed by taking amendment of EC or correction of records."

Now, this Committee in view of forgoing concluded that PP does not have complete ML area with project area of 762.42 ha. Hence, due to inconsistencies of project area with mine lease area, the amendment of EC dated 03.03.2014 is not possible. Similarly, committee also observed that the Mine plan has been prepared for ML area of 849.34 ha which should be coterminous with the mine lease area as one of the mandatory requirements of OM dated 11.04.2022.

With the above remarks, the Committee advised PP to follow the instructions already given by the Hon'ble Supreme court on the management of mine activities within Mine lease area. The Hon'ble Supreme Court in the matter of WP(C) No. 435 of 2012 in Goa Foundation Vs Union of India & Ors vide order dated 21th April, 2014, has stated the following:

At Para-29: "a holder of mining lease does not have any right to dump any reject, tailings or waste in any area outside the leased area of the mining lease on the strength of mining lease granted under the MMDRA Act and the Rules made thereunder. Such area outside the leased area of the mining lease may belong to the State or may belong to any private person, but if the mining lease does not confer any right whatsoever on the holder of a mining lease to dump any mining waste outside the leased area, he will have no legal right whatsoever to remove his dump, overburden, tailings or rejects and keep the same in such area outside the leased area. In other words, dumping of any waste materials, tailing and rejects outside the leased area would be without a valid authorization under the lease deed"

At Para 71: (ii) dumping of minerals outside the leased area of the mining lessees is not permissible under the MMDR Act and the Rules made thereunder

In view of the above, the Committee asked the project proponent to submit the following information:

i. *PP shall submit the valid Mine lease documents for appraisal of this amendment application in EC dated 03.03.2014 for further consideration of separate proposal for expansion in EC under OM dated 11.04.2022.*
ii. *PP shall submit the co-terminus documents of Approved Mine Plan (including Mine closure plan), Mine Lease Area with respect to Environment Clearance and remove the observed defects.*
iii. *PP should comply above condition no. (i) for consideration of proposal for expansion in EC under OM dated 11.04.2022.*

*In view of above, project was **returned** for submission of above observation.*

3.2.5. Recommendation of EAC

Returned in present form

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Mr Lalit Bokolia	Scientist - F	lk.bokolia@nic.in	
2	Dr Santoshkumar Hampannavar	Member (EAC)	santoshkumar777@yahoo.com	
3	Dr Umesh Jagannathrao Kahalekar	Member (EAC)	ukahalekar@rediffmail.com	
4	Shri K B Biswas	Member (EAC)	biswaskiriti@gmail.com	

MINUTES OF 1st MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD ON 17th OCTOBER 2023 THROUGH VIDEO CONFERENCE.

Opening Remarks of the Chairman: At the outset, the Chairman welcomed the Expert members of newly constituted Expert Appraisal Committee (EAC) alongwith other participants and requested Member Secretary (coal) to give a detailed presentation and brief the members about mandate of Committee and challenges in the coal sector. Accordingly, Member Secretary gave a detailed presentation by outlining the regulatory provision in schedule of EIA, Notification, 2006 with Ministry's Office Memorandum separately issued for coal sector and process of EC being adopted at State and Central level as per the applicable rules. Member Secretary also briefed the list of permissions & other areas to be seen by Committee while examining the proposal. Finally, Member Secretary explained major challenges, normally being faced during appraisal process with regard to compliances of environment protection measures. Member Secretary also emphasized for taking considered view on those projects already set for target from energy security angle with the environment safety measures to be adopted/being adopted by them. Later, the Chairman asked EAC to start the proceeding as per the agenda adopted for this meeting.

Consideration of Proposals: The 1st meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 17th October 2023 through Video Conferencing. The EAC considered proposals as per agenda adopted for the meeting incorporated for discussion with chair. List of participant attended the meeting is annexed. The details of deliberations held & decisions taken in the meeting are as under.

Agenda No. 1.1

Gondkhari Underground Coal Mine of production capacity 2 MTPA/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) - For Environmental Clearance reg.

[Online proposal number IA/MH/CMIN/444481/2023; File no. J-11015/46/2022-IA. II. (M)]

1.1.1 The proposal is for Environmental Clearance for Gondkhari Underground Coal Mine of production capacity 2 MTPA/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).

1.1.2 Details of the proposal, as ascertained from the proposal documents submitted by PP and as revealed from the discussions held during the meeting, are given as under:

I. LOCATION OF PROJECT

i. The project area is covered under Survey of India Topo Sheet No 55K/16 (New-F44M16) and is bounded by the geographical coordinates ranging from 21^0 07' 57" N to 21^0 10' 56" N and longitudes 78^0 54" 45" E to 78^0 56" 26" E.

ii. Coal linkage of the project is Proposed for commercial coal mining auction process for use of various sale of coal.

iii. Joint venture cartel has been formed- Not Applicable

iv. Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of Environment Clearance.

v. Employment generation, Direct and Indirect employment to 863 Persons will be provided from the project.

vi. The project is reported to be beneficial in terms of energy security for the development of country.

vii. Terms of Reference granted on 13th February 2023 vide file no. IA-J-11015/46/2022-IA. II(M) by Ministry.

viii. Total mining lease area as per block allotment is 862.00 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved Ministry of Coal, Government of India on 22.12.2022.

II. Land use details:

ix. The Land usage pattern of the project is as follows:

Pre-mining land use details (Area in 862 Ha)

S. No.	Ownership	Type of land (Within Mine lease)	Area (ha)
1.	Tenancy Land	Agricultural	687.347
2.		Barren	
3.		Water bodies	
4.		Road	
5.		Community	
A.	Sub-Total	687.347	
1.	Govt Non-Forest Land	Agricultural	87.301
2.		Barren (Road)	
3.		Other	
B.		Sub total	87.301
1.	Forest Land	Revenue Forest land	87.351
C.	Sub total	87.351	
	Grand Total (A+B+C))	**862.00**	

Post Mining

			Post Mining Land Use (ha)

Mining Activity	Proposed Land Use Area (ha)	Land Use (End of Life) Area	Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	Total
Settling pond	0.08	0.08	0.08	-	-	-	-	-	0.08
Road & Infrastructure area	13.845	13.845	13.845	-	-	-	-	-	13.845
Embankment	0.075	0.075	0.075	-	-	-	-	-	0.075
Green Belt	2	2	2	-	-	-	-	-	2
UG entry	2	2	2	-	-	-	-	-	2
Total (excluding rights for UG mine) (1)	18	18	18	-	-	-	-	-	18
Undisturbed/ UG mining right (2)	844	-	-	-	-	-	-	-	844
Grand Total (1+2)	862								**862.00**

x. Total geological reserve reported in the mine lease area is 98.717 MT, geological reserve 98.503 MT, with 52.596 MT mineable reserve. Out of total mineable reserve of 52.596 MT, 42.946 MT are available for extraction. Percent of extraction is 43.5990%.

xi. 4 seams with thickness ranging from 0.93 m to 5 m are workable. Grade of coal is G8 while gradient is 90 to 220.

xii. Method of mining operations envisages by Underground Mining: Longwall retreating method with caving by deploying DERDS and Road Headers for tunneling.

xiii. Life of mine is 30 years. (Including construction)

III. TRANSPORTATION OF COAL

xiv. Transportation of coal has been proposed by series of conveyors in mine pit head, from surface to siding by Conveyer/Trucks and at sidings by Haulage trucks.

xv. 87.351 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980 for diversion of 87.351 ha of forest land for non-forestry purposes has been submitted dated 06.01.2023.

xvi. Please mention any National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project - Not applicable

xvii. Wildlife conservation plan for schedule – I species has been submitted –Not Applicable

xviii. The ground water level has been reported to be varying between 4.5 mbgl to 9.5 mbgl during

pre-monsoon and between 1.5 to 5.2 mbgl during post-monsoon.

xix. Total water requirement for the project is 492 KLD (452 KLD from mine seepage and 40 KLD from borewell.

xx. NOC for the approval of the Central Ground Water Authority for 492 KLD has been granted on 01/09/2023 vide letter no. CGWA/NOC/MIN/ORIG/2023/19155.

IV. DETAILS OF PUBLIC HEARING & RELATED ISSUES

xxi. Public hearing for project of 2 MTPA/3.0 MTPA (Normative/Peak) capacity in an area of 862 ha was conducted on 13/07/2023 at Kh. No. 9/5, Near Karli Lake, Tal-Kalmeshwar, Dist.-Nagpur, Maharashtra under the Chairmanship of Subhash Choudhary (Additional District Magistrate). Major issues raised in the public hearing include appropriate action to address the issues raised in the Public hearing is attached as appendix A.

xxii. Commitment made by the project proponent to address the Public Hearing concerns in lieu of Corporate Environment Responsibility (CER) to be mentioned in the following table:

	Particulars	**Location (Name of School/Village/Area)**	**Year-1 (In Lakhs)**	**Year-2 (In Lakhs)**	**Total (In Lakhs)**
1	Infrastructure creation for Drinking Water supply	Location: Village - Gondkhari, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work: Installation Community R.O. Water Units with Solar net-metering, deepening of village ponds for improving water storage and availability, Construction/ repair of hand pumps/ dug wells in nearby villages, drinking water supply through tankers for nearby villages during summer season, Solar Drinking water structure (Bore well with Motor fitting) including Soak Pit for Water Recharging in villages/schools.	33	20	13
2	Sanitation	-	-	-	-
3	Education	Location: Village - at Z.p Primary School (old) gond Gondkhari and Surabardi Village. Physical Work: Donation of computers, books, furniture to village schools, Construction of E-Class Room at Govt. School and Waiting Shed for Z.P. Primary School, Construction of 10 Toilets (4 Nos. for boys & 6 Nos. for Girls).	46	33	20
4	Skill Development	Location: Village- Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work: Contribute to Direct Implementation in partnership with ITI and	20	13	13

		MSME, Involvement of women's in Mason training and breaking stereotypes, 7 Self Help Groups in eight villages and 155 women engage in the SHGs.			
5	Roads	Location: Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work: Strengthening/ maintenance of village roads, Rain Water Harvesting at Community Area, Provision of Plantation and streetlights in Community Area, Provision Training for recycle SWM and Sale of recyclable waste to scrap merchants.	65	52	24
6	Cross drains	-	-	-	-
7	Electrification including solar power	-	-	-	-
8	Solid waste management facilities	Already covered under above point no. 5	-	-	-
9	Scientific support and awareness to local farmers to increase yield of crop and fodder	Location: villages Gondkhari and Kalambi. Physical Work: Donation of seeds, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities, Construction of farm ponds for needy farmers, Training related to Modern Agricultural techniques to the farmers.	39	26	13
10	Rain water Harvesting	Already covered under above point no 5.	-	-	-
11	Soil moisture conservation works	As per CAT & Soil Moisture Conservation plan	5	5	5
12	Avenue plantation	-	-	-	-
13	Plantation in community areas	Greenbelt Development including biological conservation Plan	10	5	5
14	Infrastructure	Already covered under above point no 5.	-	-	-
15	Health	Location: villages Gondkhari and Kalambi. Physical work: Establishment of Ambulance Room and Health Centre,	117	65	39

		Free Medical camps and Medicine Distribute by hiring a MBBS doctor to treat patients in nearby 7 villages, Arrange Waterborne diseases camp and Cancer detection camps.			
16	Art, Culture & Sports	-	-	-	-
17	Livelihood	-	-	-	-
	Agricultural programme:	Already mentioned in above point no. 9	-	-	-
Subtotal			335	219	132
Total			**686.0**		

xxiii. No River/nalla is flowing within the boundary of lease. The nallah will be/not be diverted in consultation with the Water Resource Department of the State Government. - No Nala diversion is proposed.

xxiv. Regular monitoring of ambient air quality is being carried out on fortnightly basis. The documented report is submitted to ….and also to MoEF&CC along with half yearly EC compliance Report - Not applicable - To be submitted after environment clearance Base line pre monsoon ambient air quality monitored for EIA/EMP report preparation. In general, the results of ambient air quality monitoring data were found within prescribed limits.

xxv. No court cases, violation cases are pending against the project of the PP.

V. BENEFITS OF THE PROJECT

xxvi. The project involves no project affected families. There is No R&R of the PAPs involved as it is an Underground Mine.

xxvii. Total cost of the project is Rs. 130300 lakhs. Cost of production is Rs 2800/- per tonne., CSR cost is Rs. 5/- per tonne, R&R cost if applicable. Environment Management Cost is: Capital Rs.17.50 crores; & Recurring 1.6 crores.

VI. CONTROL OF POLLUTION: (A) AIR & (B) WATER

xxviii. **Air Quality:** Environmental Baseline data have been generated in the season from March 2022 to May 2022 (Pre-Monsoon Season) at 10 locations alongwith additional AAQ monitoring conducted at 2 different locations during pre-monsoon season from 1st March 2023 – 31st March 2023. The result indicates that the maximum and minimum values of PM_{10} are in the range of 41.5 µg/m3 to 88.4 µg/m3, whereas the $PM_{2.5}$ are in the range of 15.8 µg/m3 to 41.0 µg/m3. The SO_2 concentrations within the study area are in the range of 4.8 µg/m3 to 15.9 µg/m3 and the NOx are in the range of 8.8 µg/m3 to 31.1 µg/m3. This is underground mining project wherein no drilling, blasting and crushing of coal is involved. The incremental increase in the values due to transportation were projected to be 2.19 µg/m3

for PM10, 30.2 µg/m3 for CO, 3.90 µg/m3 for Hydrocarbon and 37.3 µg/m3 for NOx. The values of Total GLC (Incremental + Baseline) at AAQ7 are for 72.15 µg/m3 PM10 µg/m3, 451.53 µg/m3 for CO and 44.98 µg/m3 for NOx. The observed pollutant levels are compared with CPCB National Ambient Air Quality Standards.

xxix. **Surface water quality:** Number of sampling location monitored -8 Nos.: The physico-chemical characteristics of the surface water samples collected and analysed are presented and are compared with the IS-10500 standards. The analysis results indicate that the pH ranged between 7.12 – 8.37 which is well within the specified standard of 6.5 to 8.5. TDS was observed to be 381 – 1100 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 211.95 – 712.19 mg/l as CaCO3 which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 58.6 – 240.8 mg/l and 9.28 – 57.61 mg/l respectively. The reported DO value are in range of 5.1 – 6.3 mg/l. Phosphorus (as PO_4) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. PO4 concentration was found to be in the range of 0.36 – 0.62 mg/l. COD ranges from 26 – 88 mg/l and BOD ranges from 3.6 – 17.3 mg/l. Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.21 to 0.61 mg/l.

1.1.3 The committee during deliberations noted following: -

i. Terms of Reference granted by Ministry vide its letter dated 13th February 2023.

ii. The block is virgin area and is free of any mining activity except for surface quarrying for road metal as seen from KML file. Gondkhari Coal Mine is proposed underground coal mining project in the Gondkhari area (Kamptee Coalfield) in Nagpur District, allotted to M/s Adani Power Maharashtra Limited (APML) vide vesting order no. NA-104/7/2021-NA, dtd. November 18, 2021. Application for mining lease has been submitted by PP and its approval is under process in State.

iii. Mining Plan (Including Progressive Mine Closure Plan) had been approved by Ministry of Coal, Government of India on 22.12.2022 for allotted block area of 862 ha while in EIA report, the approval is reported to be accorded on 9th January 2023.

iv. Life of mine is reported to be 30 years; while Approved Mine Plan mentions 24 years life of the mine.

v. Application for obtaining Stage-I Forest clearance for 87.351 ha of forest land (i.e. involved in the ML area of 862 ha) has been submitted on 06.01.2023.

vi. Total water requirement for the project is 492 KLD (452 KLD from mine seepage and 40 KLD from bore well.

vii. NOC from CGWA has been obtained for 492 m3 /day (Fresh Water 40 m3 /day & dewatering 452 m3 /day) vide NoC No.- CGWA/NOC/MIN/ORIG/2023/19155 and valid upto 31.08.2025.

viii. Public Hearing was conducted on 13.07.2023 for 2 MTPA/3.0 MTPA (Normative/Peak) capacity for ML area of 862 ha under the Chairmanship of Subhash Choudhary (Additional

District Magistrate). The advertisement was communicated through Dainik Lokmat (Marathi) on 10.06.2023 and Times of India (English) on 10.06.2023. The point wise compliance of issues raised were submitted in EIA report and during appraisal.

ix. Environment baseline data was generated in the season from March 2022 to May 2022 (Pre-Monsoon Season) at 10 locations and along with additional AAQ monitoring conducted at 2 different locations during pre-monsoon season from 1st March 2023 – 31st March 2023.

x. ML area includes Surabardi reservoir (eastern part of the project area), Karle reservoir (central part of the project area), Alesur Local Lake, National Highway No. 6 (southern part of the project area), Ring road (passing through the central part of the project area), patches of forest, National Academy of Petroleum and Explosives Safety and Testing Station and Suraburdi Resorts.

xi. Coverage of water body in the total ML area is about 13.89 ha.

1.1.4 *The EAC after deliberations observed that the instant proposal is a greenfield underground coal mine project. As observed by Committee from KML file, most of mine lease area belongs to Agriculture land that is engaged in fruit plantation particularly Oranges. Additionally, the Committee advised PP that forest area of 87.351 ha in the mine lease area shall not be disturbed and shall not be used for any infrastructure. Further quality of forest shall be improved in collaboration with State Forest Department.*

It was observed that several water bodies exist within mine lease such as Streams/Nallah and also in vicinity of ML area named as Surabardi Dam &reservoir, Karle lake, Alesur lake and Wena Dam & Reservoir. PP was required to submit the point-wise TOR compliance. However, due to lack of drone video/photographs of lake/reservoir, which is one of Tor conditions, the Committee could not capture real ground reality. On enquiry about water profiles in the area, the consultant could explain properly the water management/its profiles in catchment area, to be impacted due to mining activities.

On the lake rejuvenation issue, PP was required to submit the concrete plan with activities, however PP submitted merely 15 lakhs budget for management of surface lakes without adequate action plan. The EAC advised that the same needs to be revised substantially with concrete plan. The rejuvenation plan should include de-silting & aqua fishing activities, bio-remediation if required. The Committee found higher BOD level (Biochemical oxygen demand) in the lake which needs to be addressed as a target under the rejuvenation plan. The Committee was of the view that for development and enhancement of water harvesting facility, PP shall have to submit the construction of new ponds/recharging well within or outside the ML area and after rejuvenation of the lake , there is need to fix water supply in the near village area..

Subsequently, the committee asked the PP to re-assess the traffic impact study which should now be based on 40 to 45 tonnes (payload) of trucks in place of 30-35 tonnes for the transportation of coal until construction of mechanized system

In view of the above, the Committee desired that the project proponent must rework on the proposal and submit the following documents: -

i. *PP to submit the Drone videos & Photographs of the Forest area (lying within the ML area) including Lake/Reservoir/Dam and the other sensitive zone.*
ii. *Status of Forest Clearance for 87.351 ha of forest land involved in the ML area of 862 ha.*
iii. *PP shall submit Letter of Intent from concerned State Government as per Ministry's OM dated 7th October, 2014.*
iv. *PP shall submit the approved Mine Plan chart for 3 MTPA peak capacity with calendar plan.*
v. *Details of Pre-mine land use and post mine land use plan keeping the area occupied by Dam/Lake/Reservoir to be same with all protection measures.*
vi. *PP shall submit the Geo-tagged location of the lake/reservoir/Dam namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake w.r.t. the ML area.*
vii. *As suggested by EAC, PP shall submit lake rejuvenation plan with detailed plan with adequate budgetary allocation.*
viii. *PP shall submit details of new water harvesting facilities (ponds) with protection of Dam/Lake/Reservoir lying within the ML area & in Buffer zone.*
ix. *PP shall submit proper layout surface plan for construction of infrastructure on the Mine lease without affecting forest land.*
x. *PP shall re-asses option analysis to reduce the distance being covered for the transportation of coal through road and with mid-term plan of railway siding by rail transportation.*
xi. *PP shall submit compliance of ToR specific conditions (xiii), (xvii) and (xix) with detail analysis and report with certificate from PCCF regarding absence of schedule-I specifies as per WPA 1972 and 2022. Further, the comparison of existing mining practices of Underground mine across the world mainly in terms of extraction of higher coal efficiency and in terms of consumption of lesser fuels.*
xii. *PP shall submit the signed copy of Corporate Environment Policy from its Board of Directors.*
xiii. *PP shall analyse the possible adverse impacts on forest corridors and forest areas and their mitigation measures by fencing all along the forest area, due to transportation activity.*
xiv. *PP shall submit the location of Ambazari Ordinance Factory w.r.t. ML area and mitigation measures considering the sensitivity of this location.*
xv. *PP shall document the exact number of persons/families under socio economic survey living within the ML area and living within the Buffer zone of the ML area.*
xvi. *PP shall submit mitigation plan for nearby villages w.r.t. higher observed value of pollutants in the Gondkhari area.*
xvii. *PP shall submit the adequate monitoring data as prescribed condition no. 11 of TOR regarding additional monitoring station after grant of ToR (i.e. additional locations of Sahuli & Drugdhamna).*
xviii. *PP shall submit the revised EMP cost after considering all above issues (if any) along with the cost of mitigation measures pertaining to Air and water.*

xix. PP shall also submit the activity-wise budget addressing the all the issues highlighted during the Public hearing along with recurring cost.

xx. PP shall submit the plan for Green belt development on 33% area of the total ML area either within/outside the ML area.

xxi. PP shall submit the elaborated water balance sheet covering the complete utilization of water.

xxii. PP shall submit the dedicated plan for drinking water to near village through pipeline system.

*In view of the above, the project was **deferred** to submit the above observation.*

Agenda No. 1.2

Expansion of Baroud Opencast Mine for production capacity from 3.6 to 4.32 MTPA (i.e. increase of 20%) with mine lease area of 1111.40 ha of M/s SECL located at Village Baroud, Tehsil Gharghora, District Raigarh (Chhattisgarh) – Reconsideration for Environmental Clearance under OM vide F. No. IA3-22/10/2022-IA.III [E 177258] dated 11.04.2022 - reg.

[Online proposal number IA/CG/CMIN/274062/2022; File no. J-11015/228/2007-IA. II. (M)]

1.2.1 The proposal is for Environmental Clearance for Baroud Opencast Mine for production capacity from 3.6 MTPA to 4.32 MTPA (i.e. increase of 20%) in mine lease area of 1111.40 ha of M/s SECL located at Village Baroud, Tehsil Gharghora, District Raigarh (Chhattisgarh).

1.2.2 Details of the proposal, as ascertained from project proponent, are given as under:

(i) The project area is covered under Survey of India Topo Sheet No. 64 N/7 and is bounded by the geographical coordinates ranging from 22°15'14" and 22°17'39" N and longitudes 83°19'22" and 83°21'47" E

(ii) Coal linkage: Thermal Power Stations

(iii) Joint venture: No Joint Venture

(iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.

(v) Employment generation/To be generated: 281

(vi) Benefits of the Project: The project activities will directly or indirectly improve physical infrastructure (like road and rail network, bridges, telecommunication), social infrastructure (like educational facilities, medical facilities, women and child welfare facilities, water supply and sanitary facilities, banking facilities, training and skill development facilities, employment opportunities), Central and state Exchequer, helps Nation in Energy self-sufficiency, Green cover and Water reserves.

(vii) Environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No J-11015/228/2007-IA-II(M) dated 20.05.2009 for 3.5 MTPA in mine lease area of 1111.40 ha.

2543

Ax. H

EIA-EMP REPORT

For

GONDKHARI UNDERGROUND COAL MINE (KAMPTEE COALFIELD) OF PRODUCTION CAPACITY 2.0 MTPA (RATED CAPACITY)/3.0 MTPA (PEAK CAPACITY) IN THE MINE LEASE AREA OF 862.00 HA OF M/S ADANI POWER MAHARASHTRA LIMITED (APML)

LOCATED AT

VILLAGE - GONDKHARI, TAHSIL KALMESHWAR, DISTRICT - NAGPUR (MAHARASHTRA)

Terms of Reference File No. IA-J-11015/46/2022-IA-II (M) dated 13th February 2023
Category A, (Sector 1) 1 (a) (i) Mining of Minerals
Baseline Monitoring Period: Pre-Monsoon Season (1st March 2022 to 31st May 2022)

PROJECT PROPONENT

adani
Power

M/S. ADANI POWER MAHARASHTRA LIMITED (APML)

ENVIRONMENTAL CONSULTANT

ANACON

M/s. ANACON LABORATORIES PVT. LTD., NAGPUR

QCI - NABET Accredited EIA Consultant for
(Sector 1) 1(a) (i) Mining of Minerals
MoEF&CC (GOI) Recognized Laboratory
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
Lab. & Consultancy: FP-34, 35, Food Park,
MIDC, Butibori, Nagpur – 441122
Mob.: +91-9372960077
Email: *ngp@anacon.in*
Website: *www.anaconlaboratories.com*

Report No. ANqr /PD/20A/2023/220

T.C.



NOVEMBER 2023

Ref: APML/GDK/2023/21 **Dated: 29.11.2023**

UNDERTAKING

I, Mr. Shanto Mukherjee, Vice President (Technical Services) of M/s. Adani Power Maharashtra Limited, give the undertaking to the effect that, ToR issued by the EAC (Coal mining project), MoEFCC, New Delhi, vide No**. F. No-IA-J-11015/46/2022-IA. II(M) dt. 13th February 2023, for** Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2.0 MTPA (Rated Capacity)/3.0 MTPA (Peak Capacity) in the Mine Lease Area of 862.00 Ha. of M/s. Adani Power Maharashtra Ltd. (APML) Located at Village Gondkhairi, Tehsil Kalmeshwar, District Nagpur (Maharashtra) has been complied with, and the data submitted is factually correct. We further undertake that, as per referred ToR with specific conditions granted by MoEFCC, New Delhi, we have conducted additional studies from external reputed and QCI-NABET accredited consultant. The details of studies conducted are as under:

Type of study	Conducted by
• Land Subsidence Study Report (2D Modelling)	IIT, Kharagpur
• Land Subsidence Study Report (3D Modelling)	CIMFR, Dhanbad
• Traffic Assessment Study report	Vardan Environet
• Hydrogeological Study report	Srushti Seva Pvt. Ltd.
• Rejuvenation of Lake / Water Bodies/ Small Reservoirs	Srushti Seva Pvt. Ltd.
• Soil Conservation report	Srushti Seva Pvt. Ltd.

We take the ownership of the content of this EIA report along with the additional studies as mentioned above.
This undertaking is provided as per MoEFCC OM No. J-11013/41/2006-IA-II(I) Dt. 5th October, 2011

Yours faithfully,

Place: Ahmedabad, Gujarat
Date: 29/11/2023

M/s. Adani Power Maharashtra Limited



(Shanto Mukherjee)
Vice president
(Technical Services)

M/s. ADANI POWER MAHARASHTRA LTD.

EIA-EMP REPORT

For

GONDKHARI UNDERGROUND COAL MINE (KAMPTEE COALFIELD) OF PRODUCTION CAPACITY 2.0 MTPA (RATED CAPACITY)/3.0 MTPA (PEAK CAPACITY) IN THE MINE LEASE AREA OF 862.00 HA. LOCATED AT VILLAGE GONDKHARI, TEHSIL KALMESHWAR, DISTRICT NAGPUR (MAHARASHTRA).

Project No. : ANqr/PD/20A/2023/220

Version: 02 (Rev.)

Release Date: 29th November 2023

DISCLAIMER

The EIA-EMP report is prepared by M/s. Anacon Laboratories Pvt. Ltd., Nagpur (a consultant organization accredited by QCI-NABET) as per the approved Terms of Reference issued by MoEFCC, New Delhi ToR Vide File. No. IA-J-11015/46/2022-IA.II(M) on 13/02/2023 with all reasonable skill, care and diligence within the terms of the contract with the client, incorporating our General Terms and Conditions of profession and taking account of the resources devoted to it by agreement with the client & complying MoEF&CC & QCI-NABET requirements.

For and on behalf of M/s. Anacon Laboratories Pvt. Ltd.			
Particulars			**Signature**
Prepared by	:	**Mr. Gyanchand Bohra** (EIA Coordinator)	29/11/2023
Approved by	:	**Dr. D. G. Garway** (Head of ACO & MD)	ANACON LABORATORIES PVT. LTD. NAGPUR
Month & Year	:	**NOVEMBER 2023**	29/11/23

Declaration by Expert

Declaration by Experts contributing to the *" EIA-EMP for Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2.0 MTPA (Rated Capacity)/3.0 MTPA (Peak Capacity) in the Mine Lease Area of 862.00 Ha. of* ***M/s. Adani Power Maharashtra Ltd. (APML)*** *Located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).*

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

EIA Co-ordinator:

Name: **Mr. Gyanchand Bohra**

Signature and Date: ..... 29/11/2023 .....

Period of involvement: November 2021 to till grant of EC

Contact information: Email id.: ngp@anacon.in; Tel. No. 0712-2242077

Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
1.	AP*	Dr. D. G. Garway	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
2.	WP*	Dr. D. G. Garway	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
3.	SHW*	Dr. D. G. Garway	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
4.	SE*	Ms. Shilpa Chandekar	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
5.	EB*	Mr. Shrikant B. Vyawhare	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures and as EC)	29/11/2023
6.	HG* GEO*	Mr. Gyanchand Bohra	November 2021 to till grant of EC (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	29/11/2023
7.	SC*	Dr. D.G. Garway	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation	

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
			Measures)	
8.		Mr. Shrikant B. Vyawhare	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures and as EC)	
9.	AQ*	Mr. Mohammad Akhtar	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
10.	NV*	Mr. Gyanchand Bohra	November 2021 to till grant of EC (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	29/11/2023
11.	LU*	Mr. Swarup Tripathy	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
12.	RH*	Mr. Rakesh Gupta	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	

S. No.	Functional areas	Name of the expert/s	Name of the Team Member/s	Involvement (period and task**)	Signature and date
1.	AP WP	Dr. D. G. Garway	Mr. Ved Prakash Sharma	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
	AQ	Mr. Mohammad Akhtar			
2.	LU	Mr. Swarup Tripathy	Mr. Amol G. Gadekar	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
3.	RH	Mr. Rakesh Gupta	Miss. Bhumika Gawande	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	
4.	EB	Mr. Shrikant B. Vyawhare	Mr. Prashant H. Shende	November 2021 to November 2023 (Identification & Assessment of Impacts, Suggestion Mitigation Measures)	

**Please attach additional sheet if required

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

I, Dr. D.G. Garway, hereby, confirm that the above-mentioned experts prepared the *EIA for Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2.0 MTPA (Rated Capacity)/3.0 MTPA (Peak Capacity) in the Mine Lease Area of 862.00 Ha. of* ***M/s. Adani Power Maharashtra Ltd. (APML)*** *Located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra)*

"It is certified that no unethical practice like 'copy and paste', and used external data / text without proper acknowledgement, while preparing this EIA report".

I also confirm that the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.

Signature: .....

29/11/23

ANACON LABORATORIES PVT. LTD. NAGPUR

Name: Dr. D. G. Garway

Designation: Head of ACO & MD

Name of the EIA consultant organization: M/s. Anacon Laboratories Pvt. Ltd.

NABET Certificate No. & Issue Date:

Accreditation Certificate No.: NABET/EIA/2326/RA 0304 dtd. 18th September, 2023 valid till 29th September, 2026.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1.0 INTRODUCTION

Gondkhari Coal Block is proposed underground coal mining project in Gondkhari area (Kamptee coal field) in Nagpur District of Maharashtra State. The lessee M/s Adani Power Maharashtra Limited (APML) applying to grant Environmental Clearance for Gondkhari Underground Coal mine (ML Area 862.00 Ha. and Production Capacity is 2.00 MTPA.

The Mine lease area is 862.00 Ha with production capacity of Coal is 2.00 MTPA. The method of mining is Mechanised Underground mining method. Life of mine is 26 years. The final EIA-EMP report is prepared as per EIA Notification 2006 as amended and the ToR granted vide letter No. IA-J-11015/46/2022-IA. II(M) dated on 13.02.2023 by EAC (Coal Mining Projects), MoEFCC, New Delhi and public hearing was conducted dated 13.07.2023

The mine plan has been approved from Ministry of Coal, Government of India, New Delhi vide letter dtd. 09/01/2023.

1.1 IDENTIFICATION OF PROJECT

Gondkhari Coal Mine is proposed underground coal mining project in Gondkhari area (Kamptee Coal field) in Nagpur District and which is allotted to M/s Adani Power Maharashtra Limited (APML) vide vesting order no. NA-104/7/2021-NA, dtd. November 18, 2021. Application for mining lease has been submitted and Approval is under progress. Currently the mine plan has been approved from Ministry of Coal vide letter dtd. 9th January 2023.

1.1.1 Location of the Project

The lease over an area of 862.00 Ha is located in Village Gondkhari, Tehsil – Kalmeshwar, District - Nagpur, Maharashtra. The nearest habitation is village Gondkhari a distance of 1.50 km in SW direction from the periphery of ML area. The lease area falls under Survey of India Toposheet no. 55 K/16 on 1: 50,000 scale and lies between latitudes N 21°07' 57" to N 21°10' 56" and longitudes E 78° 54' 45" to E 78°56' 26". Environmental settings of the site are presented in **Table 1.** Index Map of the project provided in **Figure 1.** Study area map given in **Figure 2.** There is no critically polluted identified cluster by CPCB/MoEFCC in the vicinity of the project.

TABLE 1: DETAILS OF ENVIRONMENTAL SETTING

Sr.	Particulars	Details
1.	Project Location	Mine Lease area – 862.00 ha. Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, Maharashtra.
2.	New/Expansion	New
3.	Co-ordinates	Latitudes N $21^0$07'57" to N $21^0$10'56" Longitudes E $78^0$54'45" to E $78^0$56'26"
4.	Survey of India Topo Sheets No.	55K/16
5.	Climatic Conditions	Mean annual rainfall is 1100.3 mm Temperature: Pre monsoon 4.5º C (Min.) 47.8º C (Max.) : Winter 3.9º C (Min.) 39.7º C (Max) : Post monsoon 5.5º C (Min.) 39.7º C (Max.) Source : IMD, Nagpur (Sonegaon)
6.	Nearest IMD Station	IMD Nagpur (Sonegaon) – 12.5 KM (SE)

Sr.	Particulars	Details
7.	Site elevation above Mean Sea Level	324 – 380 m.
8.	Nearest National/State Highway	NH 53 (AH 46) – Adjacent (S) SH 250 – 6.5 km (N) SH 255 – 6.8 km (S) SH 260 – 7.0 km (ESE) SH 248 – 4.7 km (NE) NH 547E- 3.5km (W)
9.	Tourist Places (within 15 km)	Vitthal Rukmini Temple, Dhapewada – 13.1 km (N) Highland's Water Park – Adjacent (E) Surabardi Shiva Temple – 1.3 km (E) Satpuda Botanical Garden – 10.4 km (E) Telankhedi Garden – 11.4 km (E) Adasa Ganesh Temple – 16.7 km (NNE)
10.	Archaeologically important places	Junapani Stone Circles, Fetri – 7.8 km (ENE)
11.	Nearest Railway Station	Kalmeshwar – 5.4 km (NNE)
12.	Tourist Places	Dr. Babasaheb Ambedkar Museum & Memorial – 4.6 (ENE) Kasturchand Park – 14.6 km (E) Central Museum, Nagpur – 14.2 km (E) Mahurzari Megalithic Stone Circles – 10.1 km (E) Maharaj Bagh Zoo – 13.8 km (E) Junapani Stone Circles, Fetri – 7.8 km (ENE) Gorewada Jungle Safari - Wildlife and safari park – 9.37 km (ENE)
13.	Nearest Airport	Dr. Babasaheb Ambedkar International Airport 10 km (ESE)
14.	Nearest State/National Boundaries	Madhya Pradesh – 33.6 km (NNE)
15.	Nearest village/habitation	Surabardi – 0.6 km (E) Gondkhari – 0.3 km (W)
16.	Nearest major city with 2,00,000 population	Nagpur – 12 km (E)
17.	Nearest City	Wadi – 5.8 km (E)
18.	Distance from sea coast	Bay of Bengal – 576 km (SE)
19.	Nearest Reserved/ Protected forests	Bazargaon RF – 5.1 (W) Madhogarh RF – 9.7 km (W) Open Mixed Jungle – Gorewada 6.3 (ENE)
20.	Nearest River/water bodies	Saptdhara Nadi – 8.1 km (N) ; Vena River – 1.2 km (S) Ghordyo Nala – 8.9 km (WNW) ; Unna Nala – 8.9 km (W) Devadkasha Nala – 4.5 km (WSW); Jhilpi Nala – 5.5 km (S) Vena Canal – 1.7 km (SSW); Anas Nala – 2.5 km (SSW) Nag Nala – 5.5 km (SE) ; Kharkari Nala – 3.1 km (SSE)
21.	Nearest Lake	Ambajhari Lake – 8.5 km (ESE); Bhivkund Dam – 9.9 km (SW) Futala Lake – 10.0 km (E) Alesur Local Lake – within proposed mining area Mordham Dam & Reservoir – 11.5 km (NW)

Sr.	Particulars	Details
		Suraburdi Lake – Adjacent (E) Vena Dam – 4.2 km (W) Jhilpi Talav – 9.1 km (SW)
22.	Seismic zone	Seismic Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is a stable zone.
23.	Nearest Industries	Chanvim Engineering (I) Pvt. Ltd. – 2.7 km (W) Paragon Polymer Products Pvt. Ltd. – 1.8 km (W) Sunny Infra Engineers Pvt. Ltd. – 3.8 km (E) JDS Transformer Industries Pvt. Ltd. – 6.0 km (ESE) Bharat Electricals – 0.3 km (SSW) Shri Salasar Industries – 5.5 km (E) MIDC Kalmeshwar – 5.2 km (N) Minex Metallurgical Co Ltd, Nimji – 4.41 km (W) Nice Papers Limited – 7.6 km (NNW) Hingna MIDC – 6.3 km (SE)
24.	Protected areas as per Wildlife Protection Act,1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	None

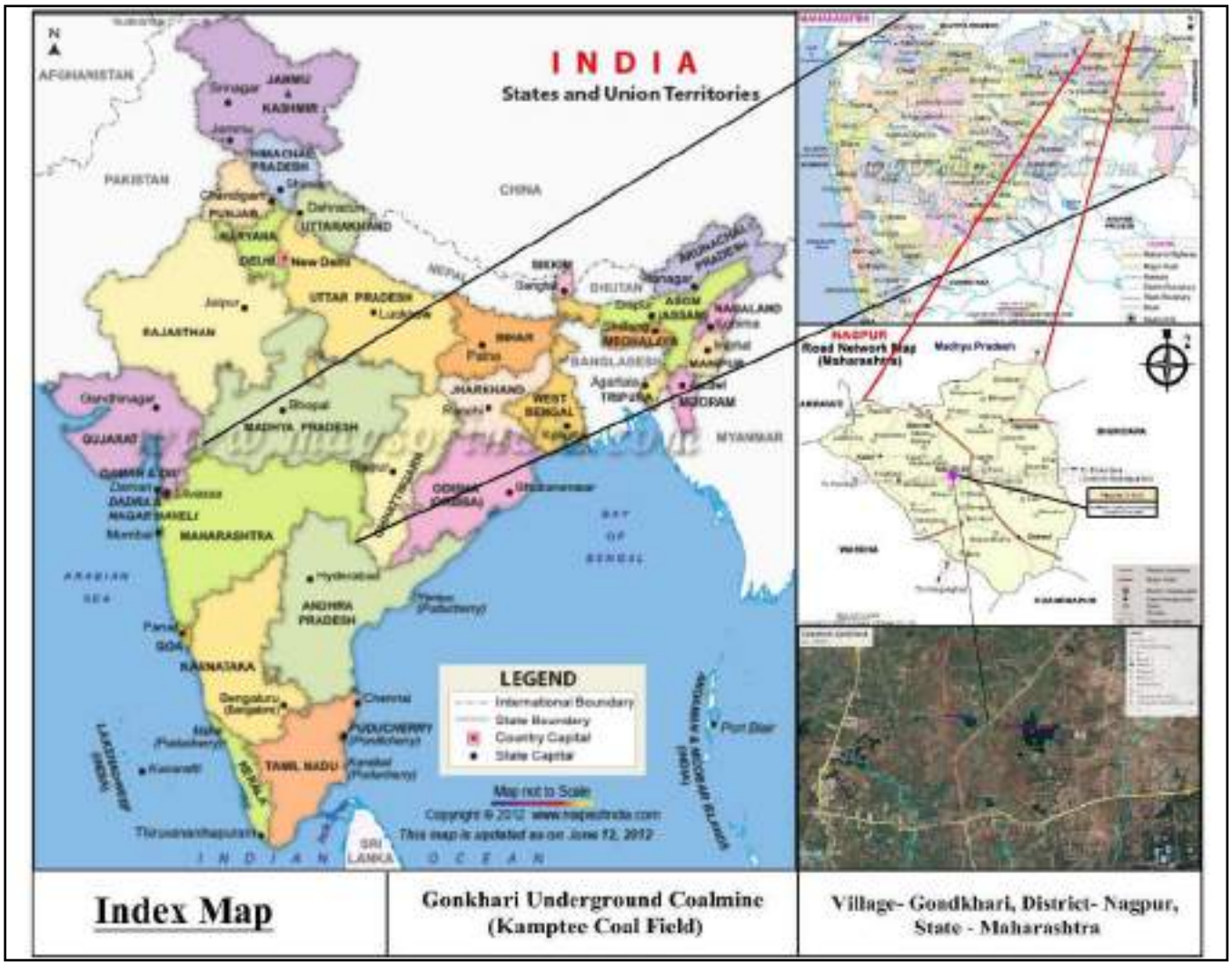


FIGURE 1: INDEX MAP OF THE PROJECT SITE

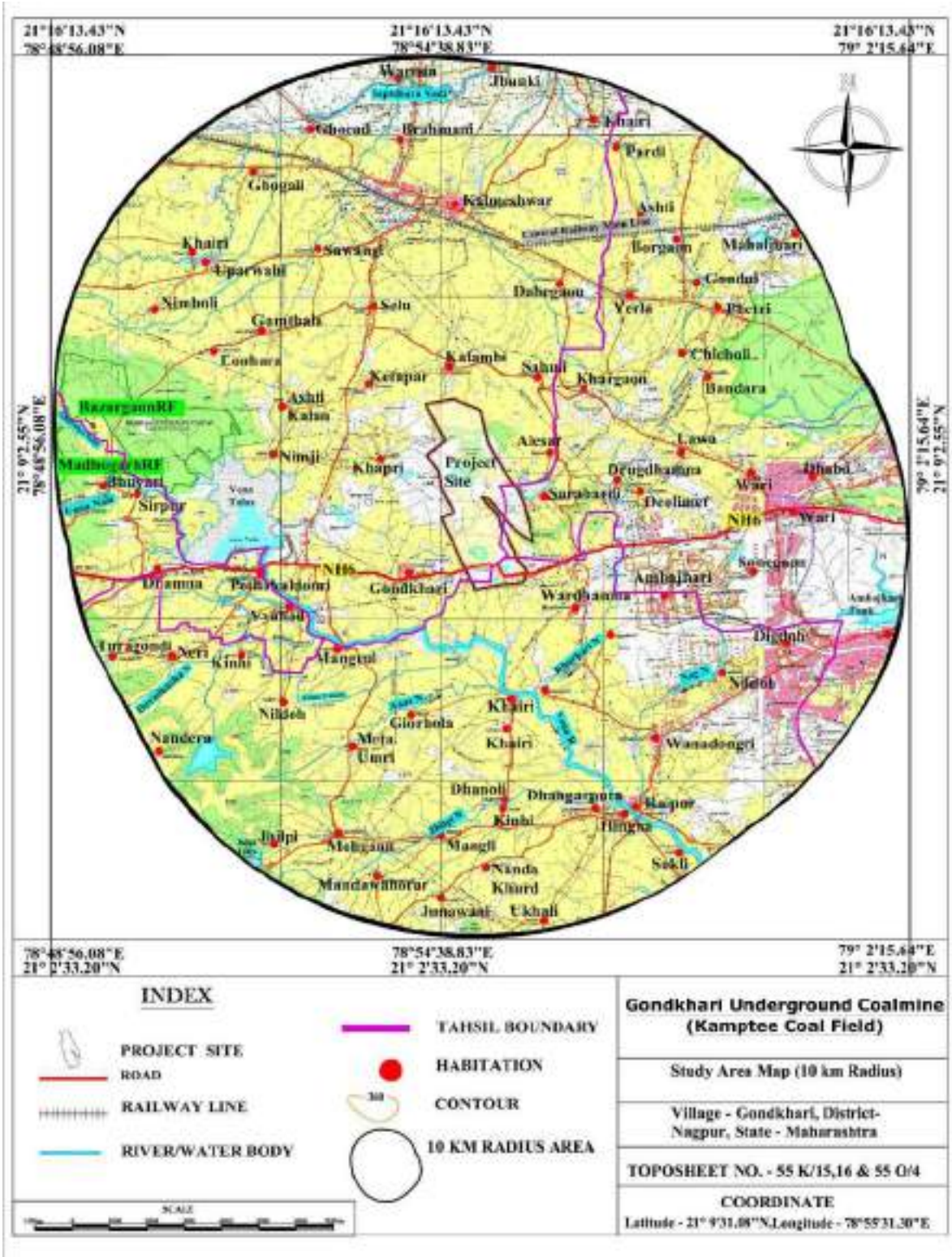


FIGURE 2: STUDY AREA MAP (10 KM RADIAL DISTANCE)

2.0 PROJECT DESCRIPTION

2.1 METHOD OF MINING

Gondkhari Coal Mine (UG mine) is a proposed coal mining project in Gondkhari area of Kamptee coal field in Nagpur District which belongs to M/s Adani Power Maharashtra Limited (APML). The method of mining is Mechanised Underground mining method i.e., Longwall mining method is proposed for excavation.

The proposed method to work the deposit is done by mechanized Longwall (retreating) method will be adopted as method of Mining. With high level of production planned from the mine, the following mechanization has been planned. Six Road headers and Two sets of Longwalls are adopted for development and depillaring. Coal evacuation via lump breader on to a system of belt conveyers. Side Discharge Loaders with compressed air drills and compressed air bolter for roof support. Coal evacuation by chain conveyers on to feeder breaker and belt conveyors for stray area.

2.1.1 Anticipated life of the Mine

Total Mineable Reserves is 52.496 million tonnes and Life of the mine @ 2.0 MTPA (For Coal) = 26 Years.

2.2 CONCEPTUAL MINE PLAN

The conceptual plan is prepared for the lease period which is till 2049. A provision has been made towards dismantling of underground equipment and disposal of mining machinery, dismantling of workshop, rehabilitation of dismantled facilities etc. during progressive mine closure activity.

The end land use of the mine is controlled by the following factors:

- Waste generation is envisaged during mining.
- Backfilling towards restoring entire worked out area to pre-mining land use is feasible.
- As it is not feasible to bring the mine pits to the ground level it is not found useful to convert it into rainwater storage.
- Worked out area can be reclaimed by means of rainwater storage body.
- The surrounding areas have very low vegetation discouraging fauna habitats; hence a flora and fauna habitat will be useful.

In view of the above, it would be appropriate to backfill the mine upto ground level and proposed to be stabilized for ecological and aesthetic restoration.

TABLE 2: SALIENT FEATURES OF THE MINE

Sl.	Description	Details
1.	Production/estimated reserves	Targeted Capacity – 2.0 MTPA Estimated Gross Geological reserves:98.717 MT . Net Geological Reserve: 98.5030 MT Mineable Reserve: 52.946 MT
2.	Total reserve for Mining	Extractable Reserves: 42.946 MT
3.	Mining methods & technology	Underground mining: Longwall retreating method with caving by deploying DERDS and Road Headers for tunnelling.
4.	Mine lease area	862.00 Ha.
5.	Life of mine	30 years (including construction phase)
6.	Lease period	Application for mining lease has been submitted and Approval is under progress.
7.	Total water requirement & source	Total water requirement for this project is 492 KLD (452 KLD will be met from mine seepage and 40 KLD from borewell). Potable water requirement will be met from ground water sources with appropriate treatment. PP has obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023 for ground water withdrawal and dewatering
8.	Power requirement & source	The power requirement is 19.742 MW and source as below- • The mine will receive power from nearest 33/11 kV Surabardi Substation under Maharashtra State Electricity Distribution Company Limited in Nagpur district which is located at about 3 km from the proposed Mine sub-station. • To cater the demand of power for peak production of 2 MTPA, it is proposed to install 2 x 5 MVA 33/3.3 kV outdoor transformers at proposed substation.
9.	Manpower requirement	863 (Peak)
10.	Raw material required	The allocated block is a commercial coal block for sale of coal.
11.	Grade of Coal	G8 (Average)
12.	Minimum Depth of Workings	169.50 m
13.	Maximum Depth of Workings	394.30 m
14.	Gradient	1 in 2.5 to 1 in 6.5 (i.e. dip of about 9^0 to 22^0)
15.	Seam details	Workable seam out of 10 coal seams are: II seam, III Seam, V Seam & VIII seam.
16.	Estimated cost of the project	1303 Cr.

2.3 WASTE GENERATION & DISPOSAL

The solid waste generated from the proposed project during incline drivages and shaft sinking in the sub-soil and hard rocks for mine entries and also from drivages of cross-cuts in hard rock is estimated to be about **127000 Cum** of solid waste. The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation bank head and

filling of low lying areas, development of the land for infrastructure and development of greenery. The municipal wastes are expected to be generated is 50 kg/day during construction activities and 170 kg/day during operation phase. Solid wastes generated will be properly collected, segregated and reused / disposed-off appropriately as per Solid Waste Management Rules, 2016 as amended.

2.4 WATER REQUIREMENT & SOURCE

Total water requirement is 492 KLD (452 KLD from mine seepage and 40 KLD from borewell). Industrial water requirement will be met from existing reservoirs, ground water and mine water sources. Potable water requirement will be met from ground water sources with appropriate treatment.

2.5 MANPOWER REQUIREMENT

The total manpower requirement is 863 nos. and no further additional manpower is required.

2.6 SITE INFRASTRUCTURE

The infrastructure will be in the form of mines office, rest shelter, Transformer and machinery. The haul road, the road from mining to connecting NH already exists. The first aid center, water drinking point will be available inside mine lease area.

3.0 EXISTING ENVIRONMENTAL SCENARIO

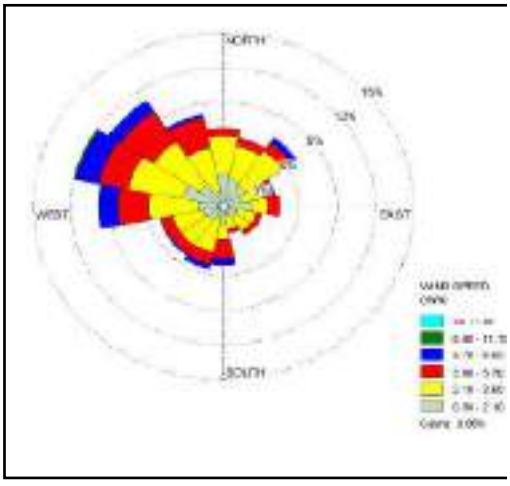
3.1 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. An environmental baseline monitoring was carried out as a part of EIA studies for the proposed project, during **pre-monsoon season (1st March 2022 – 31st May 2022**) along with additional AAQ monitoring conducted at 2 different locations during pre-monsoon season from **1st March 2023 – 31st March 2023.**

3.1.1 Meteorology & Ambient Air Quality

Summary of Meteorological data generated at site

Predominant Wind Direction	Pre-monsoon season - 2022
First Predominant Wind Direction	WNW (11.96%)
Second Predominant Wind Direction	NW (10.91%)
Third Predominant Wind Direction	W (9.87 %)
Calm conditions (%)	0.86
Avg. Wind Speed (m/s)	2.95



Month	Temperature (^{0}C)		Relative Humidity (%)		Rainfall Monthly Total (mm)
	Min	Max	Min	Max	
March – 2022	17.4	43.5	5.5	63.5	0
April – 2022	24.1	45.9	5.3	49.9	0
May – 2022	27.6	46.2	8.7	57.0	0
Range	**17.4 – 46.2**		**5.3 – 63.5**		**Total = 0.0**

Ambient Air Quality Status

The ambient air quality monitoring with respect to parameters of significance was carried out during pre-monsoon season **(1st March 2022 – 31st May 2022)** whereas additional AAQ monitoring at 2 different locations was conducted during **1st March 2023 to 31st March 2023** in line with approved ToR by EAC. Altogether the ambient air quality monitoring carried out at 12 locations. The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2), Oxides of Nitrogen (NO_X), Carbon monoxide (CO), Ozone (O_3) and Ammonia (NH_3) were monitored for establishing the baseline status. The minimum and maximum values of monitoring results are summarized and given in **Table 3.**

TABLE 3: SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS

Sr. No.	Location		PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	Ozone	NH_3
			µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	µg/m³
1	Project site-Location at North end	Min	55.4	21.6	7.3	18.1	0.323	6.2	5.3
		Max	74.3	35.6	10.4	28.9	0.369	9.9	7.9
		Avg	67.1	28.4	9.1	23.8	0.345	8.1	6.7
		98th	73.8	35.0	10.3	28.2	0.368	9.9	7.9
2	Project site-Location at South end	Min	52.8	18.7	5.8	14.9	0.224	5.1	4.2
		Max	67.4	32.4	8.1	20.3	0.286	7.4	6.1
		Avg	59.8	25.1	6.9	17.6	0.263	6.3	5.2
		98th	66.9	31.7	8.1	20.1	0.285	7.2	6.0
3	Kalambi	Min	41.5	15.8	4.8	11.4	0.215	4.8	4.3
		Max	56.6	22.1	6.9	15.1	0.258	7.0	6.2
		Avg	49.6	18.6	5.9	13.2	0.235	5.9	5.1
		98th	55.8	21.5	6.9	14.8	0.255	7.0	6.0
4	Waddhamna	Min	59.9	26.2	8.9	21.4	0.328	6.4	5.9
		Max	77.2	34.0	13.8	26.6	0.421	9.2	8.3
		Avg	68.2	30.1	11.5	24.6	0.377	7.9	6.8
		98th	75.4	33.8	13.6	26.5	0.415	9.1	8.2
5	Carmel Academy CBSE	Min	51.6	22.4	6.6	16.1	0.328	5.9	5.1
		Max	70.2	31.3	9.7	25.8	0.388	8.6	7.9
		Avg	61.5	26.4	8.2	21.2	0.356	7.2	6.4
		98th	69.2	30.6	9.7	25.2	0.383	8.6	7.9
6	Ketapar	Min	49.5	19.4	6.0	14.0	0.278	5.4	4.8
		Max	63.9	27.5	9.2	19.9	0.376	7.9	6.9
		Avg	56.5	23.6	7.6	16.4	0.319	6.7	5.9
		98th	63.4	27.2	9.0	19.5	0.372	7.8	6.8
7	Alesar	Min	59.5	25.7	7.0	14.8	0.314	5.2	5.5
		Max	71.6	33.0	10.4	23.5	0.423	9.8	9.1
		Avg	65.3	29.1	8.7	18.8	0.373	7.8	7.3
		98th	71.5	32.5	10.3	22.5	0.419	9.8	8.8
8	Gondkhari	Min	66.4	29.0	8.8	21.0	0.380	7.0	5.4
		Max	88.4	41.0	15.9	31.1	0.419	9.6	9.2
		Avg	74.5	34.9	13.2	27.5	0.402	8.5	7.6
		98th	86.5	40.6	15.9	31.1	0.417	9.6	8.9
9	Surabardi	Min	57.6	22.7	9.3	15.6	0.351	6.1	4.5
		Max	76.7	32.1	13.8	23.1	0.387	8.4	7.6
		Avg	64.7	27.3	11.5	20.4	0.371	7.4	6.3
		98th	75.0	31.8	13.6	23.1	0.385	8.4	7.4
10	Khapri	Min	44.5	17.4	5.8	12.7	0.270	5.1	4.4

Sr. No.	Location		PM_{10} µg/m³	$PM_{2.5}$ µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH_3 µg/m³
		Max	60.6	24.3	8.5	20.3	0.319	7.4	6.8
		Avg	53.1	20.5	7.2	16.7	0.293	6.2	5.5
		98th	59.7	23.7	8.5	19.8	0.315	7.4	6.8
11	Sahuli	Min	47.2	23.5	6.7	8.8	0.280	5.3	5.5
		Max	59.8	28.7	8.3	12.1	0.328	7.7	7.0
		Avg	54.7	26.2	7.5	10.4	0.305	6.8	6.3
		98th	59.7	28.5	8.2	12.0	0.327	7.7	7.0
12	Drugdhamna	Min	50.9	22.6	7.1	13.9	0.373	6.2	5.7
		Max	62.0	32.1	10.0	17.6	0.435	8.7	8.2
		Avg	57.3	28.1	8.3	15.6	0.412	7.5	6.9
		98th	61.9	32.0	9.8	17.5	0.435	8.7	8.1
CPCB Standards			**100 (24hr)**	**60 (24hr)**	**80 (24hr)**	**80 (24hr)**	**2 (8hrs)**	**100 (8hr)**	**400 (24hr)**

From the above results, it is observed that the ambient air quality with respect to PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, Ozone and NH_3 at all the monitoring locations was within the permissible limits specified by CPCB.

3.2 AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 8 monitoring locations; these eight (8) locations were identified based on the activities in the village area, traffic and sensitive areas like hospitals and schools. The monitoring results are summarized in **Table 4.**

TABLE 4: SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq_{Day}	Leq_{Night}
Residential Area			
•	Ketapar	53.9	41.3
•	Khapri	54.7	42.6
•	Alesur	51.2	39.7
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
•	Gondkhairi	62.5	47.2
•	Surabardi	59.8	43.7
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
•	Kalambi – Pratap High School	46.7	37.4
•	Somalwad School Waddhamna	48.1	39.2
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
•	Project site- Nr. Alesur Lake Farm House	51.5	38.3
CPCB Standards dB(A)		**75.0**	**70.0**

Source: *Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur*

The overall ambient noise quality with respect to various zones was found to be within prescribed limits by CPCB.

3.3 SURFACE AND GROUND WATER RESOURCES & QUALITY

Site Specific Geology

Project area consists of basalt; Cherty Limestone and soil cover which is having thickness of around 1.0-1.5m. Outcrops are very rare in project site. The Gondkhari block covered by a thick layer of Deccan trap followed by a blanked of Kamthis. Structurally Gondkhari block is moderately complicated. The major faults have a trend of NW-SE i.e. sub parallel to the strike of beds.

Site Specific Hydrogeology

Entire study area is comprises of basaltic rock formations of cretaceous age belongs to Deccan trap formation. The primary porosity and permeability of these formations is very poor. The ground water in these formations occurs in fractured zone and joints. The weathered part and fractured zones constitute the aquifers in the area.

Depth to water level scenario in the study area:
Pre-monsoon Water levels- 4.5 to 9.5 m bgl
Post-monsoon water levels: 1.5 to 5.2 m bgl

Water Quality

The existing status of groundwater and surface water quality was assessed by identifying 16 water samples, 8 ground water and 8 surface water sampling point from different villages & water bodies, respectively.

A. Groundwater Quality

The physico-chemical characteristics of groundwater are analysed and compared with the IS-10500 standards. The analysis results indicate that the pH ranged 7.03 – 7.61. The TDS was ranging from 348 – 786 mg/l. Total hardness was found to be in the range of 210.63 – 478.05 mg/l. The fluoride concentration was found to be in the range of 0.14 – 0.29 mg/l. The nitrate and sulphate were found in the range of 9.62 – 18.59 mg/l and 9.62 – 24.01 mg/l respectively. The chloride concentration was found in the range of 39.82 to 209.81 mg/l. The Total suspended solid concentration was found below detection limit (DL -10mg/l) at all sampling location. Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.13 to 0.24 mg/l.

Sr. No.	Locations	WQI	Quality	Remark
1	Project site	60.77	Good	**Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good.**
2	Kalambi	72.21	Good	
3	Ketapar	79.96	Good	
4	Khapri	67.48	Good	
5	Alesur	52.33	Good	
6	Gondkhari	86.04	Good	
7	Surabardi	50.69	Good	
8	Waddhamna	70.09	Good	

B. Surface Water Quality

The physico-chemical characteristics of the surface water samples collected and analysed are analysed and are compared with the IS-10500 standards. The analysis results indicate that the pH ranged between 7.12 – 8.37 which is well within the specified standard of 6.5 to 8.5. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 381 – 1100 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 211.95 – 712.19 mg/l as CaCO3 which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 58.6 – 240.8 mg/l and 9.28 – 57.61 mg/l respectively.

Dissolved oxygen (DO) refers to the amount of oxygen (O2) dissolved in water. Because fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. The reported value of range of 5.1 – 6.3 mg/l. Phosphorus (as PO4) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. PO4 concentration was found to be in the range of 0.36 – 0.62 mg/l. COD ranges from 26 – 88 mg/l and BOD ranges from 3.6 – 17.3 mg/l.

Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.21 to 0.61 mg/l.

C. Bacteriological Contamination

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

3.4 LAND USE LAND COVER CLASSIFICATION

The land-use & land cover map of the 10 km radial distance from the periphery of project site is prepared and the details are present below:

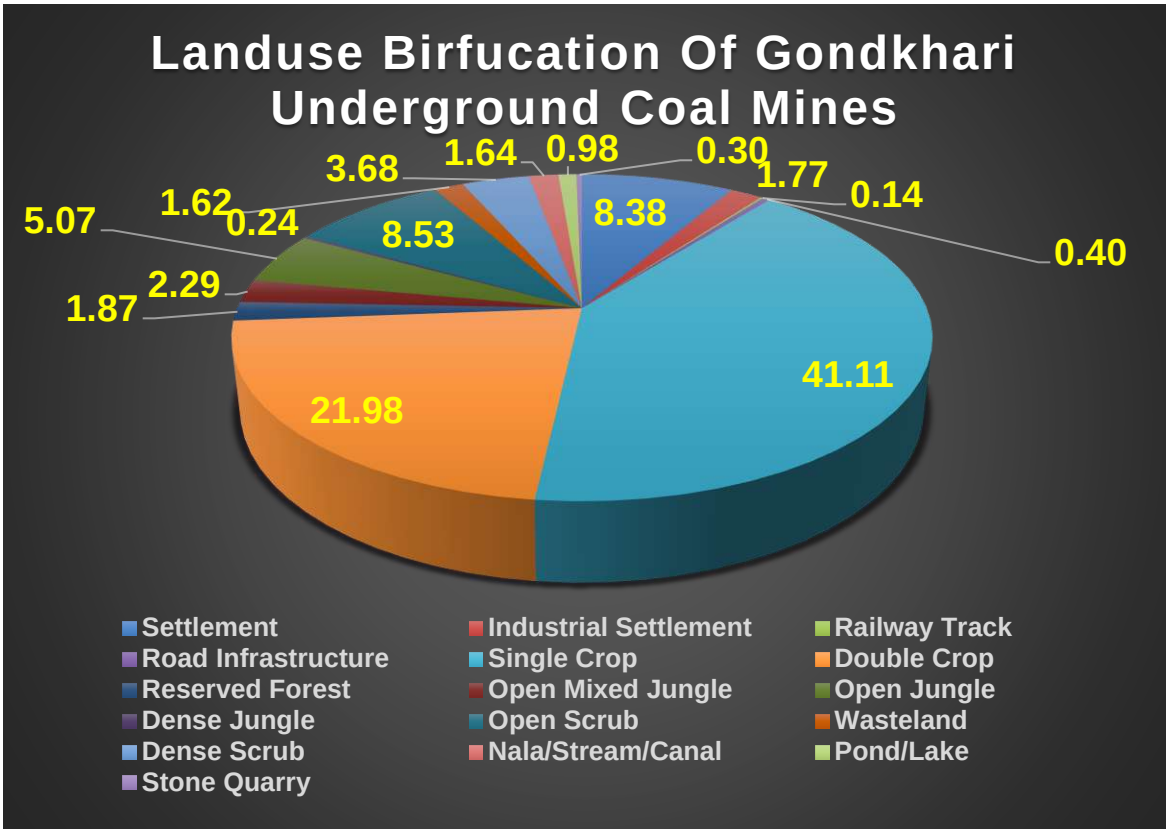


FIGURE 4: PIE CHART DISTRIBUTION OF THE LU/LC CLASSIFICATION WITHIN 10 KM RADIUS

The Land Cover classes and their coverage are summarized in **Table 5.**

TABLE 5: LU/LC CLASSES AND THEIR COVERAGE WITHIN 10 KM RADIUS

Sr .No.	Level-I	Level-II	Area (Sq. Km)	Percentage (%)
1	Built-up land	Settlement	38.03	8.38
		Industrial Settlement	8.02	1.77
		Railway track	0.63	0.14
		Road Infrastructure	1.80	0.40
2	Agricultural Land/ Crop Land	Single Crop	186.52	41.11
		Double Crop	99.72	21.98
3	Forest	Reserved Forest	8.47	1.87
		Open Mixed Jungle	10.41	2.29
		Open Jungle	22.99	5.07
		Dense Jungle	1.09	0.24
4	Scrubs/ Wastelands	Open Scrub	38.72	8.53
		Waste Land	7.37	1.62
		Dense Scrub	16.72	3.68
5	Waterbodies	River/Nala/Stream/Canal	7.43	1.64
		Pond/Lake/reservoir	4.45	0.98
6	Mines Area	Stony Waste	1.37	0.30
		Total	**315.28**	**100**

3.5 SOIL QUALITY

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the project site representing various landuse conditions. The physical, chemical and heavy metal concentrations were determined. The samples were collected by ramming a core-cutter into the soil from 15 cm up to a depth of 60 cm.

Physical Characteristics of Soil

From the analysis results of the soil samples, it was observed, the bulk density of the soil in the study area ranged between 1.498 to 1.643 g/cc which indicates favourable physical condition for plant growth. The water holding capacity is between 14.93 - 21.21%. Infiltration rate, in the soil is in the range of 18.37 – 22.15 mm/hr.

Chemical Characteristics of Soil

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. pH is found to be acidic (5.34 – 6.57) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 210 – 792 µS/cm.

The important water soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 229.5 – 825 mg/Kg and 234.72 – 417.12 mg/Kg respectively. Chloride is in the range of 107.2 – 161.5 mg/Kg.

The available concentration of major nutrients fertility status of soil with respect to NPK value is found to be in the range of 116.80 – 297.0 kg/ha (quality good to better), 13.01 – 40.15 kg/ha (quality less to medium) and 120.32 – 358.47 kg/ha (quality less to better) respectively. Organic carbon was found in the range of 0.22% – 0.67% (quality less to an average sufficient).

3.6 BIOLOGICAL ENVIRONMENT

Floral Biodiversity of the Study Area

As per the bio-geographical classification, the project area comes under Bio-geographic province (6D) Deccan Peninsula-Central Plateau region. Whereas, as per Champion & Seth, 1968 vegetation types of the area grouped as Tropical Dry Deciduous Forest.

Marginal vegetation observed on ML site like *Butea monosperma* (Palash), *Tectona grandis* (Teak), *Acacia sp.*, *Maytenus emarginata* (Bharati), *Lantana camera* (Ghaneri) and *Hyptis suaveolens* (Rantulsi), *Calotropis procera* (Rui), etc. Some upper story trees are found on the banks of nala crossing over within the ML area and the central northern part of the ML area.

Total 133 floral species were observed in the study area. The details about the floral composition are as follows.

a. **Trees:** Total 66 species were found in the study area.

b. **Shrubs:** Total 25 species were enumerated from the study area.

c. **Herbs:** In the study area 16 species were observed.

d. **Grasses:** Total 12 species were enlisted from the study area

e. **Climbers:** 12 species of climbers were recorded in the study area.

f. Parasite: 02 species enlisted in the study area.

RET (Rare, Endangered and Threatened species) STATUS

Among the enumerated flora in the study area, none of them were assigned any threat category, by RED data book of Indian Plants. (Nayar and Sastry, 1990) and Red list of threatened Vascular plants (IUCN, 2010; BSI, 2003).

Endemic Plants of the Study Area

De Candolle (1855) first used the concept of "Endemic", which is defined as an area of a taxonomic unit, especially species which has a restricted distribution or habitat, isolated from its surrounding region through geographical, ecological or temporal barriers. Among recorded plant species none were assigned the status of endemic plant of this region.

Fauna of the Study Area

The 10 km radius study area was found to be a home to several species of mammals, reptiles, aves and other lower invertebrates. As described earlier, the part of study area covered forest. The big animals like Wild boar, Sabhar, Nilgai, Barking deer, Spotted deer as well as small sized fauna like Jackal, Monkey, Fox, etc. were found abundantly in the Bazargaon and Madhogarh Reserve Forest area. Birds were observed throughout the study area mostly near the forest area water bodies and agriculture fields. Amphibians were also observed in the study area. Fresh water fishes were found in the Vena river and water reservoir.

- **As per IUCN RED (2013) list**

- The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.
- Among the reported animals, *Rusa unicolor* (Sambar) is categorized as Vulnerable (VU) whereas Bengal monitor lizard (*Varanus bengalensis*) is categorized as Near Threatened (NT) category as per IUCN. Rest of the animals is categorized under Least Concern (LC) category as per IUCN.

• As per Indian Wild Life (Protection) Amendment Act, 2022

Wild Life (Protection) amendment Act, 2022, as amended on 20th December 2022, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Some of the sighted fauna were given protection by the Indian Wild Life (Protection) amendment Act, 2022 by including them in different schedules.

Among mammals; Common Mongoose (*Herpestes edwardsi*), Jackal (*Canis aureus*) Jungle cat (*Felis chaus*), *Rusa unicolor* (Sambar) are protected in schedule – I. While, Hanuman/Common Langur (*Presbytis entellus*), Wild Boars (*Sus scrofa*) and Indian hare (*Lepus nigricollis*) are provided protection by incorporating them in schedule–II whereas Rats Bat and Squirrel species which are found in the study area dose not included in any schedule of the Wild Life (Protection) amendment Act, 2022.

Among the herpetofauna, Bengal Monitor Lizard (*Varanus bengalensis*), Indian Cobra (*Naja naja*), Russell's Viper (*Daboia russelii*) and Common Rat Snake (*Ptyas mucosus*) were provided protection as per Schedule - I of Wild Life (Protection) amendment Act, 2022 and Common Indian Krait (*Bungarus caeruleus*) and Indian Toad (*Duttaphrynus parietalis*) were provided as per Schedule – II of Wild Life (Protection) amendment Act, 2022.

Among the Avifauna in the study area Indian peafowl (*Pavo cristatus*) and Shikra (*Accipiter badius*) are protected in schedule –I. While rest of the birds are included in schedule II as per Wild Life (Protection) amendment Act, 2022.

3.7 SOCIO-ECONOMIC ENVIRONMENT

Details of Demographic Details

TABLE 6
POPULATION DETAILS IN STUDY AREA

Zones	Total household	Total Population	Total Male	Total Female	Total 0-6 child	Total SC	Total ST	Population Literate	Population Illiterate
0-2 km	2689	11180	5820	5360	1347	2103	810	8557	2623
2-5km	7562	32420	16806	15614	3772	8575	2881	24922	7498
5-10km	58243	248458	129240	119218	28190	44827	20898	192616	55842
10km	68494	292058	151866	140192	33309	55505	24589	226095	65963
In %	4.26		52.00	48.00	11.40	19.00	8.42	77.41	22.59

Source: Primary census abstract 2011, State Maharashtra.

Details of sex ratio in the study area

As per census record 2011 sex ratio is the ratio of female to male in the population (normalize to 1000). The sex ratio in the study area showed unevenly distributed trends. Overall sex ratio is 925 female to thousand male. Child 0-6 sex ratio was 935 female to 1000 male. In SC category 946 female and ST category 943 female to 1000 male.

Details of employment pattern

Employment and main worker employment pattern in the study area is given in **Table 7**

TABLE 7
EMPLOYMENT & MAIN EMPLOYMENT PATTERN IN THE STUDY AREA

	Breakup of Total Employment		Breakup of total Workers		Breakup of total Main Worker			
Zones	Total Workers	Total Non-Workers	Total Marginal Workers	Total Main Workers	Cultivators	Agricultural Workers	Household Industry Workers	Main other Workers
0-2km	4749	6431	416	4333	710	1843	60	1720
2-5km	13108	19312	1446	11662	1093	2508	203	7858
5-10km	104853	143605	12422	92431	15411	28051	2030	46939

10km	122710	169348	14284	108426	17214	32402	2293	56517
In%	**42.02**	**57.98**	**4.89**	**37.12**	**5.89**	**11.09**	**0.79**	**19.35**

Source: Primary census abstract 2011, State Maharashtra.

Infrastructures facilities

INFRASTRUCTURE FACILITIES

Infrastructure facilities	**Availability (In percentage) As per year 2011, Census Nagpur**
Educational Facilities	95
Drinking water	97
Road	97
Power	95
Communication	94
Transportation	90
Govt. PHC & SC	20
Bank & Society	65
Drainage	73
Recreation	13

Salient Observations Of The Survey / Study Area

Education:
Government Pre Primary, Govt Primary, Private Primary, Govt Middle, Private Middle and Govt Secondary Schools are available in this Village. Nearest Govt Engineering College and Govt Medical College are in Hingna. Nearest Govt Disabled School, Govt Arts and Science Degree College, Govt MBA College, Govt Polytechnic College and Govt ITA College are in Nagpur.

Health:
Primary Health care centre , 1 Primary Health Sub-Centre , 1 Maternity And Child Welfare centre , 1 TB Clinic , 1 Modern Hospital , 1 Veterinary Hospital , 1 Family Welfare centre , 2 Medical Shops are available in this village.

Agriculture:
Pipe Factory is Product Manufactured in this village. Total irrigated area in this village is 639 hectares from Boreholes/Tube wells 236.2 hectares is the Source of irrigation.

Drinking-Water and Sanitation:
Tap Water Supply all round the year. Covered Well, Uncovered Well and Hand Pump are other Drinking Water sources.

Open Drainage System Available in this Village. There is system to collect garbage on street. Drain

water is discharged directly into water bodies.

Communication:
Post Office is available in this Village. Landline and Mobile Coverage is also available. Internet Centre available in this village. Private Courier Facility available in this village.

Transportation:
Public Bus service available in villages. Private bus service is also available in these villages. There is no Railway Station in less than 10 km. Autos Available in this Village. National Highway passes through this village. No Nearest State Highway in less than 10 km. District Road passes through this village. Pucca road, Kuccha Road, Macadam Road and Foot Path are other Roads and Transportation within the village.

Commerce:
Commercial Bank available in villages. Cooperative Bank available in this village. Agricultural Credit Society, Mandis/Regular Market, Weekly Haat/santha and Agricultural Marketing Society are available in this village.

Other Amenities:
Villagers get Power supply with 20 hour in summer and 22 hour power supply in winter, Anganwadi centre, ASHA, Birth & Death registration office, Sports facilities, Cinema Theater in village or near by, Public library, Daily News Paper and Polling station are the other amenities in the village.

3.8 QUALITY OF LIFE

The quality of Life is best described in relation to the public amenities avail to resident population. Gondkhari is a Village in Kalmeshwar Taluka in Nagpur District of Maharashtra State, India. block is approachable by an all-weather Zilla Parishad tar road starting from NH-6 and is located about 20 Km West from Nagpur city. It lays just North of NH-6. Kalmeshwar township is at a distance of about 8 Km towards North of the block while Nagpur city is about 20 Km on the East. The Nearest Railway station is Kalmeswar which is at a distance of 10 Kms. The nearest Airport is Nagpur which is at a distance of about 20 km from the block. Governement Pre Primary, Govt Primary, Private Primary, Govt Middle, Private Middle and Govt Secondary Schools are available in this Village. Nearest Govt Engineering College and Govt Medical College are in Hingna. Nearest Govt Disabled School, Govt Arts and Science Degree College, Govt MBA College, Govt Polytechnic College and Govt ITA College are in Nagpur. 1 Primary Health care centre , 1 Primary Health Sub-Centre , 1 Maternity And Child Welfare centre , 1 TB Clinic , 1 Modern Hospital , 1 Veterinary Hospital , 1 Family Welfare centre , 2 Medical Shops are available in this village. Pipe Factory is Product Manufacturer in this village. Total irrigated area in this village is 639 hectares from Boreholes/Tube wells 236.2 hectares is the Source of irrigation. Public Bus service available in villages. Pucca road, Kuccha Road, Macadam Road and Foot Path are other Roads and Transportation within the village. Tap Water Supply allround the year. Covered Well, Uncovered Well and Hand Pump are other Drinking Water sources.Open Drainage System Available in this Village. There is system to collect garbage on street. Post Office is available in this Village. Landline and Mobile Coverage is also available. Internet Centre available in this village. Private Courier Facility available in this village. Commercial Bank available in villages. Cooperative Bank available in this village. Agricultural Credit Society,

Mandis/Regular Market, Weekly Haat/santha and Agricultural Marketing Society are available in this village. Villagers get Power supply with 20 hour in summer and 22 hour power supply in winter; Anganwadi centre, ASHA, Birth & Death registration office, Sports facilities, Cinema Theater in village or nearby, Public library, Daily News Paper and Polling station are the other amenities in the village.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 IDENTIFIED IMPACTS DURING CONSTRUCTION PHASE AND PROPOSED MITIGATION MEASURES

Table 4.1. Impact during Construction Stage

Construction Stage	Activity	Potential Environmental Impact
a) Pre-construction Activities	i) Soil investigation ii) Environmental monitoring	Negligible Negligible
b) Site work / other facilities	i) Cleaning and grading	Negligible
	ii) Temporary facilities, such as, sheds, approach roads, sanitary facilities	Dust emission and change in traffic intensity
	iii) Earth work comprising of excavation, garlanding and tranches	Soil erosion, run off, increase in traffic, Dust emission
	iv) Foundation work, pilling and drainage system or construction of check dams	Dust, visual and noise pollution
	v) Construction of roads	Dust and noise pollution
	vi) Equipment erection and utility systems	Dust, noise and visual impact

Continuous water spraying arrangements are made to minimise dust level to a large extent. The effect due to construction stage is however, of temporary nature and will have no permanent impact on environment.

4.2 IMPACT AND MITIGATION MEASURES DURING CONSTRUCTION AND OPERATION PHASE

Impact on topography and Land Environment

Subsidence due to total extraction of coal may cause changes in topography by developing micro basins, subsidence fractures, ridges, pot holes etc.

Care will be taken during mining activity to leave enough pillars in underground as barriers below water body to avoid any damage to surface water bodies.

Large-scale excavations are the basic causes for impact on land use.

Mitigation Measures:

- Various barrier buffers are created as per the criteria for lease boundary, river/nalas, public roads, rail and shafts in consultation with mines as per existing norms.
- The waste generated from the mine development shall be transported and dumped separately to waste dump area within the Mine Lease area.

- The greenbelt will be developed on the non-moving waste dumps, which will improve the stability of the dump and aesthetics of the area.
- The Underground workings of the mine are well ventilated by adequate ventilation arrangements. The requirements and standards specified in this regard by Director General of Mines Safety (DGMS) would be adhered.

After exhaustion of the total workable coal reserves, within the lease area, the changed land forms will be subjected to post mining reclamation activities, for best possible land uses.

Impacts on Air Quality

The mining activities are restricted to underground only; there will not be any significant impact on surface air quality. However, the mine exhaust contains minor percentage of methane and CO_2, which are easily diffused in the ambient atmosphere. The mine is provided with online sensors for monitoring the concentrations of CO and methane within the mine. The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time (45 Ton dumpers). These movements of trucks are expected to contribute to oxides of nitrogen, carbon monoxide and particulate matter.

Mitigation Measures

- All the vehicles used for transportation of coal shall be covered with tarpaulin to avoid dust pollution.
- With stringent traffic management system within the coal mine lease area, scope for air pollution due to movement of coal transports will be minimized. The layout of the project has generous area earmarked for greenery development. This will act as effective media for arresting the emissions within the coal mine lease area.
- The vehicular traffic plying in and out of the project site is one of the significant sources of air pollution. If the site is not properly regulated, it can create disruption in free traffic movement leading to air pollution problems. This difficulty can be tackled to a great extent by properly regulating the traffic and by following strict and disciplined vehicular movement and operation at the project site. By imposing vehicular emission standards, this problem can be further curbed to a large extent.
- BS-6 trucks/dampers will be used for the transportation of coal.
- GPS tracking and speed monitors shall be installed in the Vehicles
- The Trucks which are found to have Pollution under Control Certificates only will be allowed. Every other vehicle used in the plant even for passenger transport will be checked for Pollution under Control at the prescribed frequency.
- Adequate and planned road network will be set up at the project site for smooth movement of the goods vehicles.
- It would be ensured that all the vehicles plying in the working zone are properly tuned and maintained to keep emissions within the permissible limits. At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will be minimized further.
- All the internal roads within the plant are metaled; hence dust arising from the internal roads will be insignificant. The greenbelt development shall further help in reduction in fugitive emissions.

4.1.1 Impacts on Ambient Noise Levels and effect

As the mining operations will be carried out in underground, there will be no significant impact on the ambient noise levels. The only activity affecting the noise level could be due to surface mine ventilation fan. But due to isolation around the fan house not envisaged any adverse noise level to any extent. Hence, no tangible impact is assessed on the ambient environment near the pits.

Significant noise could get generated from drilling, cutting of coal, screening and its handling. But all these are confined to the specific area, which are enclosed. It does not have much impact on the ambient noise since all these operations are carried out under proper enclosures.

It can be further concluded that in actual conditions due to presence of various topographical features in the path of sound propagation the noise levels will be further attenuated.

The damage risk criteria as enforced by OSHA (Occupational Safety and Health Administration) to reduce hearing loss, stipulates that noise level up to 90 dB (A) are acceptable for 8 hrs working shift per day.

Mitigation Measures

1. Designing inherently quiet mining equipment is also included in this technique which aims to control and reduce noise emission. The preferred cost effective system for the underground mining has been the personal protective system ear muffs for the operator of the noise producing units.
2. As the mining operations will be carried out in Underground, there is no significant impact on the surface noise levels. The only activity affecting the noise level could be due to surface mine ventilation fan.
3. The noise generated by equipment can be reduced by proper maintenance. Also low-noise level generation design will be stipulated, as a necessary specification while purchasing equipment.
4. Regular noise monitoring will be carried at project site to check compliance with prevailing rules.
5. Personal Protective Equipment's (PPEs) like ear plugs/ear muffs are provided.

Ground Vibration due to Mining Operation

Large scale mining operation may cause ground vibration due to use of machinery below ground level such as deployment of mobile equipment, rock bursts and rock bumps. This vibration may cause structural damages, the vibrations by the mechanical effects act on existing rocks and subject them to tensile, compressive and shearing stresses which spoil their mechanical characteristics with an immediate consequence and may cause structural damages.

Vibration Control Measures

To control ground vibration while mining the method of mining is chosen based upon the lithological strata of the area duly supported by physical properties of the rock formations. There is no drilling and blasting envisaged while mining. Hence ground vibration will be minimum due to mining operation.

4.1.1 Impact on Water Environment

The underground mining is going on as development and depillaring in II seam, III seam, V seam and VIII seam. Due to the mining operation Groundwater depletion will occur. Alesur Lake and Surabardi Lake are present in lease area which will fulfil surface water requirement for the project. Water from

water bodies on surface and below ground aquifers, tends to seep through strata and reach mine workings. Stowing water is also a major source of water entering the mine working. These require regular pumping of water out of this mine. In instant case, since all depillaring will be done with hydraulic sand stowing, danger of monsoon precipitation percolating into U/G working, through subsided areas, gets greatly controlled. However, surface jores & streams need attention for management of surface water to prevent its entry into the mine. The stowing water has to be regularly pumped out in addition to seepage water. There are two sources of inflow of water into Mine workings are one is from development of inclines and another one is from fault zones during mining operation. The water pumped out from the mine, contain coal fines. It needs sedimentation, before its use and its discharge into natural water course/ open land. Large Environmental Impact Assessment for the Proposed Underground Coal Mine settling ponds will be developed, for storage and sedimentation of mine water before its discharge/uses; to conform to the effluent standards as prescribed by water consent conditions, issued by SPCB. The excess mine water, if any, is discharged into nearby tanks & can be used by local villagers for agricultural purpose. This will also augment recharge of the ground water regime near the villages. Routine analysis of effluents, once in fortnight, has been scheduled.

Water Pollution Control Activities and Mitigation Measures

- The water withdrawal through pumping during mining operations contains coal fines that need to be settled before discharge in natural water courses or on open land to avoid contamination of natural water bodies. Further, the water quality will confirm the effluent standards as prescribed by the CPCB and MPCB.
- The mine water will be utilised for underground stowing purposes and recycled; any excess water overflows from the tank after sedimentation occurs. Some of the water will be used in green belt development within 2 Ha of land area. Effluent treatment plant will be provided at workshop for water treatment. Further, gradient flow will be maintained thus, surface run-off will also diverted to the ponds to ensure that no waste-water is released untreated.
- The excess mine water, if any, is discharged into nearby tanks & can be used by local villagers for agricultural purpose. This also augments recharge of the ground water regime near the villages. Periodic analysis of effluents, once in month will be carried out.
- Effluent treatment plant having oil & grease trap facility will be provided at workshop area. The treated water is reused back in workshop. Domestic waste water will be treated in STP and treated domestic water will be used in green belt development as well as dust suppression.

4.1.1 Impact of hazardous wastes and liquids

There is no mineral processing involved in Gondkhari Coal Mine. Marginal quantity of spent oil and grease generated from mine machinery will be separately collected and stored in leakage proof containers and will be sold to the authorized recycling vendors. No other hazardous wastes will be generated in the Gondkhari Coal Mine.

4.1.7.1 Solid Waste Generation and Management

The generation solid waste in proposed UG mine is significantly less low than opencast mining project. The details of solid waste are as under:

❖ **Solid Waste Generation and its disposal**

The solid waste generated from the proposed project during incline drivages and shaft sinking in the sub-soil and hard rocks for mine entries and also from drivages of cross-cuts in hard rock is estimated to be about 127000 Cum of solid waste. The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation bank head and filling of low lying areas, development of the land for infrastructure and development of greenery. The solid waste generated from colonies and service buildings shall be dumped in the low-lying areas and suitable plantation will be done over it.

❖ **Municipal Solid Waste Generation and Disposal**

The municipal wastes in the form of trash, garbage, food waste, waste papers and card board, etc. expected to be generated is 50 kg/day during construction activities and 170 kg/day during operation phase. Solid wastes generated will be properly collected, segregated and reused / disposed off appropriately as per Solid Waste Management Rules, 2016 as amended.

❖ **Hazardous Waste Generation and Disposal**

Spent oil and lubricants (approx. 5 KL/Year) will be generated and it will be disposed as per Hazardous and other Wastes (Management and Trans boundary movement) Rules, 2016. It will be given to authorised recyclers. Used Batteries and other electronic wastes to be given to authorized re-processors.

4.2 Biological Environment

Aspect - Impact identification and mitigation measures suggestion

S. No.	Project Aspects / Activities	Impacts	Mitigation Measures Suggested
1	**Site Preparation:** Construction Phase Activity: development of shaft and inclined/underground entry, infrastructure within 18 ha of non-forest land Aspect: Removal of vegetation	**Impact:** Loss of vegetation in the form of shrubs (780 Nos./Ha.) and seasonal herbs (940 Nos./Ha.) No significant trees observed (Trees appears stunted and crooked manner due to anthropogenic activities having density 45 Nos./Ha.)	**Construction Phase:** The overall biological environment study revealed that, it is an underground mine project so the impact of the project would be minimum or significantly low and therefore net loss of biodiversity or long-term degradation of the receiving environment not envisaged. Ecosystem Services report is prepared and mitigation measures will be implemented accordingly. Greenbelt will be developed within 2 ha.
2	Transportation and mining activities	**Operation Phase:** No protected area was observed within core or buffer zone. Impact studies due to transportation and mining activities on forest land 87.351 ha within core area.	**Operation Phase:** The total UG ML area is 862 ha. Out of 87.351 ha is forest land having multiple small scattered forest patches. However, mining has been planned below the entire forest land. There will be no disturbance in the forest land as well as the legal status of forest land remains unchanged. Traffic management plan based on traffic studies will be implemented.
3	Land subsidence	Impact of mining activities on forest land due to land subsidence	Land subsidence study conducted by IIT, Kharagpur, mining has been planned below the entire forest land. The largest magnitude

S. No.	Project Aspects / Activities	Impacts	Mitigation Measures Suggested
			of predicted subsidence is 2.158 m corresponding to a tensile strain induced due to mining activity below the forest area. However, no significant subsidence is envisaged in the forest area.
4	Air emission	Impacts of mining activities on nearby vegetation and cropland is anticipated	Some air emission causes disease in plants, the effects of air emissions on nearby vegetation and crop lands are not likely to be injurious and noticeable as the pollutant's concentrations are expected to be well below the prescribed standards.
5	Ecological Changes	Impacts on movement of faunal species in the core and buffer zone of proposed underground mining.	No REET species observed with Core area. Futher, the mining operation is underground, thus insignificant impact on local fauna is anticipated.
6	Conservation Measures to maintained local bird diversity within mining areas.	Scarcity of food and water for local birds during summer season anticipated.	It is recommended artificial nesting boxes, bird feeders and hanging earthen pot/dishes to fill water during summer season.

4.3 Socio-Economic Environment

Impacts:

- Change in population density and diversity through the immigrants may cause certain adverse social changes in the region. Also, social security problems may increase in the community due to influx of population.
- Reduction in groundwater availability for domestic or local business purposes, irrigation purposes.
- Community annoyance from coal dust deposition.
- There will be an increase in number of vehicles for transportation of the existing road network due to the proposed project. Thus chance of traffic congestion or chance of accident cannot be ruled out among the vehicles and also with the boundary wall of factory premises.

Mitigation Measures

In order to mitigate the adverse impact likely to arise in social, cultural and economic aspects in the surrounding region due to the proposed project and improvement in quality-of-life following mitigation measures should be adopted:

- Total 863 persons will be benefited in terms of direct employment due to the proposed project. During regular operations indirect unskilled employment will also be generated as helpers for maintenance.
- Preference for direct/contractual employment will be given to the locals based on their skills and aptitude. Social development program will be conducted as the part of CER.

- Traffic management plan will be implemented to avoid road accident.
- Equipment will be regularly maintained to ensure that it is in good working order.

- Priority should be given to safety aspects such as use of PPE's, safe working conditions, observance of traffic rules etc. to avoid accidents.

5.0 ANALYSIS OF ALTERNATIVE TECHNOLOGY AND SITE

The mining project is site-specific, thus no alternate sites were considered. Underground coal mining methods can be classified into four distinct categories as Room-and-Pillar, Longwall, Shortwall, and Thick-seam. The minimum depth of occurrence of coal seam is 135m while the maximum is beyond 400m. These conditions rule out open cast mining as the minimum depth of the coal seam is beyond 135. The other alternative is underground mining only. The coal block of proposed project having more than 1000m wide and 5000m length; which cause Longwall mining method is proposed for excavation.

The output is considered technically feasible due to mining by Longwall method because of the following conditions:-

- Gradient of 9^0 to 22^0 of the coal seams
- Multiple coal seams (4 of UG)
- Strike Length
- Thin coal seams (due to splitting)
- Variable thickness of OB/partings (High Strip Ratio)
- The minimum working height considered for LW operations is 1.20m and the barrier between 2 panels is 45m
- The face length of the LW panel is considered as 120m
- The gallery Dimensions for drivage is 4.5m width and height as depending upon the thickness of the seam up to maximum 3.50m.

6.0 ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell will be for implementation of the Environmental Management Plan and conducting periodic environmental monitoring of important and crucial environmental parameters to assess the status of environment regularly during mine operations. Environmental monitoring will be carried out for Ambient Air Quality, Water table depth, Water quality, Ambient Noise Levels, Soil Quality, etc. will be carried out through MOEFCC accredited agencies regularly and reports will be submitted to MPCB/MoEF&CC.

7.0 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the project has been estimated for hazards like fires, explosion, machinery failures, land sagging, inundation, spontaneous heating, mine gases, Subsidence, etc. and corresponding mitigation measures are suggested in the EIA/EMP report.

A detailed Disaster Management Plan for facing disasters due to natural effects and human reasons is prepared and incorporated in the EIA/EMP report for ensuring safety of life, protection of environment, protection of installation in this same order of priorities. For effective implementation of Disaster Management Plan, it is being widely circulated and personnel training rehearsals will be carried out through. Mitigation measures, Site facilities, procedures, Duties and responsibilities, Communications, etc. is considered in detail in the Disaster Management Plan.

8.0 PROJECT BENEFITS

M/s. APML envisage the social development programs that health care, educational facilities developed in the nearby area for the community, providing drinking water to the villages, building/strengthening of existing roads in the area. A CSR budget of 2% of Company's average net profits of the immediately preceding three years will be assigned by the company owing to the demand of the community.

- The project benefits also entail revenue earnings to national and state exchequer through GST, road tax, income by registration of trucks & trailers, income tax, corporate tax, etc.
- Adherence towards full compliance of Environmental Compliances.
- Thus result in –
  - ❖ Periodic Monitoring of environmental parameters,
  - ❖ Progressive Green Belt Development
  - ❖ No significant solid waste generation.

Thus, protection of environment by adopting pollution control measures and environmental conservation measures in and around the mining area result in improvement in surrounding environment as well as socio-economic aspects of the area.

8.1 EMP FOR SOCIAL ECONOMIC DEVELOPMENT (CER)

As per MoEFCC, New Delhi vide its OM dtd. 30th September 2020 a budgetary provision of Rs. 650 Lakhs is provided towards EMP for Socio economic Development. The detailed EMP for Socio economic development in terms of activities, physical target and timeline based on PH proceedings and / or from SIA accordingly now compiled and incorporated. The following budget provisions are provided

Sl.	Particulars	Physical Status	Dec 2023-Dec 2024	Dec 2024-Dec 2025	Dec 2025-Dec 2026	Amount to be spent for head (in Rs. (Lac))	Recurring Cost (in Rs. (Lac))
1	**Medical Facilities (OPD and Pathology centre)**	**Location: villages Gondkhari and Kalambi.** **Physical work:** Establishment of Ambulance Room and Health Centre, Free Medical camps and Medicine Distribute by hiring a MBBS doctor to treat patients in nearby 7 villages, Arrange Waterborne diseases camp and Cancer detection camps.	150	85	52	**287**	**28**

Sl.	Particulars	Physical Status	Dec 2023-Dec 2024	Dec 2024-Dec 2025	Dec 2025-Dec 2026	Amount to be spent for head (in Rs. (Lac))	Recurring Cost (in Rs. (Lac))
2	**Education Facilities at nearby villages**	**Location: Village - at ZP Primary School (old) gond Gondkhari and Surabardi Village.** **Physical Work:** Donation of computers, books, furniture to village schools, Construction of E-Class Room at Govt. School and Waiting Shed for Z.P. Primary School, Construction of 16 Toilets (06 Nos. for boys & 10 Nos. for Girls).	46	32	20	**98**	**06**
3	**Skill Development and Women Empowerment facilities**	**Location: Village- Gondkhairi, Surabardi, Kalambi ,Ketapar, Sahuli, Drugdhamna and Alesur.** **Physical Work:** Contribute to Direct Implementation in partnership with ITI and MSME, Involvement of women's in Mason training and breaking stereotypes, 7 Self Help Groups in eight villages and 155 women engage in the SHGs.	20	13	13	**46**	**08**
4	**Agricultural Facilities**	**Location: villages Gondkhari and Kalambi.** **Physical Work:** Donation of seeds, saplings, block plantation in village area, Plantation in school, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities, Construction of farm ponds for needy farmers, Training related to Modern Agricultural techniques to the farmers.	39	26	13	**78**	**06**
5	**Infrastructure Facilities**	**Location: Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur.** **Physical Work:** Strengthening/maintenance of village roads, Rain Water Harvesting at Community Area, Provision of Plantation and streetlights in Community Area, Provision Training for recycle SWM and Sale of	65	52	24	**141**	**10**

Sl.	Particulars	Physical Status	Dec 2023-Dec 2024	Dec 2024-Dec 2025	Dec 2025-Dec 2026	Amount to be spent for head (in Rs. (Lac))	Recurring Cost (in Rs. (Lac))
		recyclable waste to scrap merchants.					
		Capital Expenditure =	**320**	**208**	**122**	**650**	**58**

9.0

9.0 ENVIRONMENTAL COST BENEFIT ANALYSIS

Total Benefits (As per Estimation of benefits of Forest Diversion) = **Rs.15766.98 Crores**;
Total Cost (losses of forests + Cost of the Project) = **Rs. 00.00 + 1303 = 1303.00 Crores.**
Hence, **Benefit/ Cost Ratio =15766.98/1303 = 12.10**
Thus, the project gives positive Benefit/ Cost Ratio. The monetary returns of the Project are positive over the environmental losses.

10.0 ENVIRONMENTAL MANAGEMENT PLAN

The project cost of Proposed UG coal mine of M/s. Adani Power Maharashtra Ltd. is of **Rs. 1303 Cr.** The budgetary provision under EMP towards Capital Cost of Environmental Management plan is of **Rs. 32.585 Cr.** and Recurring Cost of **Rs. 4.17 Cr.** The detailed account of the estimates is presented in **Table 12.** The company will also comply with its obligation for CSR as per Company's Act too, in addition to the above EMP budget.

TABLE 12: BUDGET ESTIMATION FOR ENVIRONMENTAL MANAGEMENT PLAN

Sr. No.	Particulars	Proposed EMP Cost (Rs. In Cr.)	
		Capital Cost	Recurring Cost
1	Waste Water Management, Sedimentation Tank including Wheel Washing System	0.75	0.5
2	Water spraying costs in underground and surface	0.25	0.2
3	Air Quality Management, (Dry fog Dust suppression system)	1.6	0.3
4	Implementation of Solar Light	0.2	0.1
5	Greenbelt Development including biological conservation plan	11.485*	0.18
6	Solid Waste Management	0.45	0.02
7	Environment Monitoring and Management (including Installation of CAQMS)	2.0	0.25
8	Restoration of Landuse for Infrastructure (Dismantling of structure)	5.20	0.02
	Additional Studies		
9	Soil Conservation Plan and Pond (Water Bodies) Rejuvenation and Conservation Activities	4.15**	0.10
10.	Maintenance of Existing Road Facilities as per requirement	-	2.50
11	Budget for addressing public hearing concerns	6.50	0.00
Total		**32.585**	**4.17**

11.0 CONCLUSIONS

The proposed Gondkhari Coal Mine (Lease area: 862.00 Ha) project of M/s. APML, will be beneficial for the development of the nearby villages in terms of enhancement of livelihood, employment and revenue generation which eventually gives a boost to the regional growth and industrialization. Further improvement in infrastructure will take place like education, roads, availability of drinking water, medical facilities and growth of allied in adjacent villages. There will be no significant pollution of air, water, soil and noise since the mining method is underground. Some environmental aspects like dust emission, noise, siltation due to surface run-off, etc. will have to be controlled within the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like water sprinkling, plantation, personal protective equipment's, etc., will form regular practice in the project. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of thick green belt and plantation within mine lease area and along transport road, adoption of rainwater harvesting in the mine and in nearby villages, etc. will be implemented. The CSR measures to be adopted by the mine management will improve the social, economic status of the nearby villages.

The overall impacts of the proposed underground mine will be positive and will result in overall socio-economic growth of nearby villages.

12.0 DISCLOSURE OF CONSULTANTS

The Environmental studies for Proposed Gondkhari Underground Coal Mine of M/s. Adani Power Maharashtra Limited (APML) are carried out by M/s Anacon Laboratories Pvt. Ltd., Nagpur (M/s ALPL). Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab for environment and food in Central India region. M/s ALPL is a group of experienced former Scientists from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental Studies & accredited by Quality Council of India (QCI) for conducting Environmental studies having Accreditation Certificate No.: **NABET/EIA/2326/RA 0304** dtd. 18 Sept, 2023 valid till Sept. 29, 2026 as Category A consultant organization in 20 Sectors.

TOR COMPLIANCE

TOR COMPLIANCE GONDKHARI UNDERGROUND COAL MINE (KAMPTEE COALFIELD)

(ToR Granted vide File No. IA-J-11015/46/2022-IA. II(M), Date 13th Feb, 2023)

Sr. No.	ToR Conditions	Compliance of ToR Conditions
A.	**Specific Terms of References**	
(i)	Public Consultation, including public hearing, shall be conducted through concerned SPCB in the concerned districts as per the provisions / procedure contained in the EIA Notification. 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.	The Public hearing was conducted dated 13.07.2023 and suggestion/objections of local people has been complied and incorporated in final EIA-EMP report. The public hearing proceedings is enclosed as **Annexure XIII.** The detailed compliance of public hearing provided in Ch.7, Additional studies under **Section 7.1** on **Pg. no 7.1 to Page no. 7-34** The queries raised during public hearing and reply by M/s. APML detailed provided in Ch. 7, **Table no. 7.1, Pg. no 7-1 to Page no. 7-7** The MPCB, RO Office has Received Written Representation from the public which are point wise replied by M/s. APML detailed provided in Ch. 7, **Table no. 7.2, Pg. no 7-8 to Page no. 7-34**
(ii)	The PP shall submit the lake rejuvenation plan to conserve the existing water bodies in core zone as well as in Buffer Zone.	There are 4 numbers of small micro-watersheds with total area of 8.62 km^2. The study area needs treatment against soil erosion and moisture. A budgetary provision of **Rs. 36,379,919** provided. The detailed Lake Rejuvenation Studies are provided in **Annexure - XI**
(iii)	The PP shall submit the transportation related option study to optimize the transportation system through rail/road.	The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed. These movements of trucks are expected to contribute to oxides of nitrogen, carbon monoxide and particulate matter. The detailed Traffic loads are provided in **Ch. 4**, **Section 4.5.3**, **Pg. no. 4-14**. The detailed studies are provided in **Annexure - IX**
(iv)	PP shall submit Letter of Intent from concerned State Government based on allocation of coal block from Ministry of Coal.	The proposed Gondkhari Coal mine is allotted to M/s. Adani Power Maharashtra Limited (APML) vide vesting order no. NA-104/7/2021-NA, dated. Nov. 18th 2021. The Vesting order is provided in **Annexure – I A**
(v)	PP to submit the Mining plan approved by the Ministry of Coal for the peak capacity of 3 MTPA.	Mine Plan and Mine Closure Plan has been approved from Ministry of Coal, GoI for the production capacity of 2.0 MTPA Vide application no. MI-IMR019/APP00226/2022, dated. 22.12.2022. Mine plan approval letter is given in **Annexure - II**
(vi)	Forest Clearance of total 87.351 ha for diversion for non-forestry activity shall be submitted.	Out of 862.00 Ha of Lease area, 87.351 Ha area comes under the Govt. Forest land. Application for the Forest Clearance has been submitted on MoEF portal vide proposal no. SW/290981/2022. **Present Status:** Project Screening Committee (II), MoEFCC, New Delhi recommended forest diversion proposal.
(vii)	PP should submit the real time aerial footage and video of the Mining lease area made through drone with a special focus on the area adjacent to the rivers.	Noted, It will be submit during the time of EC presentation.
(viii)	PP shall not plan any non-essential infrastructure of mining operation on non-coal bearing forest area.	As per approved Mine plan the majority of infrastructure like workshop, sub-station, store, cap lamp room, canteen, office buildings, Fan house, Evasee, and surface coal handling

Sr. No.	ToR Conditions	Compliance of ToR Conditions
		arrangements are proposed to be constructed. Land Use pattern given in **Chapt. 2, Table no. 2.9, Pg. no. 2-21.**
(ix)	PP shall conduct detailed study the subsidence, its impact due to mining activity and propose mitigation / management measures.	Land subsidence study (2 D Modeling) conducted by IIT, Kharagpur and CIMFR (3 D Modeling Studies) mining has been planned below the entire forest land. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface, remain unaffected. The detailed study provided in **Annexure – IV and Annexure -IVA**
(x)	PP shall submit detailed project report for implementation of railway siding for evacuation of coal with its target date of completion. Forest Clearance shall be submitted if railway siding land comes under forest land.	Rail cum road Transportation for Gondkhari Coal block proposed from the mine to nearest public railway siding/Goods Shed (Kalmeshwar) to handle 2 MTPA at its peak. The details are provided in **Annexure – IX.** Railway siding does not come under forest land; Hence, not require.
(xi)	Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. 12 nos. of Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.	Site specific wind rose pattern has been prepared for 12 nos. of AAQ Monitoring locations of 10km buffer area during pre-monsoon season **(1st March 2022 – 31st May 2022)** and baseline continue for additional two AAQ locations during pre-monsoon season from **1st March 2023 – 31st March 2023.** The details are provided in **Chapt. 3, Fig. no. 3.2.1, Pg. no. 3-4.**
(xii)	Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.	Total Benefits (Estimation of benefits of Forest Diversion) = **Rs.15766.98 Cr.** Total Cost (losses of forests + Cost of the Project) = **Rs. 00.00 + 1303 Cr. = Rs.1303.00 Cr.** Hence, Benefit/ Cost Ratio = **15766.98/1303 Cr.** **= 12.10** Further details are provided in **Chapter 9**
(xiii)	PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.	The project is proposed underground coal mine with rated capacity of 2.0 MTPA. It has been proposed to extract the coal reserves by Mechanized Road header and PSLW and the coal evacuation is through series of Conveyor systems up to surface. The life of mine is 30 years including construction period. The Longwall shearer cuts coal in both directions, with a depth of 0.8m. Three shifts for production, one for maintenance, 4 cuts will be performed in each shift annual working days per year is 305, and the rate of regular cyclic group is 90%. The annual advancement progress is 0.8x12x305x90% = 2635m. The annual production of the south wing LW face is 0.84Mt, the same of the north wing LW face is 1.00 Mt, and the development production is 0.16 Mt. Mining details are provided in **Chapt. 2, Table no. 2.7, Pg no. 2-18.** Being UG mine its env impacts on the ground is almost negligible even while loading and transportation of coal, the mitigation measures will be adopted as explained in Chapter 4. Thus there will not any significant impact on climate change due to proposed project activity.
(xiv)	Detailed Social Impact Assessment	This is underground coal mining project. Rehabilitation and

<table>
<tr><th>Sr. No.</th><th>ToR Conditions</th><th>Compliance of ToR Conditions</th></tr>
<tr><td></td><td>shall be prepared in villages for Rehabilitation and Re- settlement. R & R Activity shall be proposed with timeline and allotted fund with the approval of District Commissioner/collector. A need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.</td><td>Resettlement is not required. The need based social survey was conducted within study area as part of EIA. All the details are provided in EIA report. The major focused area is Agriculture, Health, Education and Medical Facilities, Infrastructure, Skill & Economic Development activities, Drainage, Transportation Facility and Drinking Water. The details are provided in Ch. 4, Section no. 4.8.4 Pg. no. 4-21 to Pg no. 4-22.
As per socio-economic survey the details of person and families in the Mine Lease (ML) area and the Buffer zone was studied and summarized as under:
Persons/Families living within Study area (ML area & Buffer) Area
<table>
<tr><th>Sl.</th><th>Particulars</th><th>Total Households</th><th>Total Population</th></tr>
<tr><td>1</td><td>ML Area*</td><td>-</td><td>-</td></tr>
<tr><td>2</td><td>0-2 km</td><td>2689</td><td>11180</td></tr>
<tr><td>3</td><td>2-5 km</td><td>7562</td><td>32,420</td></tr>
<tr><td>4</td><td>5-10 km</td><td>58243</td><td>2,48,458</td></tr>
<tr><td colspan="2">Total</td><td>68494</td><td>2,92,058</td></tr>
</table>
As per MoEFCC, New Delhi vide its OM dtd. 30th September 2020 a budgetary provision of Rs. 650 Lakhs is provided towards EMP for Socio economic Development. The detailed EMP for Socio economic development in terms of activities, physical target and timeline based on PH proceedings and / or from SIA accordingly now compiled and incorporated. In Ch. 10, Pg. no. 10-9 to Pg. no. 10-9 10-10.</td></tr>
<tr><td>(xv)</td><td>Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.</td><td>PP has obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023 for ground water withdrawal and dewatering enclosed as Annexure IIIA.</td></tr>
<tr><td>(xvi)</td><td>Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory.</td><td>In order to understand surface and ground water quality in study area, sampling and analysis is conducted from a NABL/MoEF&CC accredited laboratory and reports are included in EIA report. Analysis is carried for IS 10500 covering all parameters including heavy metals.
Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.21 to 0.61 mg/l.
Heavy metals including other parameters in surface water quality for 8 nos. of SW monitoring locations have been analyzed and details are provided in Chapt. 3, Section 3.4.2, Table no. 3.4.3, Pg. no. 3-24. Details of analysis report also provided in Annexure – VI (C).</td></tr>
<tr><td>(xvii)</td><td>PP should clearly bring out that what is the specific diesel consumption (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.</td><td>Mine is underground in nature. All the equipments going to be installed during operation phase will be operated on electricity. Hence, no specific diesel consumption is required.

However, for coal transportation upto nearest Railway siding will be transported through covered trucks/Dumpers. BS-VI norms will be complied and this condition will be floated in tender.</td></tr>
<tr><td>(xviii)</td><td>PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.</td><td>Mine is underground in nature. All the equipment’s going to be installed during operation phase will be operated on electricity. Hence, no LNG/CNG based mining machineries are required. Transportation of ROM will be carried out through Trucks/Dumpers complying BS-VI norms. However, PP shall explore the possibility of LNG and CNG based transport vehicles from mine to rail siding.</td></tr>
</table>

Sr. No.	ToR Conditions	Compliance of ToR Conditions
		List of Mining Machineries proposed for Gondkhari coal mine is given in **Chapt. 2, Table no. 2.5, Pg. no. 2-12.**
(xix)	PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers. Also, It should include with certified map with exact distance from any Wildlife Sanctuary.	Proposed ML area does not fall under any Eco-sensitive zone, no corridor of Elephants & Tigers reported within study area. The application along with map submitted to at forest department for authentication. The detailed correspondence with CWLW and Forest Department is enclosed in **Annexure – III (D).** The certification of map is under process.
(xx)	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.	The underground mining will be developed by depillaring in all the workable coal seams, i.e. II, III, V & VIII. The lithology of the area is such that hard impervious strata lying on the top of the study area, hence no significant impact is envisaged in the ground water regime of the area. However, it is estimated that around 452 KLD of ground water is expected to be dewatered for which CGWA NOC is obtained. Rain water harvesting system will be implemented where ever feasible. Hydrogeological and lake rejuvenation studies done by Srhushti Seva Pvt. Ltd. Nagpur. As per the findings of the report there will not be any adverse impacts on the existing lakes (2 Nos.) because the lithology of the area below the lakes is impervious formation i.e. basalt and the workable coal seams are very deep (169 M BGL). More over as per the CIMFR, Dhanbad subsidence studies there is no impact on the surface features of the study area. As per mine plan there will not be any mining work below the water bodies and existing roads. Thus, from the above it is evident that the existing water bodies will remain intact. Based on study report it is observed that, The Kamptee Coalfield is followed by thick Deccan trap formation. The mining depth ranges from 169 M to 394 M maximum. As a part of compliance of statutory requirement PP have obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023. (copy enclosed as **(Annexure IIIA)**. Study of CGWA reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump. The pumping test had been conducted on discharge rate of 518 m^3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m2/day, Storativity is 6.0 x 10 and Hydraulic conductivity is 2.88 m/day. Copy of Lake Rejuvenation and Hydrogeology report are enclosed in **Annexure XI** and **Annexure XII** respectively.
B.	**General Terms of References**	
(i)	All documents should be properly indexed, page numbered.	Noted and compiled.

Sr. No.	ToR Conditions	Compliance of ToR Conditions
(ii)	Period/date of data collection should be clearly indicated.	An environmental baseline monitoring was carried out as a part of EIA studies for the proposed project, during **pre-monsoon season (1st March 2022 – 31st May 2022)** and **baseline continue for additional two AAQ locations during pre-monsoon season from 1st March 2023 – 31st March 2023;** along with secondary data.
(iii)	Authenticated English translation of all material provided in Regional languages.	All documents are in English. Documents in other than English are translated to English & attached.
(iv)	After the preparation of the draft EIA-EMP Report as per the aforesaid TOR, the proponent shall get the Public Hearing conducted as prescribed in the EIA Notification 2006 and take necessary action for obtaining environmental clearance under the provisions of the EIA Notification 2006.	The Public hearing was conducted dated 13.07.2023 and suggestion/objections of local people has been complied and incorporated in final EIA-EMP report. The public hearing proceedings is enclosed as **Annexure XIII.** The detailed compliance of public hearing provided in Ch.7, Additional studies under **Section 7.1** on **Pg. no 7.1 to Page no. 7-34** The queries raised during public hearing and reply by M/s. APML detailed provided in Ch. 7, **Table no. 7.1, Pg. no 7-1 to Page no. 7-12** The MPCB, RO Office has Received Written Representation from the public which are point wise replied by M/s. APML detailed provided in Ch. 7, **Table no. 7.2, Pg. no 7-13 to Page no. 7-34**
(v)	The letter/application for EC should quote the Ministry's file No. and also attach a copy of the letter prescribing the ToR.	ToR granted on dated 13.02.2023 F.No. **IA-J-11015/46/2022-IA. II(M).** ToR letter is provided in **Annex.-I**
(vi)	The copy of the letter received from the Ministry on the ToR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.	ToR has granted on dated 13.02.2023 F.No. **IA-J-11015/46/2022-IA. II(M).** ToR letter is provided in **Annex.-I**
(vii)	General Instructions for the preparation and presentation before the EAC of ToR/EC projects of Coal Sector should be incorporated/followed.	Instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006- IA.II(I) dated 4th August, 2009 are followed while preparing this EIA report.
(viii)	The aforesaid ToR has a validity of **Four** years only.	ToR has granted on dated 13.02.2023 F.No. **IA-J-11015/46/2022-IA. II(M)** and valid till 31.03.2027. EIA report prepared and submitted to MoEFCC within validity period for grant of prior Env Clearance.
(ix)	Grant of ToR does not necessarily mean grant of EC.	Noted.
(x)	Grant of ToR to the present project does not necessarily mean grant of TOR/EC to the captive/linked project.	Noted.
(xi)	Grant of ToR to the present project does not necessarily mean giant of approvals under the Forest (Conservation) Act, 1980 or the Wildlife (Protection) Act. 1972.	Noted.
(xii)	Grant of EC is also subject to circulars issued under the EIA Notification 2006, which are available on the Ministry's website:	Noted.

Sr. No.	ToR Conditions	Compliance of ToR Conditions
	www.envfor.nic.in	
C.	**Standard Term of References**	
(i)	An EIA-EMP Report should be prepared for a peak capacity of **MTPA** over an area of ….. ha addressing the impacts of the underground coalmine project including the aspects of mineral transportation and issues of impacts on hydrogeology, plan for conservation of flora/fauna and afforestation/plantation programme based on the generic structure specified in Appendix III of the EIA Notification 2006. Baseline data collection can be for any season except monsoon.	The EIA-EMP report for proposed Gondkhari Coal mine has been prepared for a peak capacity of 3.0 MTPA and 2.0 MPTA (rated capacity) over an area of 862.00 Ha. The detailed study on impact identification and mitigation measures are given in **Chapt. 4, Section 4.4, Pg. no. 4-2 to 4-7.** Impact on Hydrogeology covered in **Chapt. 4, Section 4.4.3, Pg. no. 4-4.** Greenbelt shall be developed in 6.00 ha. Native species should be suggested for plantation. The detailed greenbelt plan is given in **Chapter 10, Table 10.8.1, Pg. no. 10-11.** Biological conservation plan for Schedule-I species is prepared and attached as **Annexure-VII (F)**. Cost of Biological conservation Plan= Rs. 5,53,500 for five year. Baseline data were collected between 1st March to 31st May 2022. The detailed report on baseline situation is covered in **Chapter 3 of EIA-EMP report.**
(ii)	The EIA-EMP report should also cover the impacts and management plan for the project specific activities on the environment of the region and the environmental quality — air, water, land, biotic community, etc. through collection of baseline data and information, generation of baseline data on impacts for ..... MTPA of coal production based on approval of project/Mining Plan.	The detailed study on impact identification and mitigation measures are covered in **Chapter 4** of **EIA-EMP** report. The detailed environment management plan for project specific activities is covered in **Chapter 10** of **EIA-EMP** report.
(iii)	A Study area map of the core zone and 10km area of the buffer zone (15 km of the buffer zone in case of ecologically sensitive areas) delineating the major topographical features such as the land use, drainage, locations of habitats, major construction including railways, roads, pipelines, major industries/mines and other polluting sources, which shall also indicate the migratory corridors of fauna, if any and the areas where endangered fauna and plants of medicinal and economic importance are found in the area.	Study area map comprise 10 km zone around mine lease periphery given in **Chapter. 2, Fig. 2.3 Pg. no. 2-4.** There is no migratory corridors exists in 10 km study area for endangered fauna. The Biological Environment study covered in **Ch. 3**, **Section 3.6**, **Pg. no. 3-45** to **Pg. no. 3-55**. The detailed list of flora & fauna provided in **Annexure VII (A to F)** Major topographical features such as the land use, drainage, locations of habitats, major construction including railways, roads, pipelines, major industries/mines are covered in EIA report.
(iv)	Map showing the core zone along with 3-5 km of the buffer zone) delineating the agricultural land	The LU/LC map and bifurcation of the core zone along with 5 km radius (buffer zone) given in **Chapt. 3, Table no. 3.5.5, 3.5.6 and Fig. no. 3.5.4A & 3.5.4B in Pg. no. 3-34 & 3-35.**

<table>
<tr><th>Sr. No.</th><th>ToR Conditions</th><th>Compliance of ToR Conditions</th></tr>
<tr><td></td><td>(irrigated and unirrigated, uncultivable land (as defined in the revenue records), forest areas (as per records) and grazing land and wasteland and water bodies.</td><td></td></tr>
<tr><td>(v)</td><td>Contour map at 3m interval along with Site plan of the mine (lease/project area with about 3-5 km of the buffer zone) showing the various surface structures such as buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within/adjacent to the ML), green belt and undisturbed area and if any existing roads, drains/natural water bodies are to be left undisturbed along with details of natural drainage adjoining the lease/project and modification of thereof in terms of construction of embankments/bunds, proposed diversion/rechannelling of the water courses, etc., highways, passing through the lease/project area.</td><td>Geological plan with 3m contour interval along with surface layout plan of project area showing the various surface structures given in Chapt. 2, Fig. no. 2.7 & 2.8, Pg. no. 2-15 & 2-16.

Contour map of the project site within 10km radius with 10m interval given in Chapt. 3, Fig. no. 3.5.6, Pg. no. 3-38.</td></tr>
<tr><td>(vi)</td><td>Original land use (agricultural land/ forest land / grazing land/wasteland/water bodies) of the area. Impacts of Project if any on the land use, in particular, agricultural land/forest land/grazing land/water bodies falling within the lease/project and acquired for mining operations. Extent of area under surface rights and under mining rights.</td><td>
<table>
<tr><th>S.N.</th><th>ML/Project Land use</th><th>Area under Surface Rights (ha)</th><th>Area Under Mining Rights (ha)</th><th>Area under Both (ha)</th></tr>
<tr><td>1.</td><td>Agricultural land</td><td>-</td><td>-</td><td>712.472</td></tr>
<tr><td>2.</td><td>Forest Land</td><td>-</td><td>-</td><td>87.351</td></tr>
<tr><td>3.</td><td>Grazing Land</td><td>-</td><td>-</td><td>0</td></tr>
<tr><td>4.</td><td>Settlements</td><td>-</td><td>-</td><td>0</td></tr>
<tr><td>5.</td><td>Others (Water body)</td><td>-</td><td>-</td><td>13.89</td></tr>
</table>
<table>
<tr><th>S.N.</th><th>Details</th><th>Area (ha)</th><th>Forest Land</th><th>Agr. land</th><th>Wasteland</th><th>Settlements</th><th>Others</th></tr>
<tr><td>1.</td><td>Buildings</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>2.</td><td>Infrastructure</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3.</td><td>Roads</td><td>48.287</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>4.</td><td>Others (specify)</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td></td><td>TOTAL</td><td>862.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
</table>
</td></tr>
<tr><td>(vii)</td><td>Study on the existing flora and fauna in the study area carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part</td><td>Habit wise floristic diversity shows total 133 nos. of floral species. Details are as follows:
Trees-66, Shrubs-25, Herbs-16, Climbers-12, Grasses-12 and Parasite-2.

Fauna observed in the study area are as follows:
Mammals: 11 species, Herpetofauna: 7 species Avifauna 33 species, Butterflies: 6 species and Fishes 7 species.</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>ToR Conditions</th><th>Compliance of ToR Conditions</th></tr>
<tr><td></td><td>of the migratory corridor of any endangered fauna. The flora and fauna details should be finished separately for the core zone and buffer zone. The report and the list should be authenticated by the concerned institution carrying out the study and the names of the species scientific and common names) along with the classification under the Wild Life Protection Act, 1972 should be furnished.</td><td>The detailed baseline study regarding biological environment within study area of proposed UG mining project is covered in chapter 3, Section 3.6 in EIA-EMP report.

There is no migratory corridor, National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, within the 10 km radius study area.

Biological conservation plan for Schedule-I species is prepared and attached as Annexure-VII (F)</td></tr>
<tr><td>(viii)</td><td>Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working plan/scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps should also be included.</td><td>Targeted Capacity – 2.0 MTPA
Peak rated Capacity – 3.0 MTPA
Estimated Gross Geological reserves: 98.717 Mt.
Net Geological Reserve: 98.5030 Million tonnes
Mineable Reserve: 52.946 Million tonnes

Project area consists of basalt, Cherty Limestone and soil cover which is having thickness of around 1.0 - 1.5m. Outcrops are very rare in project site. The Gondkhari block covered by a thick layer of Deccan trap followed by a blanked of Kamthis. Structurally Gondkhari block is moderately complicated. The major faults have a trend of NW-SE i.e. sub parallel to the strike of beds.

Workable seam out of 10 Coal seams are:
II seam, III seam, V seam & VIII seam.

Minimum Depth of Workings: 169.50 m
Maximum Depth of Workings: 394.30 m

Tentative coal production plan until end of mine life:
<table>
<tr><th>Year</th><th>Total tentative Excavation UG (Mt.)</th><th>OC (Mt.)</th><th>Total</th><th>OB (m^3)</th><th>Stripping Ratio</th></tr>
<tr><td>2026</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2027</td><td>0.35</td><td>0</td><td>0.35</td><td>0</td><td>0</td></tr>
<tr><td>2028</td><td>0.90</td><td>0</td><td>0.90</td><td>0</td><td>0</td></tr>
<tr><td>2029</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2030</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2031</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2032</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2033</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2034</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2035</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2036</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2037</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2038</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2039</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>3040</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>ToR Conditions</th><th>Compliance of ToR Conditions</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>2041</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2042</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2043</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2044</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2045</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2046</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2047</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2048</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
<tr><td>2049</td><td>2.0</td><td>0</td><td>2.0</td><td>0</td><td>0</td></tr>
</table>

The Mining details are covered in Chapt. 2, Section 2.4.
Geological maps of the project area given in Chapt. 2, Fig. no. 2.8, Pg. no. 2-16.
</td></tr>
<tr><td>(ix)</td><td>Impact of mining on hydrology, modification of natural drainage. Diversion and channelling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.</td><td>Impact and Mitigation on hydrology covered in Chapt. 4, Section 4.4.3, Pg. no. 4-4.</td></tr>
<tr><td>(x)</td><td>Collection of one-season (non-monsoon) primary baseline data on environmental quality — air (PMO 1o, PM2.5, SOx, NO, and heavy metals such as Hg, Pb, Cr. AS. etc), noise. water (surface and groundwater), soil along with one-season met. data.</td><td>Covered in Chapt. 3, Section 3.2, 3.3, 3.4 & 3.4.2, Pg. no. 3-2 to 3-26.</td></tr>
<tr><td>(xi)</td><td>Map of the study area (core and buffer zone) clearly delineating the location of various monitoring stations (air/water/soil and noise — each shown separately) superimposed with location of habitats, wind roses, other industries/mines. polluting sources. The number and location of the stations should be selected on the basis of the proposed impacts in the downwind /downstream/ groundwater regime. One station should be in the upwind/upstream/non-impact non-polluting area as a control station. Wind roses to determine air pollutant dispersion and impacts thereof shall be determined. Monitoring should be as per CPCB guidelines and standards for air, water, noise notified under Environment Protection Rules. Parameters for water testing for both ground and surface water</td><td>Monitoring location maps are included in Chapt. 3, Fig. no. 3.2.2, 3.3.1, 3.4.4 & 3.5.9, Pg. no. 3-7, 3-14, 3-23 & 3-42.
<table>
<tr><th>Predominant Wind Direction</th><th>Pre-monsoon Season - 2022</th></tr>
<tr><td>First Predominant Wind Direction</td><td>WNW (11.96%)</td></tr>
<tr><td>Second Predominant Wind Direction</td><td>NW (10.91%)</td></tr>
<tr><td>Third Predominant Wind Direction</td><td>W (9.87 %)</td></tr>
<tr><td>Calm conditions (%)</td><td>0.86</td></tr>
<tr><td>Avg. Wind Speed (m/s)</td><td>2.95</td></tr>
</table>

Air Environment, Water Environment and Noise Environment are covered in Chapt. 3, Section 3.2, 3.3 & 3.4.</td></tr>
</table>

Sr. No.	ToR Conditions	Compliance of ToR Conditions
	should be as per ISI standards and CPCB classification of surface water wherever applicable.	
(xii)	Impact of mining and water abstraction and mine water discharge in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long—term modelling studies on the impact of mining on the groundwater regime. Details of rainwater harvesting and measures for recharge of groundwater should be reflected wherever the areas are declared dark/grey from groundwater development.	PP have obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023. Study of CGWA reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump. The pumping test had been conducted on discharge rate of 518 m3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m2/day, Storativity is 6.0 x 10 and Hydraulic conductivity is 2.88 m/day. All the suggested studies are conducted and enclosed in EIA report as **Annexure XI** and **Annexure XII**.
(xiii)	Study on subsidence measures for mitigation/prevention of subsidence, modeling subsidence prediction and its use during mine operation, safety issues.	Land subsidence study (2 D Modeling) conducted by IIT, Kharagpur and CIMFR (3 D Modeling Studies) mining has been planned below the entire forest land. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface, remain unaffected. The detailed study provided in **Annexure – IV and Annexure -IVA** Impact due to Subsidence and its Mitigation Measures are provided in **Chapt. 4, Section 4.4.4, Pg. no. 4-6.**
(xiv)	Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-a-vis the competing users should be provided.	Total water requirement for this project is 492 KLD (452 KLD will be met from mine seepage and 40 KLD from borewell). Potable water requirement will be met from ground water sources with appropriate treatment. PP has obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023 for ground water withdrawl and dewatering enclosed as **Annexure IIIA**. Bifurcation of Water usage is given in **Chapt. 2, Section 2.7.2, Pg. no. 2-8 to 2-9.**
(xv)	Impact of choice of mining method, technology, selected use of machinery - and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations.	Covered in **Chapt. 4, Section 4.3 & 4.4**
(xvi)	Impacts of mineral transportation — within and outside the lease/project. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, and their impacts on air quality should be shown in a flow	The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time. The details are provided in **Chapt. 4, Section 4.5.2, Pg. no. 4-8.** Process flow diagram – Mining Methodology is provided in **Chapt. 2, Fg. No. 2.6, Pg. no. 2-11.**

Sr. No.	ToR Conditions	Compliance of ToR Conditions
	chart with the specific points where fugitive emissions can arise and the specific pollution control/ mitigative measures proposed to be put in place. Examine the adequacy of roads existing in the area and if new roads are proposed, the impact of their construction and use particularly if forestland is used.	Mitigation measures to minimize pollution level due to transportation of Raw material and Finished Products are provided in **Chapt. 4, Section 4.5.4, Pg. no. 4-16.**
(xvii)	Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral and their impacts.	The total man power will be 863 nos. The provision of STP of 50 KLD capacity (based on MBBR technology) will be installed at office premises. Effluent treatment plant of 10 KLD capacity will be installed and it comprises of oil & grease trap facility to cover the oil and treated water is reused back for washing purpose. The existing traffic has been estimated by conduction traffic surveys and proposed additional traffic and its impact on habitation has been determined by air dispersion modeling studies. Further more details are provided in **Annexure – IX.**
(xviii	Examine the number and efficiency of mobile/static water sprinkling system along the main mineral transportation road within the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality.	Water sprinkling will be made for underground mining operation and surface also. The budgetary provision for water sprinkling is given in **Chapt. 10, Table no. 10.13.1, Pg. no. 10-21.**
(xix)	Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.	The total land required for Mine Infrastructure is 18.0 Ha. and no CHP is required for the project. Total water requirement for this project is 492 KLD (452 KLD will be met from mine seepage and 40 KLD from borewell). Potable water requirement will be met from ground water sources with appropriate treatment. PP has obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023 for ground water withdrawl and dewatering enclosed as **Annexure IIIA**. A flow chart of water use is provided in **Chapt. 2, Fig. no. 2.5, Pg. no. 2-9.**
(xx)	Conceptual Final Mine Closure Plan along with the fund requirement for the detailed activities proposed there under. Impacts of change in land use for mining operations and whether the land can be restored for agricultural use post mining.	The majority of infrastructure like workshop, sub-station, store, cap lamp room, canteen, office buildings, Fan house, Evasee, and surface coal handling arrangements are proposed to be constructed. Considering the ground realities prevailing five years before mine closure, plan for reutilizing these structures or decommissioning them will be made. If decommissioning of infrastructure is done, the land occupied by the infrastructure will be restored for some useful purpose. A provision has been made for Rs 5.20 crores towards dismantling of infrastructure, rearranging water pipeline to agricultural land, dismantling of power lines, arterial roads to mine including 4m lane for LMV with divider during progressive mine closure activity.
(xxi)	Greenbelt development should be	Noted and will be complied.

Sr. No.	ToR Conditions	Compliance of ToR Conditions
	undertaken particularly around the transport route and CHP. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.	
(xxii)	Details of cost of EMP (capital and recurring) in the project cost and for final mine closure plan and these include the specific costs (capital and recurring) of each pollution control/mitigative measures proposed in the project until the end of mine life and a statement that this is included in the project cost should be given	The project cost of Proposed UG coal mine of M/s. Adani Power Maharashtra Ltd. is of **Rs. 1303 Cr.** The budgetary provision under EMP towards Capital Cost of Environmental Management plan is of **Rs. 32.585 Cr.** and Recurring Cost of **Rs. 4.17 Cr.** The detailed account of the estimates is presented in **Table 10.13.1.** The company will also comply with its obligation for CSR as per Company's Act too, in addition to the above EMP budget. The EMP budget is covered in **Chapter 10 section 10.13 Pg. no. 10-23.**
(xxiii	The Env. Management Plan should be integrated with measures for minimizing the use of natural resources - water, land, energy, raw materials/mineral, etc	The Environment Management Plan is prepared and action plan proposed with measures for minimizing the use of natural resources – water, land, energy, raw materials/mineral, etc. The details are provided in **Chapt. 10, Section 10.6**
(xxiv	Detailed project specific R&R Plan with data on the existing socio-economic status (including tribals, SC/ST) of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered. etc. and costs along with the schedule of the implementation of the R&R Plan should be provided.	This is underground coal project, hence no Rehabilitation and Resettlement is required.
(xxv)	Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project	The suggestions/observations made by the Public during Public Hearing will be complied point wise and incorporated in EIA-EMP report.
(xxvi	Corporate Environment Responsibility:	
a)	The Company must have a well laid down Environment Policy approved by the Board of Directors.	As the company has a well laid down Environment Policy approved by the Board of Directors. The details are provided in **Ch. 10, Section 10.5, Figure 10.1, Pg. no. 10-4**.
b)	The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	As the company has a well laid down Environment Policy approved by the Board of Directors.
c)	The hierarchical system or Administrative Order of the company to deal with environmental	The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions are given in **Chapter 10, Figure 10.1, Pg.**

<table>
<tr><th>Sr. No.</th><th>ToR Conditions</th><th>Compliance of ToR Conditions</th></tr>
<tr><td></td><td>issues and for ensuring compliance with the environmental clearance conditions must be furnished.</td><td>no. 10-4.</td></tr>
<tr><td>d)</td><td>To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.</td><td>As the company has a well laid down Environment Policy approved by the Board of Directors. Details are covered in Ch. 10, Pg. no. 10-1 to Pg. no. 10-4.

Copy of Environment Policy is attached Annexure IXA</td></tr>
<tr><td>(xxvi</td><td>Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of public hearing. the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language. an authenticated English Translation of the same should be provide.</td><td>The environmental public hearing for proposed project was conducted dated 13.07.2023 by Maharashtra Pollution Control Board, Sub Regional office Nagpur 01. The points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame are incorporated in EIA/EMP report and MoM of public hearing is enclosed as Annexure- XIII</td></tr>
<tr><td>(xxvi</td><td>In built mechanism of self-monitoring of compliance of environmental regulations should be indicated</td><td>Covered in Chapt. 6, Section 6.3.1, Pg. no. 6-3.</td></tr>
<tr><td>(xxix</td><td>Status of any litigations/ court cases filed/pending in any Court/Tribunal on the project should be provided</td><td>No litigations/court cases filed/pending against the project of the PP.</td></tr>
<tr><td>(xxx)</td><td>Details on sample test analysis of: Characteristics of coal: This should include details on grade and other characteristics such as ash content, and heavy metals including levels of Hg, As, Pb. Cr etc. should be given.</td><td>Average grade of coal is G8.
Average Ash content of coal is 22.5%</td></tr>
<tr><td>(xxxi</td><td>Copies of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.). etc. should be provided wherever applicable.</td><td>
<table>
<tr><th>Sl. No.</th><th>Clearance Type</th><th>Current status</th></tr>
<tr><td>1.</td><td>Mining Plan and Mine Closure Plan</td><td>Approved from Ministry of Coal, GoI vide application no. MHMR019/APP00226/2022, dated 22.12.2022.</td></tr>
<tr><td>2.</td><td>Mining Lease</td><td>Application for mining lease has been submitted and Approval is under progress. The area applied for mining lease is not encroaching any other coal block.</td></tr>
<tr><td>3.</td><td>Environmental Clearance</td><td>ToR has granted on 13.02.2023 and EIA-EMP report will be submitted to MoEF as per schedule.</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>ToR Conditions</th><th>Compliance of ToR Conditions</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>4.</td><td>Forest Clearance</td><td>Application has been submitted on MoEF portal and Project Screening Committee (II), MoEFCC, New Delhi recommended forest diversion proposal</td></tr>
<tr><td>5.</td><td>CTE and CTO</td><td>It will be processed after obtaining Mining Lease</td></tr>
<tr><td>6.</td><td>Mine Opening permission</td><td>Will be processed after all clearances/permissions</td></tr>
<tr><td>7.</td><td>NOC from flood and Irrigation department.</td><td>Noted, It will be submitted during the time of EC presentation.</td></tr>
</table>
</td></tr>
<tr><td>(xxxi</td><td>FORESTRY CLEARANCE: Details on the forest clearance the details should be given as per format</td><td>
<table>
<tr><th>Total ML / /Project Area (ha)</th><th>Total Forest Land (ha)</th><th>Date of FC</th><th>Extent of forest land</th><th>Balance area for which FC is yet to be obtained</th><th>Status appl.</th></tr>
<tr><td>862.0</td><td>87.351</td><td colspan="2">Application for FC has been submitted on 06/01/2023.</td><td>-</td><td>Project Screening Committee (II), MoEFCC, New Delhi recommended forest diversion proposal</td></tr>
</table>
</td></tr>
</table>

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CHAPTER-1
INTRODUCTION

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Gondkhari Coal Mine is proposed underground coal mining project in Gondkhari area (Kamptee coal field) in Nagpur District of Maharashtra State. The lessee M/s Adani Power Maharashtra Limited (APML) applying to grant Environmental Clearance for Gondkhari Underground Coal mine (ML Area 862.00 Ha. and Production Capacity is 2.00 MTPA.

The basic purpose of the EIA report is to identify, predict, mitigate and communicate the possible impacts due the proposed project to the Government authority and people likely to be affected and incorporate the conditions for construction, operation, maintenance and waste disposal phases of the project to mitigate the negative (adverse) impacts and enhance the positive impacts for the sustainable development of the region.

The final EIA-EMP report is prepared as per EIA Notification 2006 as amended and the ToR granted vide letter No. IA-J-11015/46/2022-IA. II(M) dated on 13.02.2023 by EAC (Coal Mining Projects), MoEF&CC, New Delhi.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the project falls under Sector 1 (a). The project activity is categorized as **Category "A"**; therefore, it requires Environmental Clearance (EC) to be obtained from EAC (Coal Mining Projects), MoEF&CC, New Delhi.

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in 'Category A' environment consultant organization has been assigned to undertake an Environmental Impact Assessment (EIA) study and preparation of Environment Management Plan (EMP) for various environmental components, which may be affected due to the impacts arising out of the mining project.

The Environmental Impact Assessment (EIA) report is prepared for obtaining Environmental Clearance (EC) from Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi.

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 Identification of Project

Gondkhari Coal Mine is proposed underground coal mining project in Gondkhari area (Kamptee Coal field) in Nagpur District and which is allotted to M/s Adani Power Maharashtra Limited (APML) vide vesting order no. NA-104/7/2021-NA, dated November 18, 2021. Currently the mine plan has been approved from Ministry of Coal vide letter dated. 9th January 2023 (Please refer **Annexure IA**).

Area Description

Gondkhari Coal Mining Project of Underground mine with the capacity of 2.00 MTPA in mine lease area of 862.00 ha located at villages – Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna Tehsil - Kalmeshwar, Nagpur Gramin, Hingana; District - Nagpur, Maharashtra by M/s Adani Power Maharashtra Limited (APML).

1.2.2 Project Proponent

The Project Proponent is M/s Adani Power Maharashtra Limited (APML). Adani Power Limited (APL), a part of the diversified Adani Group, is the largest private thermal power producer in India. We have a power generation capacity of 12,450 MW comprising thermal power plants in Maharashtra, , Karnataka, Rajasthan, and Chhattisgarh and a 40 MW solar power project in Maharashtra.

We were the world's first company to set up a coal-based Supercritical thermal power project registered under the Clean Development Mechanism (CDM) of the Kyoto protocol. Being a new entrant to power generation in 2006, we leveraged the project management skills of the Adani Group to set up our first power plant at Mundra successfully and efficiently.

The power sector in India has undergone a challenging period in the past few years, which put to test the resilience of our business model. By navigating the challenges through prudence, persistence and discipline, we have implemented the best available technologies and practices that can serve as benchmarks for the power industry.

As we augment our generation capacity, both organically and inorganically, we also strive to make our footprints sustainable. Receiving a percentile score of 65 for Adani Power in Corporate Sustainability Assessment by DJSI-S&P Global and a leading position in India and number 30th in world in ESG benchmarking for 2019, makes us more committed for Growth with Goodness. This ESG score is testimony of the company's corporate sustainability practices.

Lessee: M/s. Adani Power Maharashtra Limited (APML)

Registered Office:	**Site Office:**
Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad, Gujarat - 382421 **Contact No. : 7838651134 ;** Email- gondkhari@adani.com	Village: Gondkhari Tehsil - Kalmeshwar District - Nagpur

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 NATURE AND SIZE OF THE PROJECT

The UG mining is proposed by the M/s Adani Power Maharashtra Limited (APML). The Mine lease area is 862.00 Ha with production capacity of Coal is 2.00 MTPA The method of mining is fully Mechanised underground longwall technology. Life of mine is 26 years.

1.4 LOCATION OF THE PROJECT

The lease over an area of 862.00 Ha is located in Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna, Tehsil – Kalmeshwar, District - Nagpur, Maharashtra. The nearest habitation is village Gondkhari at a distance of 1.50 km in SW direction from the periphery of ML area. The lease area falls under Survey of India Toposheet no. 55 K/16 on 1: 50,000 scale and lies between latitudes N 21°07' 57" to N 21°10' 56" and longitudes E 78° 54' 45" to E 78°56' 26". Index Map of the project provided in **Figure 1.1.** Study area map given in **Figure 1.2** and Environmental settings of the site are presented in **Table 1.1.** There is no critically polluted identified cluster by CPCB/MOEFCC in the vicinity of the project.

TABLE 1. 1: DETAILS OF ENVIRONMENTAL SETTING

Sr.	Particulars	Details
1.	Project Location	Mine Lease area – 862 ha Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, Maharashtra.
2.	New/Expansion	New
3.	Co-ordinates	Latitudes $N21^0$ 07' 57" to $N21^0$ 10' 56" Longitudes $E78^0$ 54' 45" to $E78^0$ 56' 26"
4.	Survey of India Topo Sheets No.	55K/16

Sr.	Particulars	Details
5.	Climatic Conditions	Mean annual rainfall is 1100.3 mm Temperature: Pre monsoon 4.5 C (Min.) 47.8 C (Max.) : Winter 3.9º C (Min.) 39.7º C (Max) : Post monsoon 5.5º C (Min.) 39.7º C (Max.) **Source : IMD, Nagpur (Sonegaon)**
6.	Nearest IMD Station	IMD Nagpur (Sonegaon) – 12.5 KM (SE)
7.	Site elevation above Mean Sea Level	324 – 380 m.
8.	Nearest National/State Highway	NH 53 (AH 46) – Adjacent (S) SH 250 – 6.5 km (N) SH 255 – 6.8 km (S) SH 260 – 7.0 km (ESE) SH 248 – 4.7 km (NE) NH 547E- 3.5km (W)
9.	Tourist Places (within 15 km)	Vitthal Rukmini Temple, Dhapewada – 13.1 km (N) Highland's Water Park – Adjacent (E) Surabardi Shiva Temple – 1.3 km (E) Satpuda Botanical Garden – 10.4 km (E) Telankhedi Garden – 11.4 km (E) Adasa Ganesh Temple – 16.7 km (NNE)
10.	Archaeologically important places	Junapani Stone Circles, Fetri – 7.8 km (ENE)
11.	Nearest Railway Station	Kalmeshwar – 5.4 km (NNE)
12.	Tourist Places	Dr. Babasaheb Ambedkar Museum & Memorial – 4.6 (ENE) Kasturchand Park – 14.6 km (E) Central Museum, Nagpur – 14.2 km (E) Mahurzari Megalithic Stone Circles – 10.1 km (E) Maharaj Bagh Zoo – 13.8 km (E) Junapani Stone Circles, Fetri – 7.8 km (ENE) Gorewada Jungle Safari - Wildlife and safari park – 9.37 km (ENE)
13.	Nearest Airport	Dr. Babasaheb Ambedkar International Airport 10 km (ESE)
14.	Nearest State/National Boundaries	Madhya Pradesh – 33.6 km (NNE)
15.	Nearest village/habitation	Surabardi – 0.6 km (E) Gondkhari – 0.3 km (W)
16.	Nearest major city with 2,00,000 population	Nagpur – 12 km (E)
17.	Nearest City	Wadi – 5.8 km (E)
18.	Distance from sea coast	Bay of Bengal – 576 km (SE)

Sr.	Particulars	Details
19.	Nearest Reserved/ Protected forests	Bazargaon RF – 5.1 (W) Madhogarh RF – 9.7 km (W) Open Mixed Jungle – Gorewada 6.3 (ENE)
20.	Nearest River/water bodies	Saptdhara Nadi – 8.1 km (N) ; Vena River – 1.2 km (S) Ghordyo Nala – 8.9 km (WNW) ; Unna Nala – 8.9 km (W) Devadkasha Nala – 4.5 km (WSW); Jhilpi Nala – 5.5 km (S) Vena Canal – 1.7 km (SSW); Anas Nala – 2.5 km (SSW) Nag Nala – 5.5 km (SE) ; Kharkari Nala – 3.1 km (SSE)
21.	Nearest Lake	Ambajhari Lake – 8.5 km (ESE); Bhivkund Dam – 9.9 km (SW) Futala Lake – 10.0 km (E) Alesur Local Lake – within proposed mining area Mordham Dam & Reservoir – 11.5 km (NW) Suraburdi Lake – Adjacent (E) Vena Dam – 4.2 km (W) Jhilpi Talav – 9.1 km (SW)
22.	Seismic zone	Seismic Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is a stable zone.
23.	Nearest Industries	Chanvim Engineering (I) Pvt. Ltd. – 2.7 km (W) Paragon Polymer Products Pvt. Ltd. – 1.8 km (W) Sunny Infra Engineers Pvt. Ltd. – 3.8 km (E) JDS Transformer Industries Pvt. Ltd. – 6.0 km (ESE) Bharat Electricals – 0.3 km (SSW) Shri Salasar Industries – 5.5 km (E) MIDC Kalmeshwar – 5.2 km (N) Minex Metallurgical Co Ltd, Nimji – 4.41 km (W) Nice Papers Limited – 7.6 km (NNW) Hingna MIDC – 6.3 km (SE)
24.	Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	None

Source: Field Studies, Anacon Laboratories Private Limited.

1.5 IMPORTANCE OF THE PROJECT TO THE COUNTRY, REGION

Coal is the most important and abundant fossil fuel in India. It accounts for 56.42% (Source: Ministry of Power, GoI) of the country's energy need. Considering the limited reserve potentiality of petroleum & natural gas, eco-conservation restriction on Hydel project and geo-political perception of nuclear power, coal will continue to occupy centre-stage of India's energy scenario. As per the working group of Ministry of Coal, Government of India, supply gap is forecasted due to the increasing demand for power.

The present coal production is insufficient to cope up with growing demand for electricity and industrial energy. During the year 2020-21, the Indian coal production was 716.08 Mt against the demand of 828.50 Mt and the coal production gap of 112.42 Mt was imported from the Australia, Indonesia, South

Africa and other countries. During this period, coal production declined by 2% as compared to the corresponding period of the previous year. The all-India Production of coal during 2021-22 were 778.19 Mt (Provisional) with a positive growth of 8.67%. As per the working group of Ministry of Coal, GoI, the supply gap is going to increase in the coming years.

1.6 SCOPE OF THE STUDY

The scope of study includes:

- Field sampling of environmental and social attributes at various representative locations in the study area to establish the baseline environmental status.
- Primary data collection of various environmental components.
- Collate and compile secondary data including socio-economic data from published literature / government publications.
- Identifying various pollution loads due to various activities.
- Prediction of incremental pollution load due to proposed mining activities through AERMOD modelling studies.
- Evaluating the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies.
- To prepare an Environment Management Plan (EMP), outlining the measures for improving the environmental quality for environmentally sustainable development; and Identifying critical environmental attributes that are required to be monitored in the post-project scenario.
- Identifying various existing pollution loads due to mining activities since inception.
- Evaluating the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies.
- To prepare an Environment Management Plan (EMP), outlining the measures for improving the environmental quality for environmentally sustainable development; and Identifying critical environmental attributes that are required to be monitored in the post-project scenario.

The report represents Environmental Impact Assessment & Environmental Management Plan for the

Gondkhari Underground Coal Mining project located at village Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna, Tehsil Kalmeshwar and District Nagpur (Maharashtra).

As per the requirements stated in the Environmental Impact Assessment Notification 2006 and its subsequent amendments, Environmental Impact Assessment (EIA) study has been undertaken to assess the environmental impacts arising out from the proposed mine and accordingly developed a site specific environmental management plan and risk mitigation measures with respect to present environmental conditions & needs. Baseline environmental studies were conducted during the Summer Season (March 2022 to May 2022) as per the ToR issued by EAC, MoEF&CC, New Delhi. The copy of Terms of Reference is attached as **Annexure I.**

Field studies were conducted to determine existing status of various environmental attributes as outlined in **Table 1.3.**

TABLE 1. 2: ENVIRONMENTAL ATTRIBUTES AND FREQUENCY OF MONITORING

Sr. No.	Attributes	Parameters	Frequency
1	Meteorology	Wind speed and wind direction, Temperature, Relative humidity and Rainfall.	Continuous with hourly recording through setting up of automatic meteorological station at site and data from Secondary sources: i.e. IMD station at Nagpur.
2	Ambient Air Quality	PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, NH_3, O_3, Benzene, Benzopyrene and Heavy metals from particulate matter	24 hourly samples twice a week for three months identified at 12 locations. Particulate sampling is monitored 8 hourly in 24 hour basis.
3	Water quality	Physical and Chemical parameters, Bacteriological and demand parameters as per IS-10500.	Grab samples were collected once during study period prepared and brought to the laboratory for analysis. Surface Water (SW) and Ground water (GW) monitoring, once in a monitoring period **Total 16 Nos. Water Samples was collected within study area:** 8 Nos. Surface Water (SW) and 8 Nos. Ground Water (GW) source.
4	Soil characteristics	Soil profile, characteristics, soil type and texture, heavy metals, NKP value, organic matter, CEC and exchangeable cations.	Once during study period at 8 locations within 10 km radius of study area.
5	Noise levels	Noise levels in dB(A)	Noise Level Monitoring – 8 Nos. locations. At every location data monitored hourly for 24 hours, once during EIA study.
6	Land use	Land use for different categories.	Based on NRSC image, preparation of FCC, image and slope observation through field studies. Abstracts of census of India 2011 and village directory
7	Geology	Geological history	Based on secondary data collected from Geological Survey of India.
8	Hydrogeology	Drainage pattern, nature of streams, aquifer characteristics, recharge and discharge areas	Hydro-geological data based on secondary data collected from CGWA Brochure.
9	Biological Environment	Study of terrestrial flora and fauna diversity and aquatic ecological studies within 10 km radius	Through field visits, relevant sample collection as per in-house SOP and secondary data collection from the District Forest Authority
10	Socio-Economic aspects	Socio-economic characteristics: infrastructure resources, health status, economic resources.	Based on data collected from secondary sources like abstracts of census of India 2011 and village directory 2001.
11	Risk assessment and Disaster Management Plan	Identify the areas where disaster can occur by fires and explosions and release of toxic substances.	Studied once during Baseline Period and It is observed periodically and updated in-line with MSHIC rule 1989 (during operational phase).

CHAPTER-2
PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.1. TYPE OF PROJECT AND CAPACITY

Gondkhari Coal Mine (UG mine) is a virgin mine in Gondkhari area of Kamptee coal field located at village Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna, Tehsil Kalmeshwar, District Nagpur (Maharashtra)which belongs to M/s Adani Power Maharashtra Limited (APML) falls under Category-A and seeking environmental clearance under 2006 Notification. This chapter deals with the background information of the proposed project, activities, resources availability, technology being adopted, sources of pollution and control measures, etc.

The Mine lease area is 862.00 Ha. The rated production of Coal is 2.0 MTPA as per Approved Mining Plan by mechanized underground mining method.

2.2. NEED FOR THE PROJECT

Coal is the most important and abundant fossil fuel in India. It accounts for 56.42% of the country's energy need. The All India production of coal at 716.08 million tonnes in 2020-21 (Provisional) and all India Production of coal during 2021-22 were 778.19 MT (Provisional) with a positive growth of 8.67%.

Coal India Limited (CIL) and its subsidiaries accounted for 596.221 million tonnes during 2020-21 as compared to a production of 602.129 million tonnes in 2019-20 showing a negative growth of 0.98%. Coal production of CIL during 2021-22 were 622.634 MT(Provisional) with a positive growth of 4.43%.

Singareni Collieries Company Limited (SCCL) is the main source for supply of coal to the southern region. The company produced 50.580 million tonnes of coal during 2020-21 as against 64.044 million tonnes during the corresponding period last year. SCCL production of coal during 2021-22 was 65.022 MT(Provisional) with a positive growth of 28.55%. Small quantities of coal are also produced by TISCO, IISCO, DVC and others.

(https://coal.nic.in/index.php/en/major-statistics/production-and-supplies)

APML has the onerous responsibility of meeting large portion of coal demand in this part of the country. Further, there is need for enhancement in coal production to meet the requirement of Maharashtra State in particular and India in general. In order to fulfill coal requirement of future thermal power projects of Maharashtra State in particular, APML is taking steps to enhance the production capacity of proposed project wherever possible. The capacity of Gondkhari Coal Block is planned to produce 2.0 MTPA

2.3. LOCATION

Gondkhari Block is a part of Kamptee Coalfield located at Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna, Tehsil Kalmeshwar Distirct Nagpur of Maharashtra. The block falls in the command area of Western Coalfields Ltd. The block is fresh area and is free of any mining activity. The nearest coal mining activity is at a distance of about 35 km (NE direction) in Saoner underground mines of the western coal field of M/s Coal India to the north east of the block. The Gondkhari block is geologically located south-western side of Soaner - Khandala sub basin of the Kamptee coalfield.

The Gondkhari Coal Mine spread over a total 8.62 sq.km area is located north of the National Highway No.6 at a distance of 20 Km. from Nagpur city. The NH-6 passes east - west along the southern part of the block.

Latitude	21° 07’ 57" N to 21° 10' 56" N
Longitude	78° 54' 45" E to 78° 56' 26"E

Area falls under Survey of India Topo sheet No. 55 K/16 Further details pertaining to location are provided in **Chapter – 1**, **Section 1.4**.



FIGURE 2. 1: PHOTOGRAPHS OF PROPOSED SITE

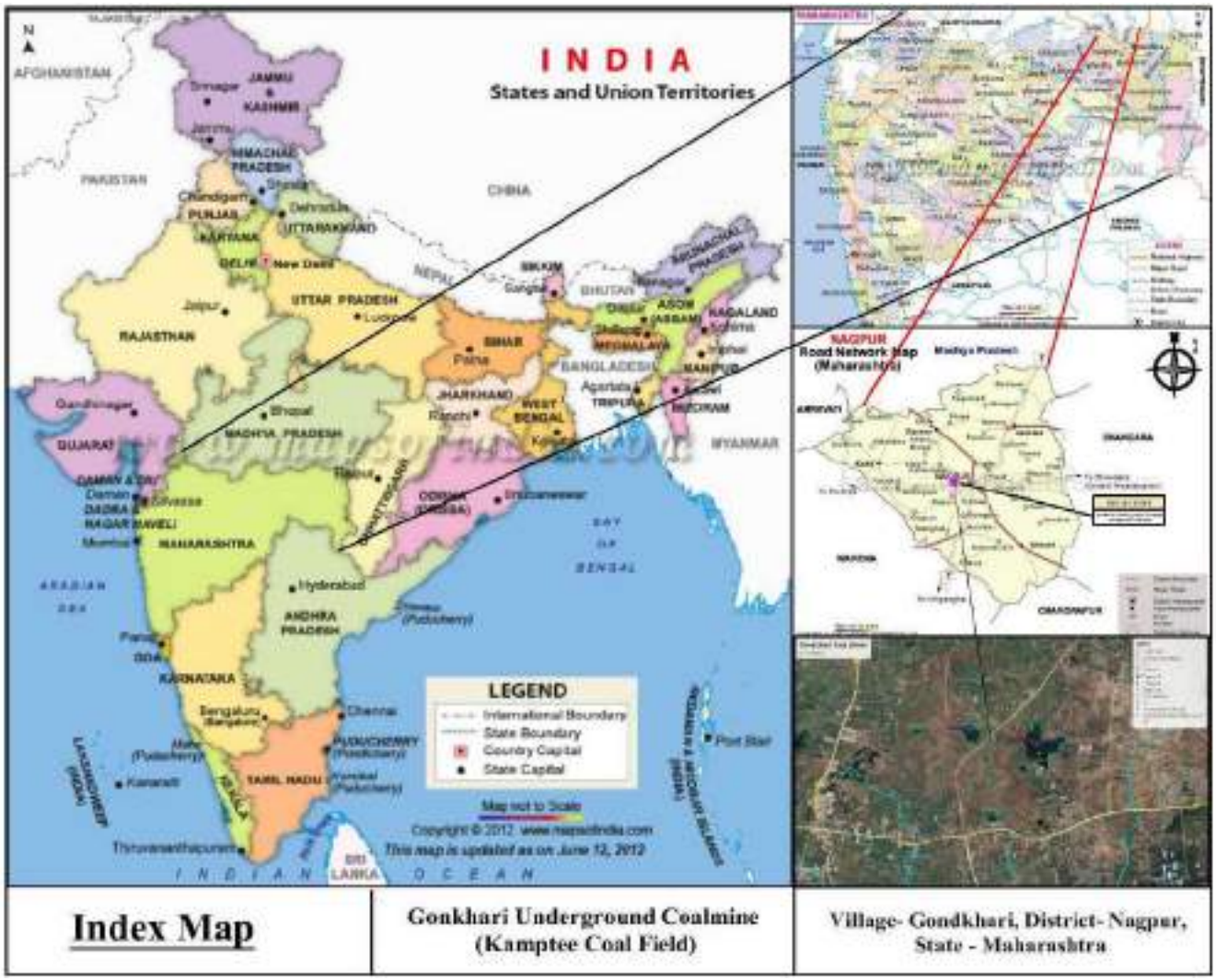


FIGURE 2. 2 : INDEX MAP OF THE PROJECT SITE

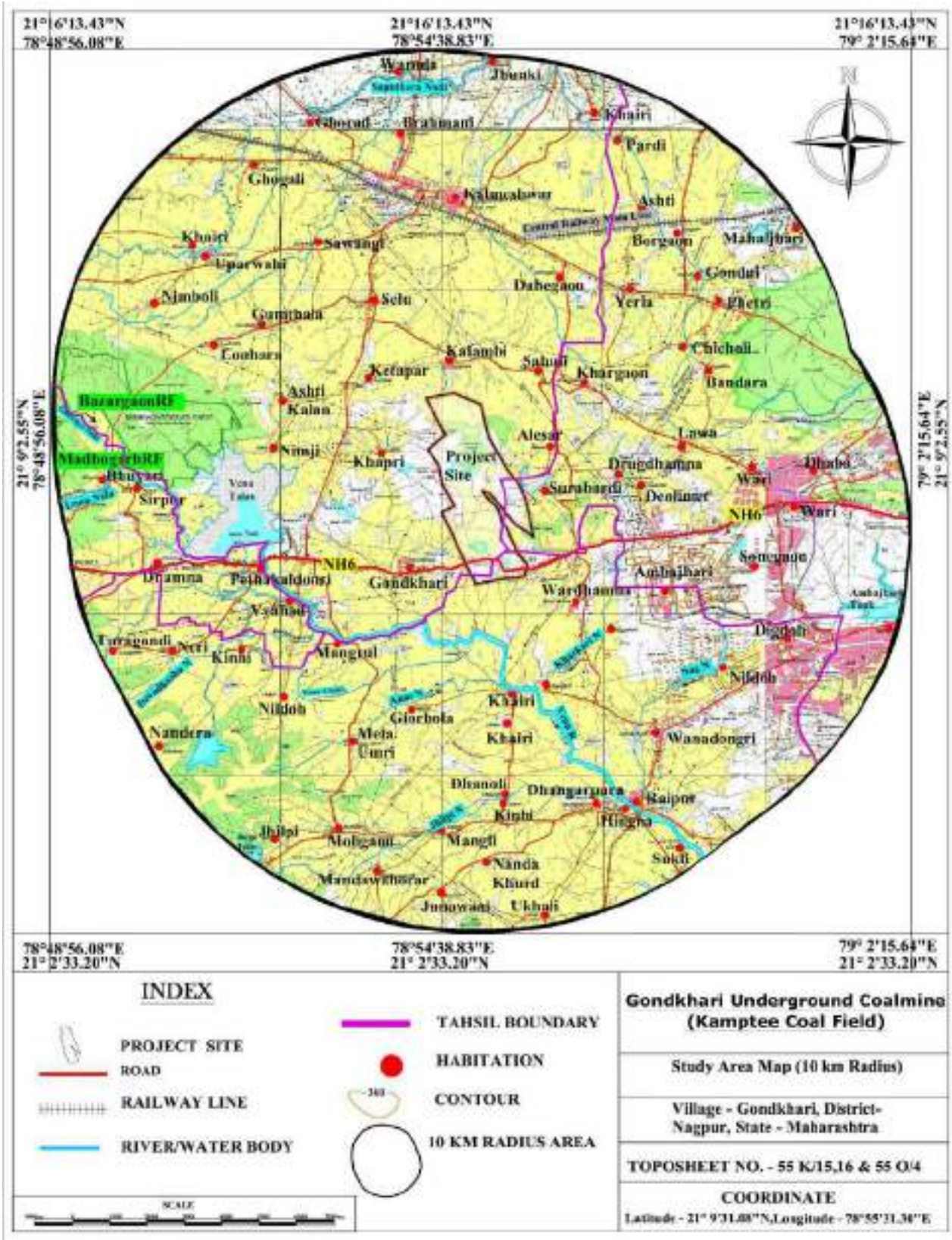


FIGURE 2. 3 : STUDY AREA (10 KM RADIAL DISTANCE)



FIGURE 2. 4 : SATELITE GOOGLE IMAGERY OF MINE LEASE AREA

2.4. SIZE AND MAGNITUDE OF OPERATION

The Gondkhari Underground Coal mine has Targeted Capacity 2.0 MTPA through Underground mining method. The salient feature of the proposed project is given in **Table 2.1**

TABLE 2.1: SALIENT FEATURE OF THE PROPOSED PROJECT

Sl.	Description	Details
1.	Production/estimated reserves	Targeted Capacity – 2.0 MTPA Estimated Gross Geological reserves: 98.717 Mt. Net Geological Reserve: 98.5030 Million tonnes Mineable Reserve: 52.496 Million tonnes
2.	Total reserve for Mining	Extractable Reserves: 42.946 Million tonnes
3.	Mining methods & technology	Underground mining: Longwall retreating method with caving by deploying DERDS and Road Headers for tunnelling.
4.	Mine lease area	862.00 Ha.
5.	Life of mine	30 years (including construction phase)
6.	Lease period	Proposed for 30 years (including 2 years of construction)
7.	Total water requirement & source	Total water requirement is 492 KLD (452 KLD from mine seepage and 40 KLD from borewell). PP has obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023 for ground water withdrawal and dewatering enclosed as **Annexure IIIA**. Source: Industrial water requirement will be met from, ground water and mine seepage water sources.
8.	Power requirement & source	The power requirement is 19.742 MW and source as below- The mine will receive power from nearest 132 kVA Surabardi Substation under Maharashtra State Electricity Distribution Company Limited in Nagpur district which is located at about 3 km

Sl.	Description	Details
		from the proposed Mine sub-station. To cater the demand of power for peak production of 2 MTPA, it is proposed to install 2 x 15 MVA outdoor transformers at proposed substation.
9.	Manpower requirement	863 (Peak)
10.	Raw material required	The allocated block is a commercial coal block for sale of coal.
11.	Grade of Coal	G8 (Average)
12.	Minimum Depth of Workings	169.5 m
13.	Maximum Depth of Workings	394.30 m
14.	Gradient	1 In to 2.5 to 1 in 6.5 (9^0 to 22^0)
15.	Seam details	Workable seam out of 10 coal seams are: VIII seam, V Seam, III Seam & II seam.
16.	Estimated cost of the project	1303 Cr.

In this mine, the Geo-mining characteristics of 4 no. of seams coupled with their considerable thickness made them ideally suited for exploitation by Underground method. Hence, the entire property is being extracted by underground mining method.

The details of the seams present in the Gondkhari Coal Block (UG mine) are furnished below:

Seam	BHs with Full Seam Intersections	Stratigraphic Thickness (m)		Effective Thickness (1-30 Basis) (m)		Parting (m)	
		Min	Max	Min	Max	Min	Max
X	23	0.05 (MKH-44)	1.40 (CMKGK-1)	0.05 (MKH-44)	1.40 (CMKGK-1)	-	-
Parting	-	-	-	-	-	6.22 (MKH-16)	11.50 (CMKGK-25)
IX	22	0.06 (MKH-16)	1.40 (CS) (CMKGK-9)	0.06 (MKH-16)	1.17 (CMKGK-22)	-	-
Parting	-	-	-	-	-	12.16 (CMKGK-2)	20.50 (CMKGK-7)
VIII	30	1.40 (CMKGK-7)	3.98 (CMKGK-25)	1.40 (CMKGK-7)	3.98 (CMKGK-25)	-	-
Parting	-	-	-	-	-	8.24 (CMKGK-25)	20.68 (CMKGK-12)
VII	30	0.05 (MKH-50)	0.75 (CMKGK-12)	0.05 (MKH-50)	0.75 (CMKGK-12)	-	-
Parting	-	-	-	-	-	0.85 (CMKGK-6)	11.24 (MKH-18)
VI	36	0.03 (CMKGK-34)	0.53 (CS) (CMKGK-6)	0.03 (CMKGK-34)	0.45 (CMKGK-25)	-	-
Parting	-	-	-	-	-	11.72 (MKH-	22.82

Seam	BHs with Full Seam Intersections	Stratigraphic Thickness (m)		Effective Thickness (1-30 Basis) (m)		Parting (m)	
		Min	Max	Min	Max	Min	Max
						40)	(CMKGK-1)
V	41	1.17 (CMKGK-5)	4.12 (CMKGK-2)	0.50 (CMKGK-5)	3.22 (MKH-18)	-	-
Parting	-	-	-	-	-	11.06 (CMKGK-8)	23.87 (CMKGK-26)
IV	28	0.03 (MKH-16)	0.46 (MKH-37)	0.03 (MKH-16)	0.46 (MKH-37)	-	-
Parting	-	-	-	-	-	2.00 (CMKGK-11)	17.02 (CMKGK-8)
III	42	1.93 (MKH-26)	5.00 (CMKGK-13)	1.93 (MKH-26)	5.00 (CMKGK-13)	-	-
Parting	-	-	-	-	-	9.61 (MKH-26)	16.00 (CMKGK-26)
II	38	0.30 (CMKGK-35)	2.55 (MKH-37)	0.30 (CMKGK-35)	2.45 (MKH-37)	-	-
Parting	-	-	-	-	-	20.34 (MKH-18)	30.54 (CMKGK-16)
I	3	0.09 (MKH-18)	0.11 (CMKGK-16)	0.09 (MKH-18)	0.11 (CMKGK-16)	-	-

Source: Mine Plan and Progressive Mine Closure Plan

Depth of the mine and Coal Reserves;

- Minimum and Maximum Depth of working proposed as per approved mining plan is from 169.50m to 394.30m for the proposed Gondkhari Coal Block Underground mine.
- The estimated Gross Geological reserves of Gondkhari Coal Block are 98.717 Mt.
- Net Geological Reserve of the Block is 98.503 Mt.
- Minable Reserve of the Block is 52.496 Mt.
- Blocked Reserve is 46.086 Mt.
- Corresponding extractable reserve of the Block is 42.946 Mt. and the average GCV of the Block is 4960 Kcal/kg (G8).

2.5. PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The proposed project activities will be commenced after obtaining Environmental Clearance under Environment (Protection) Act, 1986 from Ministry of Environment and Forests & Climate Change, New Delhi. The details of statutory obligations as specified by MoC / MoEF&CC etc. are given in below:

Sl. No.	Clearance Type	Current status

Sl. No.	Clearance Type	Current status
1.	Mining Plan	Approved from Ministry of Coal, Govt of India
2.	Mining Lease	Application for mining lease has been submitted and Approval is under progress. The area applied for mining lease is not encroaching any other coal block.
3.	Environmental Clearance	ToR has granted on 13.02.2023 and Public Hearing was conducted dated 13.07.2023. EIA-EMP report will be submitted to MoEF&CC as per schedule.
4.	Forest Clearance	Application has been submitted on MoEF&CC portal and its approval is under process. The details are given in **Annexure III (C).**
5.	CTE and CTO	It will be processed after obtaining Mining Lease
6.	Mine Opening permission	Will be processed after all clearances/permissions

2.6. MINERALS & MINING IN THE AREA

The method of mine is mechanized underground. The allocated block will be used for mining of coal.

2.7. ACCOCIATED ACTIVITIES REQUIRED FOR THE PROJECT

2.7.1. Land Requirement

Mining lease area of project is 862.00 Ha which spreads in Village Gondkhari, Tehsil Kalmeshwar, District Nagpur, Maharashtra. The details are as under.

TABLE 2.2(A): PRESENT LANDUSE PATTERN

Sl. No	Description	Existing Land Area in Ha
1	Forest land	87.351
2	Govt. Non-Forest land	87.301
3	Private Land	687.347
Total Land		**862.000 Ha**

TABLE 2.2(B): LAND USE PATTERN AT THE END OF PLAN PERIOD

M/s. Adani Power Maharashtra Limited				
Name of Village & Tehsil	Private Land (In Ha)	Govt. Land		Total Area (In Ha)
		Govt. Non- Forest Land (In Ha)	Govt. Forest Land (In Ha)	
Tehsil - Kalmeshwar				
Nanda (Rithi)	38.870	5.340	0.000	44.210
Kalambi	36.1303	0.000	0.000	36.1303
Alesur	2.580	4.730	0.000	7.310
Gondkhairi	136.973	20.570	7.440	164.983
Karali	355.373	40.566	57.273	453.212
Tehsil – Nagpur Gramin				
Surabardi	72.470	14.705	0.000	87.175
Tehsil - Hingana				

Pendhari	6.623	1.200	0.000	7.823
Waddhamna	37.708	0.190	22.638	**60.537**
Total	**687.347**	**87.301**	**87.351**	**862.000**

Source: Approved Mining Plan

2.7.2. Water Requirement

Total water requirement for this project is 492 KLD (452 KLD will be met from mine seepage and 40 KLD from borewell). Potable water requirement will be met from ground water sources with appropriate treatment. Necessary permission will be taken prior to water utilization for the project.

TABLE 2.3: WATER REQUIREMENT

Particular	**Consumption (KLD)**		**Source**
Water requirement	**Proposed**	**Total**	Industrial water requirement will be met from existing reservoirs, ground water and mine water sources. Potable water requirement will be met from ground water sources with appropriate treatment.
Domestic Use	40	40	
Mining Activity	10	10	
Horticulture Purpose	300	300	
Dust Suppression	142	142	
Total :	**492**	**492**	

TABLE 2.3(A): YEARWISE WATER REQUIREMENT

	Water Quantity from Mine Seepage	**Utilization of Water**					
Year	**Mine Seepage including borewell water of 40 m^3/day**	**Green Belt**	**Mining**	**Dust Suppression**	**Domestic**	**Total Utilization**	**Available water for GR recharge in downstream - outside mine boundary**
	m^3/day	**m^3/day**	**m^3/day**	**m^3/day**	**m^3/day**	**m^3/day**	**m^3/day**
3	492	60	150	242	40	492	0
5	1602	120	650	484	80	1334	268
10	4652	120	650	726	100	1596	3056
15	7702	120	650	726	100	1596	6106
20	10752	120	650	726	100	1596	9156
24	12732	120	650	726	100	1596	11,136

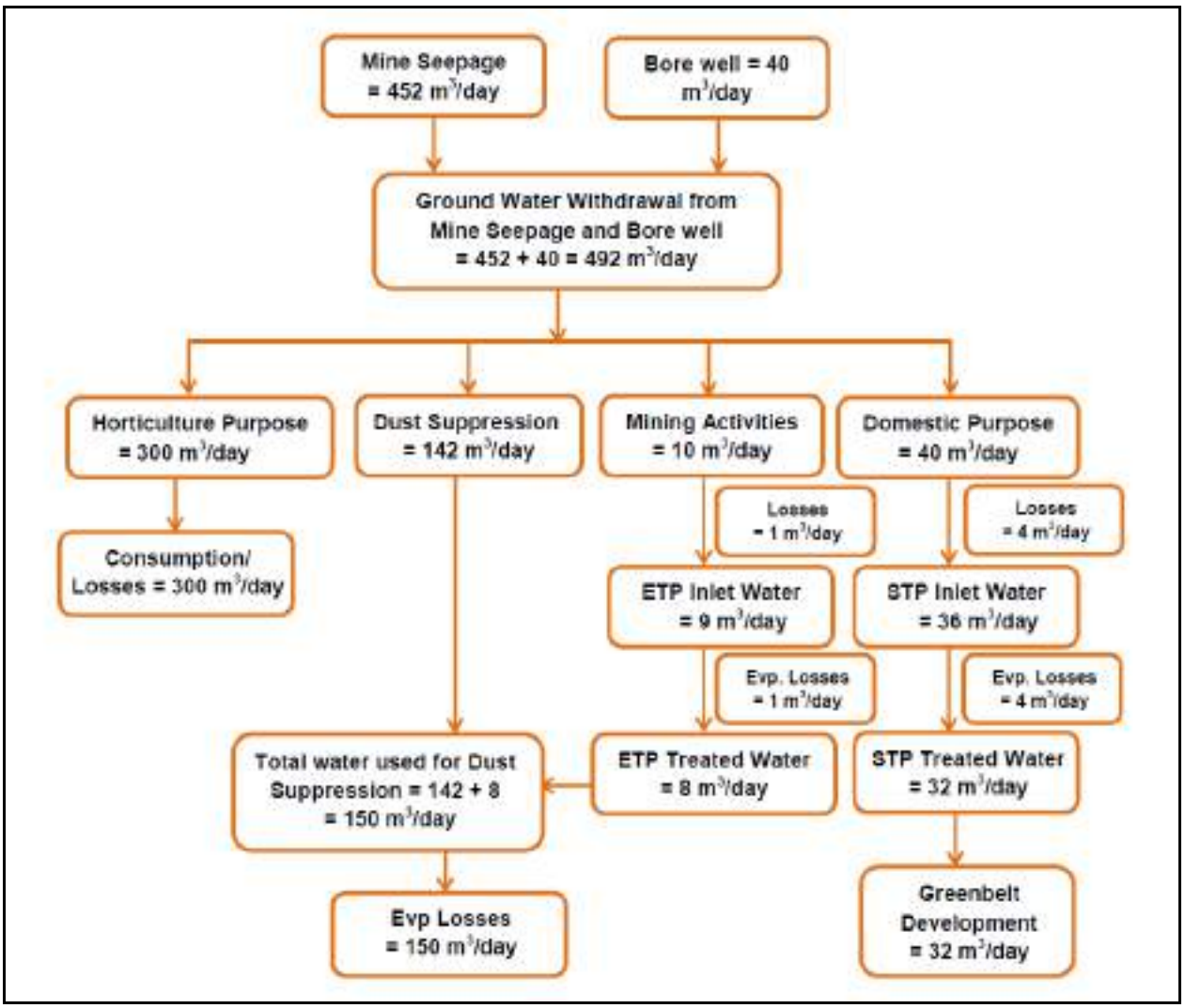


FIGURE 2. 5 : WATER BALANCE

2.7.3. Man Power Requirement

The total manpower requirement is 863 nos. and no further additional manpower is required.

TABLE 2.4: MANPOWER REQUIREMENT

Sl. No.	Particulars	Nos.
1.	General Administration	98
2.	Statutory Administration	50
3.	Underground Mine Management	250
4.	Common maintenance	120
5.	Coal handling and logistics	180
6.	Welfare, medical, sanitation and security	165
	Total	**863**

2.7.4. Power Requirement

The power requirement for the project will be 19742 KW which will be source through grid supply from MSEDCL, Maharashtra State.

2.8. TECHNOLOGY AND PROCESS DESCRIPTION

2.8.1. Proposed method of mining

Considering the geo-mining characteristics of the block and for conservation of resource, it is proposed to extract the coal reserves within the block using long wall underground mining method.

Underground Mining

i) Seems to be worked

Geological Exploration in the block established 10 nos. of Seams, viz. seams I, II, III, IV, V, VI, VII, VIII, IX and X which occur in ascending order in Gondkhari Coal Block (UG mine). Out of the ten seams, the seams which are only persistent with workable thickness are Seam- II, III, V and VIII and as such considered for mining. The other six seams, being impersistent and having non mineable thickness, have been ignored.

Out of the four workable seams, Seam-III is the most promising as it is persistent seam with thickness 3m to 4.5m. The partings between the seams are more than 9 m and hence they are not contiguous in nature and can be developed and extracted independently from top downward with caving.

The seam-wise effective thickness and workability is given below in table

Sl. No.	Seam	Effective thickness range, m	Workability
1	X	0.05-1.4	Not workable
2	IX	0.06-1.17	Not Workable
3	**VIII**	**1.4-3.98**	**Workable**
4	VII	0.05-0.75	Not workable
5	VI	0.03-0.45	Not workable
6	**V**	**0.5-3.22**	**Workable**
7	IV	0.03-0.46	Not workable
8	**III**	**1.93-5.00**	**Workable**
9	**II**	**0.3-2.45**	**Workable**
10	I	0.09-0.11	Not workable

ii) Method of Mining

The proposed method to work: the excavation will be done by mechanized Longwall (retreating) method and the same is being adopted as method of Mining. With a high level of production planned from the mine, the following mechanization has been planned. Six Road headers and Two sets of Longwalls are adopted for development and depillaring. Coal evacuation will be through Gate belt conveyor from face via series of Trunkbelt conveyors discharging on to Main Incline conveyor which discharges in surface bunkers

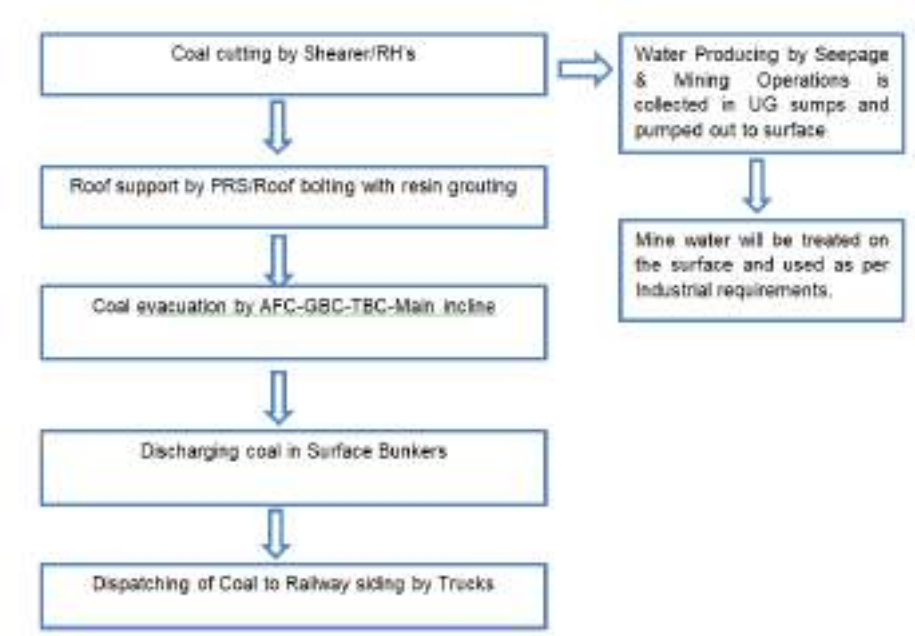


FIGURE 2. 6 : PROCESS FLOW DIAGRAM – MINING METHODOLOGY

Sequence of Mining:

The coal seams in the block are divided into three Districts viz. District 1, District 2 & District 3 as per the occurrence of F2 fault and the F4 fault. The coal seam adopts and descending mining sequence. In the same district, the upper coal seam is mined first, and then the lower coal seam is mined. In a particular seam the mining sequence of districts is: No. 1 district, No. 2 district, No. 3 district.

Behavior of Coal roof and floor:

The immediate roof of coal seams is mainly composed of sandstone. The floor is composed of sandy shale and Shale.

Support system for strata control:

All roadways and galleries are supported by roof bolts. The roof bolt is made of T or steel of 22 x 1800/2400 mm, the bolt spacing and row spacing are 1200 x 1200 mm. Additional supporting will be done as and when required with wire mesh and W straps. The longwall face would be equipped with powered supports and the top and bottom gate roads would be supported by 40Te open circuit hydraulic props and steel ginders up to 30m from the face.

Subsidence:

Caving has been proposed as methods of extraction. The depth of working varies from 165m to +400m. Subsidence prediction studies have been carried out by IIT Kharagpur (report enclosed as **Annexure – IV.**

Transport & winding:

The transportation of coal is proposed by series of conveyors and men transportation is proposed by chair lift arrangements. The material is proposed to be transported by Track haulage system.

Brief description of all operations:

It has been proposed to extract coal reserves by Mechanized Road header and Powered Support Longwall Technology (PSLW) and the coal evacuation is through series of Conveyor systems up to surface. The life of the mine is 30 years including construction period.

The Longwall shearer cuts coal in both directions, with a web depth of 0.8m. Three shifts for production, one for of maintenance, 4 cuts will be performed in each shift annual working days per year is 305, and the rate of regular cyclic group is 90%. The annual advancement progress is 0.8x12x305x90% = 2635m. The annual production of the south wing LW face is 0.84 Mt, the same of the north wig LW face is 1.00 Mt, and the development production is 0.16Mt so the annual production of the mine is 2.00 Mt, which meets the design capacity of the mine.

2.8.2. Extent of Mechanization

The machineries deployed in given below:

TABLE 2.5: LIST OF MINING MACHINERY PROPOSED

Sl. No.	Equipment	Quantity	Motive power	Capacity
1.	Shearer Powered Supports	2	Diesel	930 KW
2.	AFC	166	Diesel	7000 kN
3.	BSL	2	Diesel	600 TPH
4.	BSL	2	Diesel	700 TPH
5.	Crusher	2	Diesel	800 TPH
6.	Extensible belt conveyor	2	Diesel	1000 TPH
7.	Emulsion pump	5	Diesel	31.5 KW
8.	Spray pumps	4	Diesel	31.5 KW

2.9. GEOLOGY OF THE AREA

2.9.1. Regional Geology

Presence of lower Gondwana sediments in detached sub-basins within 10-12 kms. North east of Nagpur and in the vicinity of Kamptee township was reported as early as 1867 by W.T. Blanford. During the year 1946 Mis Brooke Bond Ltd. Sunk a borehole for a tube well in their compound near Kanhan Rly. Station and encountered five coal seams within a depth of 81 feet. This chance discovery of coal brought Kamptee coalfield on the coalfield map of India. Subsequently Mis Killick Nixon & Co. drilled a few boreholes near Kandri (21° 14° N 79° 14° E) and encountered the seams in two of their boreholes.

Stratigraphy

Based on the drilling data generated by various exploration agencies in the past and the recent promotional drilling carried out by MECL the following generalized geological succession has been updated for the Kamptee coalfield.

Stratigraphic Succession of Kamptee Coalfield

Age	Formation	Thickness Range (m)	Lithology
Recent to Sub Recent	Alluvium	1.00 - 53.20	Black cotton soil and sandy soil with pebbles
Unconformity			
Eocene to Cretaceous	Deccan Trap	0.25 - 107.00	Basalt
Eocene	Lametas	0.85-25.95	Cherly limestone and sandstone
Unconformity			
Upper Permian	Kamthi	Nil - 225.30	Yellowish brown medium to coarse, grained ferruginous sandstones with occasional shale/clay bands.
Unconformity (Overlap'			
Middle Permian	Moturs	1.22 - 348.00	Thick variegated clays, greenish white sandstones with occasional shale/carb shale bands.
Lower Permian	Barakars	15.35 - 284.40	Fine to coarse grained sandstone, sandy shale and carbonaceous shale and coal seams
Upper carboniferous	Talchirs	3.75-117.80	Greenish shale and siltstone.
Unconformity (Overlap)			
Archaeans	Metamorphics		Gneisses and schists

Geological Structure

The Gondkhari block is covered by a thick layer of Deccan trap followed by a blanked of Kamthi's. Except for the Deccan Trap none of the formations are actually exposed on the surface in the block. The geological structure therefore, as depicted in the floor contour plans for various seams is based on the sub surface data generated from boreholes. Structurally Gondkhari block is moderately complicated. The block exhibits the presence of nine faults. The major faults have a trend of NW-SE i.e. sub parallel to the strike of beds whereas the minor faults are oblique faults.

Strike and Dip of Strata

The general strike of the beds in the block as deduced from the floor contour of the coal seams is NNW-SSE with westerly dip. The seam gradient generally varies from 1 in 2.5 to 1 in 6.5 (i.e. dip of about 9° - 22°). The gradient is steep in the west-central part where as it is comparatively flat in southern eastern & northern part of the block.

Pattern of Faulting

The Gondkhari block is traversed by nine faults due to thick cover of Deccan trap and the presence of overlapping Kamthis none of the faults are traceable on surface. Therefore, their presence has been interpreted from the direct evidences in boreholes where partial or complete omission of coal seams, reduction in parting between the successive seams is observed. Faults have also been interpreted by indirect evidence through difference in floor reduced levels on either side of fault. All the faults have been considered as pre-Kamthis and therefore their position has been projected up to the floor of Kamthis only.

2.9.2. Local Geological Set-Up

Project area consists of basalt, Cherty Limestone and soil cover which is having thickness of around 1.0 - 1.5m. Outcrops are very rare in project site. The Gondkhari block covered by a thick layer of Deccan trap followed by a blanked of Kamthis. Structurally Gondkhari block is moderately complicated. The major faults have a trend of NW-SE i.e. sub parallel to the strike of beds.

2.9.3. Surface Plan of the Lease Area

Surface plan of the lease area has been prepared on a scale of 1:1000 with contour interval of 5 m showing all existing surface features with locations of exiting trial pits and boreholes drilled etc.

2.9.4. Geological Plan of the Lese area

Surface Geological Plan of the lease area is prepared showing geology of the area and all existing surface features with locations of proposed boreholes.

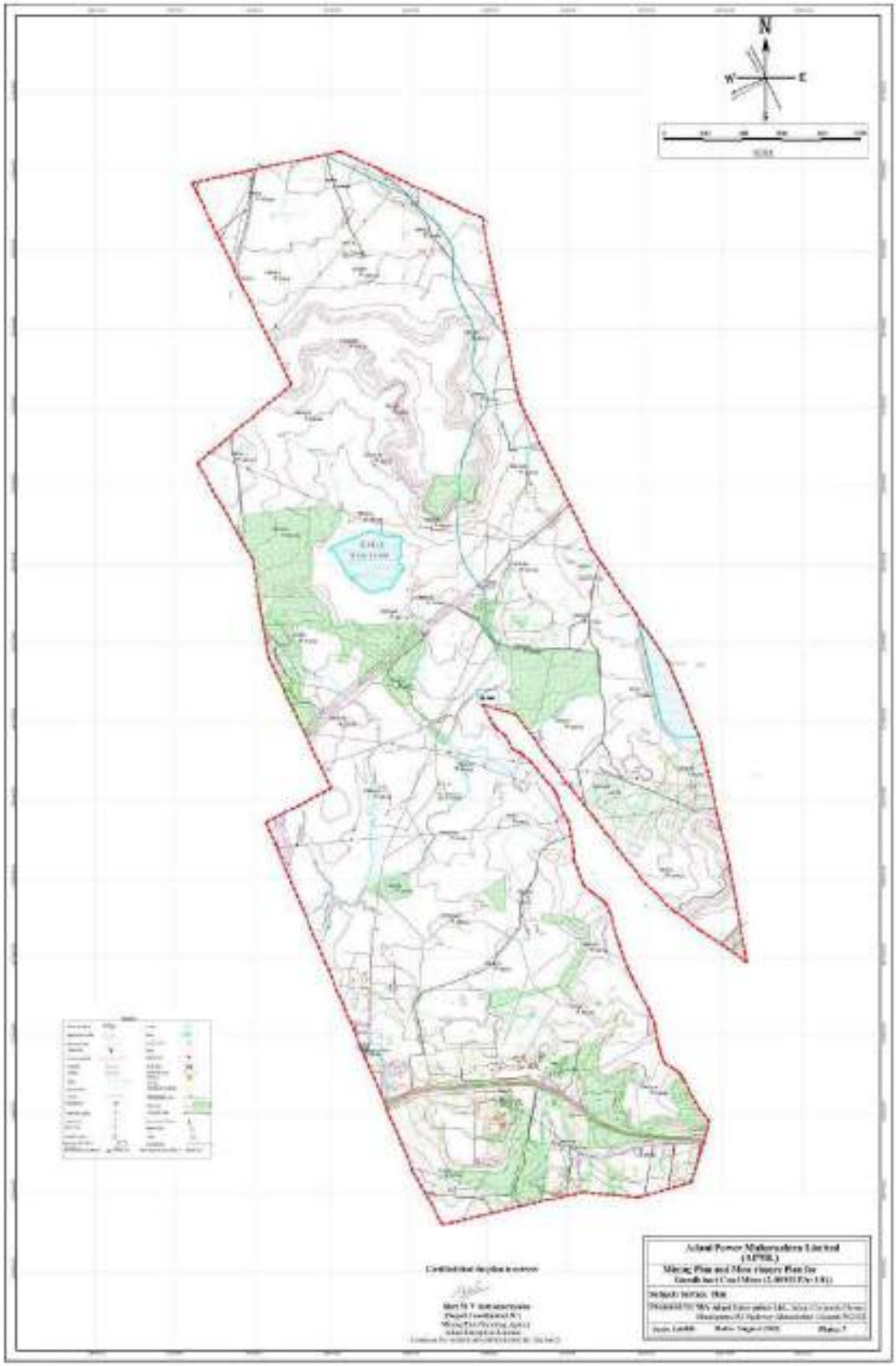


FIGURE 2. 7 : SURFACE LAYOUT PLAN

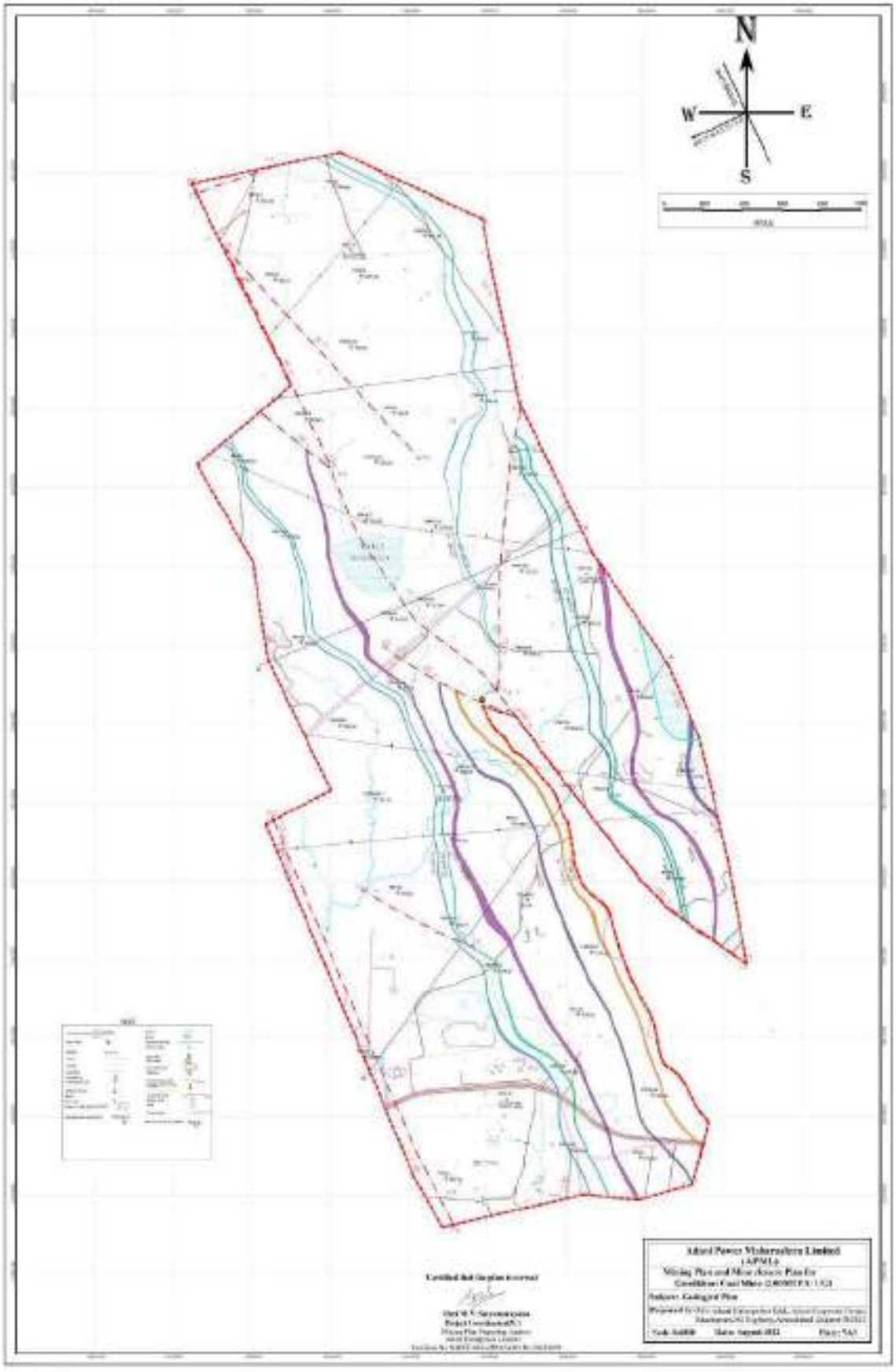


FIGURE 2. 8 : GEOLOGICAL PLAN

2.10. GEOMORPHOLOGY AND PHYSIOGRAPHY

The district forms part of Deccan Plateau having flat topped and terraced features. Eastward and northeastwards the landscape changes due to the change in the underlying rocks. The rocks of Gondwana series present a low rolling topography with a poor soil cover and vegetation. On the north the upland ranges are the extension of Satpuras which gradually narrows down towards west. South of these upland range stretches the Ambegad hills, the western extremity of which is the Nagpur district. The Ramtek temple is on the spur of this range. The Girad hill range extends along the southeast and separates the valley of the Kar from that of Jamb upto Kondhali. Another main hill range runs northwards through Katol taluka from Kondhali to Kelod separating the Wardha and Wainganga valleys. The northeastern and east central parts of the district is drained by the Wainganga and its tributaries. The central and western portion is drained by the Wena which is a tributary of Wardha river.

Topographically, the lease area is characterized by a flat topped and terraced features. In altitude, these areas ranges from 329m to 387m AMSL. Towards northern side of Mining Lease area exhibit higher altitude while the southern part shows low lying area of gentle slope. The overall slope of the area is towards southern side.

2.11. DETAILS OF MINING

Prospecting and Exploration carried out in the area:

APML has done exploration by total 61 no. of Borehole drilling inside the lease area and outside the lease area. Drilling of 4 more boreholes is going on and will be completed soon.

2.11.1. Previous Exploration/Work

Occurrence of coal in Gondkhari Block was established by MECL through promotional exploration over an area of about 105 sq. km. by drilling 63 boreholes of MKH series, during the period Nov. 98 to Nov. 2000. Out of 63 boreholes only 17 boreholes fall in the present Gondkhari Block.

2.11.2. Mining History of the Block

The block under report is virgin area and is free of any mining activity except for surface quarrying for road metal. The nearest coal mining activity is at distance of about 35 km in Saoner underground mines to the north of the block.

2.11.3. Exploration Design

Exploration was started mainly to delineate the lay and disposition of the coal seams and their quality. Seam II that is the lowermost potential seam has been the target depth of the boreholes.

In the first phase of exploration, boreholes were drilled on standard 400mx400m grid. Subsequently boreholes were drilled at required locations for proving faults and sub-crops of seam. While taking up boreholes, the location and data of old boreholes drilled by MECL have also been considered. A total of 15,717.85m of drilling has been done in 61 boreholes. The year wise and agency wise break-up of boreholes and meterage generated is given in **Table 2.6**. The data of all 61 boreholes involving 15,717.85m of drilling has been utilised for the present documentation. The agency wise break-up of boreholes and meterage is given in the following table:

Table: 2.6: EXPLORATION DETAILS

Agency	No. of BHs.	Meterage drilled
MECL (MKH series)	17	4656.20
CMPDI (CMKGK series)	44	11061.65
Total	**61**	**15,717.85**

2.11.4. Reserves Estimated on the Basis of Exploration With Timely Updates.

Resources/ Reserves Categories

The estimated Gross Geological reserves of Gondkhari Coal Block are 98.717 Mt.

Net Geological Reserve of the Block is 98.503 Mt.

Minable Reserve of the Block is 52.496 Mt.

Blocked Reserve is 46.086 Mt

Corresponding extractable reserve of the Block is 42.946 Mt.

And the average GCV of the Block is 4960 Kcal/kg (G8)

The mineable reserves in this mine are 52.496 Mt. Therefore, at the production rate of 2.0 MTPA, total life of mine is 26 years.

The Mining Plan has been approved by Ministry of Coal, Govt of India, New Delhi vide letter no. MHMR019/APP00226/2022 dated 9th January, 2023.

The Mine activity is being & will be performed as per mine plan, and along with adequate control measures to minimize environmental damage. Life of mine on the basis of proved reserve.

2.11.5. Use of Mineral and Mineral Reject

Sale of coal including sale to Affiliates and related parties, utilization of coal for any purpose including but not limited to captive consumption, Coal Gasification, Coal Liquification and export of coal.

2.11.6. Mining Details

Mining will be carried out by underground mechanized mining method. The proposed method to work the deposit is by mechanized Longwall (retreating) method and the same is being adopted as method of Mining. With high level of production planned from the mine, the following mechanization has been planned. Six Road headers and Two sets of Longwalls are adopted for development and depillaring. Coal evacuation via lump breader on to a system of conveyer belt. Side Discharge Loaders with compressed air drills for high pull solid and compressed air bolter for roof support. Coal evacuation by chain conveyors on to feeder breaker and belt conveyors for stray area.

TABLE 2.7: MINING DETAILS

S. No.	Particulars	Details
1.	Method of mining	Proposed Underground mining
2.	Area	862.00 ha
3.	Net Mineable Reserve	52.496 Mt.
4.	Life of the Mine	30 years (including construction period)
5.	Stripping Ratio	Nil (It is an UG mine)
6.	Depth of Mining	Minimum and Maximum Depth of working proposed as per approved mining plan is from 169.50 m to 394.30m for the proposed Gondkhari Coal Block Underground mine.
7.	Elevation Range	Highest elevation:387 m MSL Lowest elevation: 329 m MSL
8.	Water requirement	492 KLD

S. No.	Particulars	Details
9.	Source of Water	Existing reservoirs, ground water and mine water.
10.	Water table	Depth of water level during Summer (pre-monsoon) Season :0.08-15.59mbgl Depth of water level during the Post Monsoon Season :0.60-10.60mbgl
11.	Commencement of Mining	It is proposed for Underground coal mine and applying for new EC under EIA notification 2006
12.	a. Coal (Mt.) b. Waste Rock/ Reject (T) c. Top Soil (T)	a. 52.496 Mt. (Mineable Reserve as per approved mine plan); 2.0MTPA (Coal production in Plan Period 2025-26 to 2029-30) b. NIL c. NIL
13.	Number of working days	305
14.	Number of shifts per day	4 (one maintenance shift and 3 production shift)

TABLE 2.8: TENTATIVE COAL PRODUCTION PLAN (MT)

Year		Coal Production Schedule			OB MM3	SR
Year of Operation	Calendar Year	UG	OC	Total	0	
1	2026	0	0	0.0000	0	0
2	2027	0.35	0	0.3500	0	0
3	2028	0.90	0	0.9000	0	0
4	2029	2.00	0	2.0000	0	0
5	2030	2.00	0	2.0000	0	0
6	2031	2.00	0	2.0000	0	0
7	2032	2.00	0	2.0000	0	0
8	2033	2.00	0	2.0000	0	0
9	2034	2.00	0	2.0000	0	0
10	2035	2.00	0	2.0000	0	0
11	2036	2.00	0	2.0000	0	0
12	2037	2.00	0	2.0000	0	0
13	2038	2.00	0	2.0000	0	0
14	2039	2.00	0	2.0000	0	0
15	2040	2.00	0	2.0000	0	0
16	2041	2.00	0	2.0000	0	0
17	2042	2.00	0	2.0000	0	0
18	2043	2.00	0	2.0000	0	0
19	2044	2.00	0	2.0000	0	0
20	2045	2.00	0	2.0000	0	0
21	2046	2.00	0	2.0000	0	0
22	2047	2.00	0	2.0000	0	0
23	2048	1.90	0	1.9000	0	0
24	2049	1.796	0	1.7960	0	0
Note : Calendar Plan/Production Plan for the entire life of the mine						

Source: Approved Mining & Mine Closure Plan



FIGURE 2. 9 : DEVELOPMENT PLAN

2.11.7. Waste Generation & Disposal

❖ **Solid Waste Generation and its disposal**

The solid waste generated from the proposed project during incline drivage's and shaft sinking in the sub-soil and hard rocks for mine entries and also from drivage's of cross-cuts in hard rock is estimated to be about 127000 Cum of solid waste. The solid waste produced during these drivage's will be separately stacked on the surface and used in embankment for preparation bank head and filling of low lying areas, development of the land for infrastructure and development of greenery.

❖ **Municipal Solid Waste Generation and Disposal**

The municipal wastes in the form of trash, garbage, food waste, waste papers and card board, etc. expected to be generated is 50 kg/day during construction activities and 170 kg/day during operation phase. Solid wastes generated will be properly collected, segregated and reused / disposed off appropriately as per Solid Waste Management Rules, 2016 as amended.

2.11.8. Ultimate Pit Limit and Depth

The minimum depth of occurrence of coal seam is 135m while the maximum is beyond 400m. These conditions rule out open cast mining as the minimum depth of the coal seam is beyond 135m. The other alternative is underground mining only. Due to presence of 3 prominent faults of substantial throw, the deposit stands split in 2 separate sub blocks which need to be worked as separate units.

TABLE 2.9: LAND USE PATTERN AT THE END OF MINE LIFE (IN HA.)

Mining Activity	Proposed Land Use Area (ha)		Land Use (End of Life) Area	Post Mining Land Use (ha)						
				Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Un-disturbed	Total
Excavation Area	-		-	-	-	-	-	-	-	-
Backfilled Area (in Excavation Area)	-		-	-	-	-	-	-	-	-
Excavated Void (in Excavation Area)	-		-	-	-	-	-	-	-	-
Topsoil Dump	-		-	-	-	-	-	-	-	-
External Dump	-		-	-	-	-	-	-	-	-
Safety Zone	-		-	-	-	-	-	-	-	-
Haul Road between quarries	-		-	-	-	-	-	-	-	-
Road diversion	-		-	-	-	-	-	-	-	-
Settling pond	0.08		0.08	0.08	-	-	-	-	-	0.08
Road & Infrastructure area	13.845		13.845	13.845	-	-	-	-	-	13.845
Garland drains					-	-	-	-	-	
Embankment	0.075		0.075	0.075	-	-	-	-	-	0.075

Mining Activity	Proposed Land Use Area (ha)		Land Use (End of Life) Area	Post Mining Land Use (ha)						
				Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Un-disturbed	Total
Green Belt	2		2	2	-	-	-	-	-	2.000
Water Reservoir					-	-	-	-	-	
UG entry	2		2	2	-	-	-	-	-	2.000
Total (excluding rights for UG mine) (1)	18		18	18	-	-	-	-	-	18
Undisturbed/UG mining right (2)	844		-	-	-	-	-	-	-	844.00
Grand Total (1+2)	862									862.00

2.11.9. Back filling, Reclamation and Rehabilitation (Up to end of lease)

This is underground coal project, hence no Rehabilitation and Resettlement is required.

2.12. SITE INFRASTRUCTURE

The infrastructure will be in the form of mines office, rest shelter, Transformer and machinery. The haul road, the road from mining to connecting NH already exists. The first aid center, water drinking point will be available inside mine lease area.

2.13. MINE VENTILATION

Mine Ventilation Mode and Ventilation System

The required air volume as per the maximum number of people working underground at the same time is 1967m^3/min i.e. 33m^3/s. The required air volume as per the actual mining faces and chambers is 9490m^3 / min i.e. 158m^3/s. The total air volume required by mine is 158m^3/s.

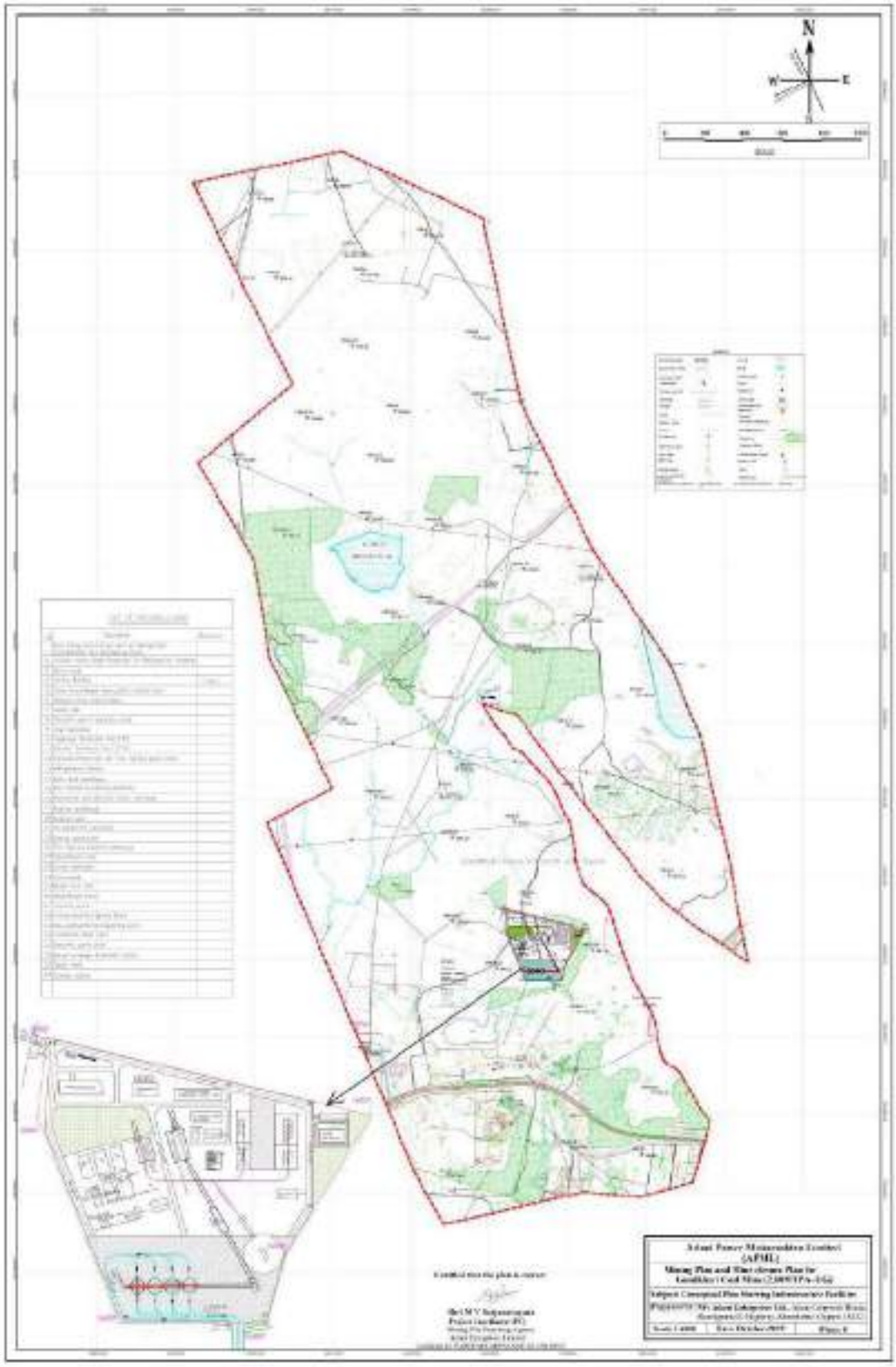


FIGURE 2. 10 : CONCEPTUAL PLAN

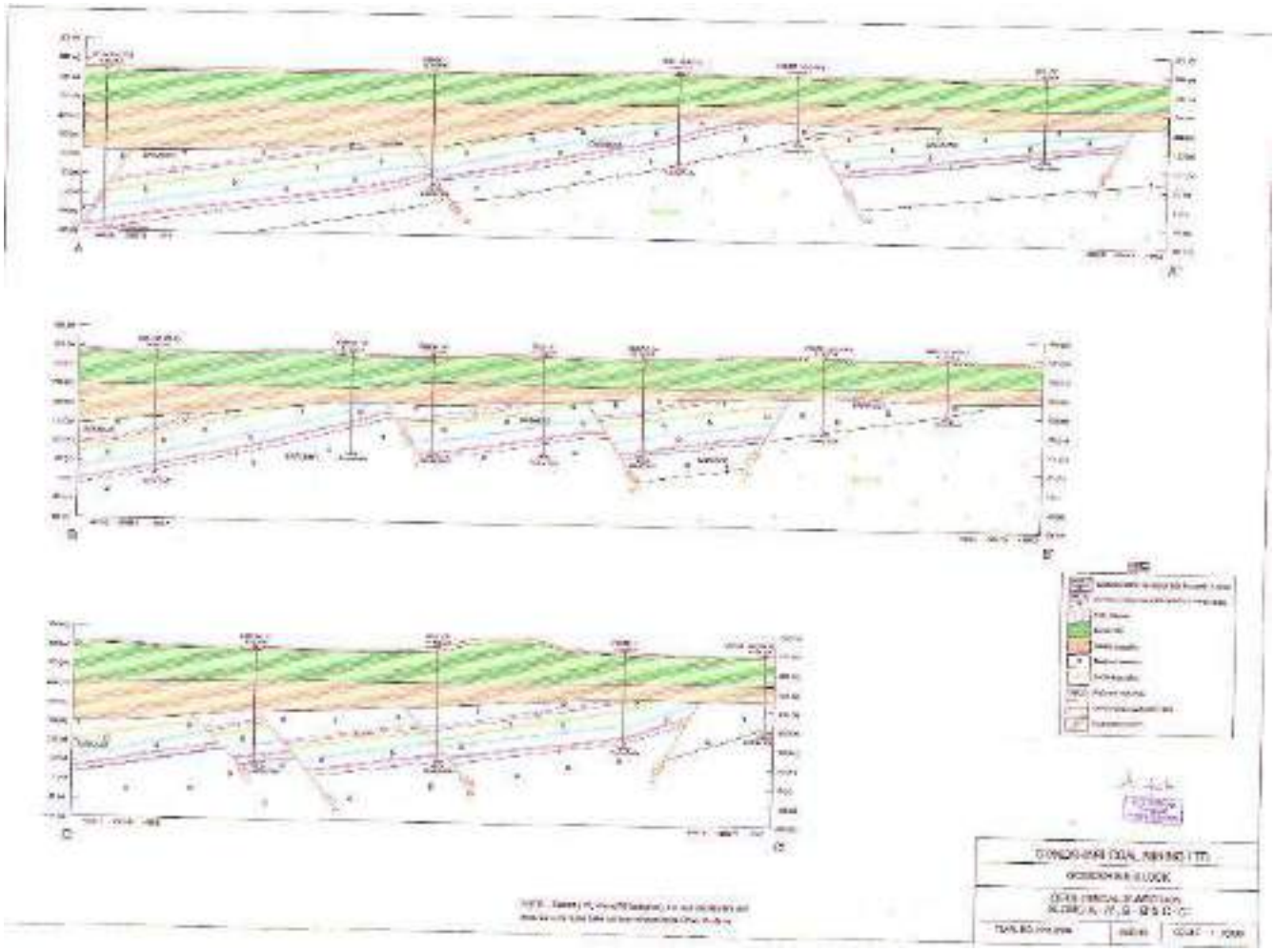


FIGURE 2.11 : GEOLOGICAL SECTIONS

2.14. SCHEMATIC REPRESENTATIONS OF THE FEASIBILITY DRAWINGS WHICH GIVE INFORMATION OF EIA PURPOSE

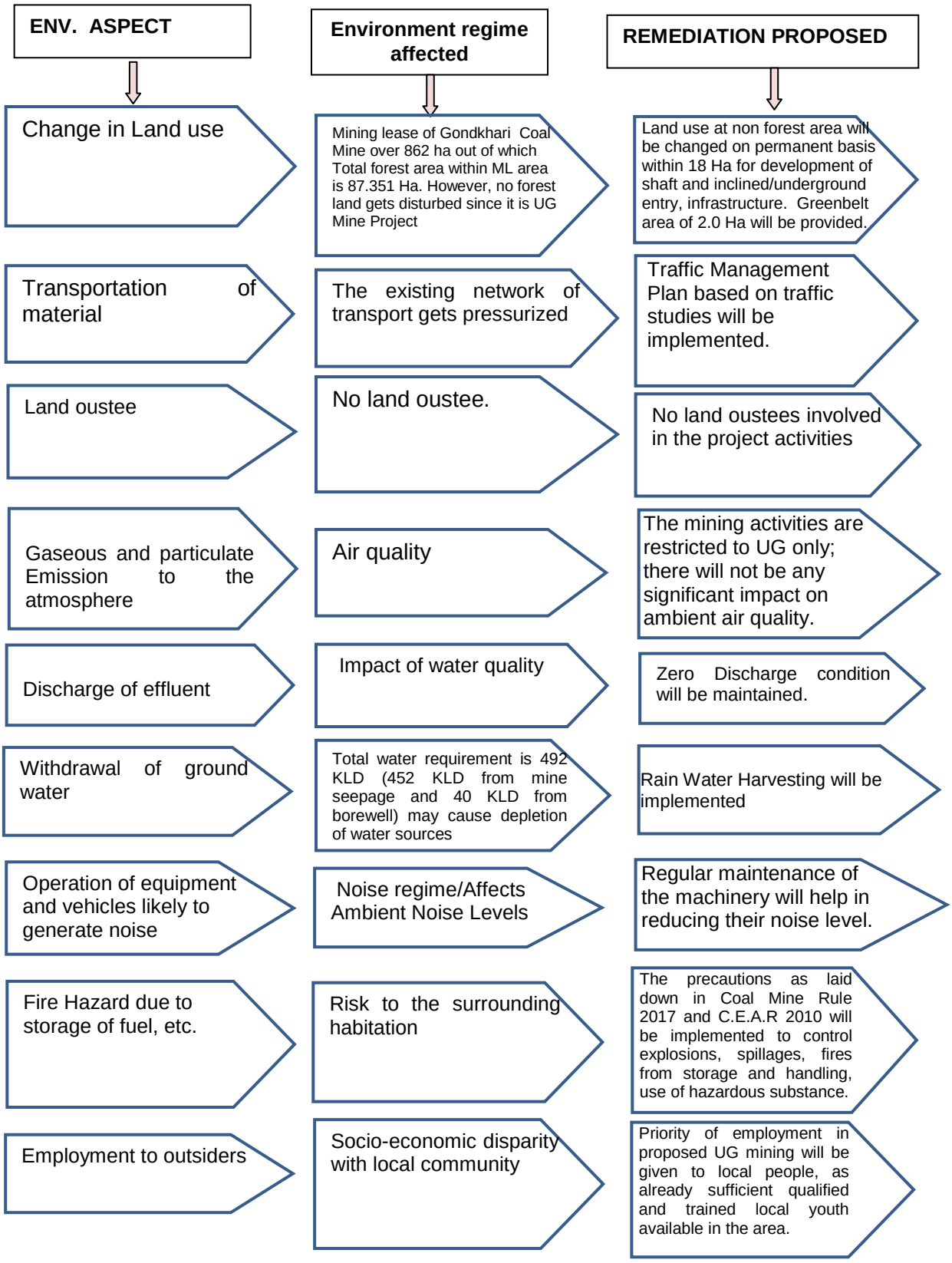


FIGURE 2.12: SCHEMATIC REPRESENTATIONS OF THE FEASIBILITY DRAWINGS

2.15. SOURCES OF POLLUTION AND BUILT-IN MITIGATION/CONTROL MEASURES

- Water sprinkling will be carried out during loading and unloading of excavated materials and along the haul road.
- Noise generated due to mining machineries during mining operation. Personal Protective Equipment (PPE) like ear muffs/ear plugs are being provided to the workers including operators of mining machinery.
- No hazardous material involved during mining operation except the explosive which stored and handled as per the permission letter of controller of explosive and will not contaminate neither the land nor water bodies.
- Fire extinguishers are provided in all HEMMS explosive magazine, workshop and mine office.
- Transportation of Coal through covered truck.
- At the end of lease period 2.0 Ha. Land will be under plantation and green belt. Native plant species Neem, Jarul, Jamun, Kadamb, Shisam, Aam, Karanj, etc. will be planted.

2.16. PROGRESSIVE MINE CLOSURE PLAN

Post Closure Water Quality management

Underground mining of coal may affect both the surface as well as the underground water sources. The surface water sources, e.g., ponds, tanks, nalla rivers, etc. and the surface drainage pattern are affected by the changes in the surface topography due to the constructions and subsidence movements while the underground water sources, i.e., water table and aquifers, are affected due to the disturbances in the overlying strata / rock mass. Surface water source and surface drainage will be affected to some extent as the final extraction of coal by caving method has been proposed for all the seams.

The depillaring in the underground working disturbs the underground water bodies and the extent of the disturbances depends on the nature and magnitude of the subsidence movements, if any, at the level of the underground water bodies. The disturbances are maximum in case of caving. Due to these disturbances, the make of water in the underground workings increases and hence it is desired to assess the extent of increase in the make of water and then plan for storage of the water in underground workings on the dip side of the depillaring panels and pumping of water from the sumps and water filled workings. Final extraction in this mine has been proposed by caving. Therefore, due care will be taken in monsoon period during mining operation so that the additional make of water arising out of fractured rock strata in upper horizons is safely pumped out of the underground mine. When the underground mining activities are about to close, plan is needed for underground storage of water in the voids that remain in the underground workings. The underground water bodies thus formed have their advantages which outweigh the disadvantages in most situations as they become a permanent source of water and may tend to reactivate the aquifers and the water table. A provision has been made for Rs 1.40 crores towards water quality management, garland drain, post mining water quality management during progressive mine closure activity.

Post Closure Air Quality Management

After cessation of mining operation and its related activities, there will be no effect on ambient air quality due to this project. As the proper mitigation measures for air pollution control will be taken and there will be no adverse effect on the ambient air quality after closure of mine. A provision has been made for RS 1.40 crores towards air quality management, plantation, post mining air quality management during progressive mine closure activity.

Restoration of Land used for Infrastructure

As per approved Mine Plan majority of infrastructure like workshop, sub-station, store, cap lamp room, canteen, office buildings, Fan house, and surface coal handling arrangements are proposed to be constructed. Considering the ground realities prevailing five years before mine closure, plan for reutilizing these structures or decommissioning them will be made. If decommissioning of infrastructure is done, the land occupied by the infrastructure will be restored for some useful purpose. A provision has been made for Rs 5.20 crores towards dismantling of infrastructure, rearranging water pipeline to agricultural land, dismantling of power lines, arterial roads to mine including 4m lane for LMV with divider during progressive mine closure activity.

Disposal of Mining Machinery

The salvaging and shifting operation of mining machinery and other equipment will be done considering the ground realities prevailing five years in advance of financial closure of the mine. A provision has been made towards dismantling of underground equipment and disposal of mining machinery, dismantling of workshop, rehabilitation of dismantled facilities etc. during progressive mine closure activity.

Safety & Security

Some of hazard potential specific to the proposed mine have been dealt in this report. The guidelines/ instructions from DGMS will be followed in case of discontinuance of mine operation, if any. There will be no safety hazards for the neighboring community after the mine closure The measures for management of fire in the mine and coal stockyard adopted/ will be adopted so that there will be no fire hazard for the neighboring community after the mine closure. The management has provided manpower for supervision and rehabilitation for safety and security of the post closure activities during progressive mine closure.

2.17. ASSESSMENT OF NEW & UNTESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE

The longwall mining technology will be used in the proposed underground coal mining project. This is a mining method in which very long rectangular blocks of coal are defined during the mine development stage and then extracted in a single continuous operation by an automated cutting head moving parallel to the coal face. This is the modern, advanced and safest underground mining technology across the globe.

CHAPTER-3
DESCRIPTION OF ENVIRONMENT

3.0 DESCRIPTION OF ENVIRONMENT

3.1 INTRODUCTION

This chapter of the report provides an overview of the environmental baseline conditions within the study area of 10 km radius. An environmental baseline monitoring was carried out as a part of EIA studies for the proposed project, during **pre-monsoon season (1st March 2022 – 31st May 2022) along with additional AAQ monitoring conducted at 2 different locations during pre-monsoon season from 1st March 2023 – 31st March 2023**.

3.1.1 Methodology

The methodology adopted for carrying out baseline environmental monitoring was as per the guidelines given in the EIA Manual of MoEF&CC (Refer **Annexure V** – Environmental Standards). Baseline data in the study area was collected by conducting field study/primary sampling during the study period with respect to the different environmental attributes as given below:

Primary data collection

Primary data collection includes:

- Ambient air quality
- Ground water / surface water quality
- Landuse pattern
- Geology and Hydrogeology
- Noise levels
- Soil quality
- Flora and Fauna
- SocioEconomic

Primary data was collected by monitoring various environmental components/ parameters in the core as well as buffer zone during the study period; details of which are given in **Table 3.1.1**

TABLE 3.1.1: **PRIMARY DATA COLLECTION**

Sl.	Description
1.	**Air environment** **Meteorology** Hourly Meteorological data (Continuous) through data logger for Temp. (Min. & Max.), RH, Rainfall, Wind Speed and Wind Direction **Ambient air quality** monitoring (24 hourly), twice a week. Parameters: PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, NH_3, O_3, Benzene, Benzopyrene, and Heavy Metals in PM_{10} (Pb, As, Ni) No. of Locations: 12 locations (10+2) within 10 km radius study area
2.	**Noise environment** Leq (dB A) Day time and Night time with hourly measurement, once in a season. No. of Locations: 8 locations within 10 km radius study area
3.	**Water environment** Surface Water (SW) and Ground water (GW) monitoring, once in a monitoring period No. of Locations: 8 locations within 10 km radius study area (GW), 8 locations (SW). Tested for physico-chemical, Bactereological and demand parameters as per IS-10500.
4.	**Soil environment** Soil sampling, once in a season. No. of Locations: 8 locations within 10 km radius study area
5.	**Landuse Environment** LULC survey, once in a season. Location: Project Site (Core) and buffer zone 10 km radial distance from the project site
6.	**Geology and Hydrogeology** Geology and Hydrogeology survey, once in a season.

Sl.	Description
	Location: Project Site (Core) and buffer zone 10 km radial distance from the project site
7.	**Biological Environment** Biodiversity survey, once in a season. Location: Project Site (Core) and buffer zone 10 km radial distance from the project site
8.	**Socio-economic Environment** Socio-economic survey, once in a season. Location: Core and buffer zone.

Secondary Data Collection

This includes review of secondary published information on:

- Socio-economic conditions, demographic structure and infrastructure resource base etc.
- Sensitive areas such as biosphere reserve, forests, sanctuaries, places of historical, Archaeological tourist importance, etc.
- NRSC satellite imagery of LISS III & LISS IV, BHUVAN, Survey of India toposheet.
- Primary data collection through socio-economic survey (Infrastructural Facilities and opinion of the people).
- Use of Climatological Normals Book for meteorology.

3.2 AIR ENVIRONMENT

The baseline status for air environment includes reconnaissance, identification and selection of specific significant air pollutants due to the proposed project activity and measuring their existing levels prior to the implementation of the project. The data required to assess the ambient status was collected, analysed and evaluated through a well-designed ambient air quality monitoring (AAQM) network.

3.2.1 Meteorology

The meteorological data recorded during the study period was very useful for selection of sampling locations as per upwind and downwind directions for proper on-site monitoring to be undertaken for various meteorological variables in order to generate the site specific data. Data was collected for proposed project site on hourly basis continuously for **pre-monsoon season (1st March 2022 – 31st May 2022)**. The generated data was then compared with the meteorological data collected by nearest India Meteorological Department (IMD) station located at **Nagpur (Sonegaon)** Maharastra.

Temperature

The winter season starts from December and continues till the end of February. January is the coldest month with the minimum temperature at 3.9°C. The temperature starts increasing rapidly during the onset of pre monsoon season from March to May. During pre-monsoon season, the maximum temperature was observed 47.8°C with the minimum temperature 4.5°C. The maximum temperature in the monsoon season was observed to be 47.7°C, whereas the minimum temperature was observed 16.6°C. In the post-monsoon, day temperature decreases slightly with the maximum temperature 39.7°C. The monthly variations in temperature are presented in **Table 3.2.1.**

Relative Humidity

The relative humidity was observed around 19% to 41% during pre-monsoon period. In monsoon period, the relative humidity ranged between 49% to 85%. During the post monsoon season, the relative humidity was observed between 47 % to 71% and in winter season, the relative humidity was observed

to be 31% to 67%. The variations in relative humidity are presented in **Table 3.2.1.**

Rainfall

The annual rainfall based on the IMD data recorded was as 1100.3 mm. The monsoon generally sets in during the second week of June. The rainfall gradually decreased after August. The maximum number of rainy days was observed in the month of July. Annual and monthly variations in rainfall are presented in **Table 3.2.1**.

TABLE 3.2.1: CLIMATOLOGICAL DATA FOR IMD, NAGPUR (SONEGAON) (1981 - 2010)

Month	Temperature (ºC)		Humidity (%)		Monthly Rainfall (mm)
	Max	Min	08:30 hr	17:30 hr	
January	36.6	3.9	67	42	21.6
February	39.2	5.0	54	31	15.6
March	45.0	8.3	41	24	21.7
April	47.1	4.5	33	19	9.2
May	47.8	19.4	35	22	21.2
June	47.7	20.0	61	49	168.8
July	40.6	19.4	82	72	313.7
August	37.8	18.3	85	76	267
September	38.9	16.6	81	71	170.2
October	39.5	11.6	71	58	64
November	35.6	6.7	65	51	16
December	39.7	5.5	66	47	11.3
Range	**4.5 – 47.8**		**19 – 85**		**Total = 1100.3**

Source: From climatological Normals book of 1981-2010.

Meteorological Condition at Site

The weather monitoring station was installed at the site to record temperature, wind speed, wind direction, relative humidity and rainfall. The hourly minimum, maximum values monitored during **pre-monsoon season-2022** are presented in **Table 3.2.2**.

TABLE 3.2.2: **SUMMARY OF SITE SPECIFIC METEOROLOGICAL CONDITION**

(1st March 2022 – 31st May 2022)

Month	Temperature (^{0}C)		Relative Humidity (%)		Rainfall Monthly Total (mm)
	Min	Max	Min	Max	
March – 2022	17.4	43.5	5.5	63.5	0
April – 2022	24.1	45.9	5.3	49.9	0
May – 2022	27.6	46.2	8.7	57.0	0
Range	**17.4 – 46.2**		**5.3 – 63.5**		**Total = 0.0**

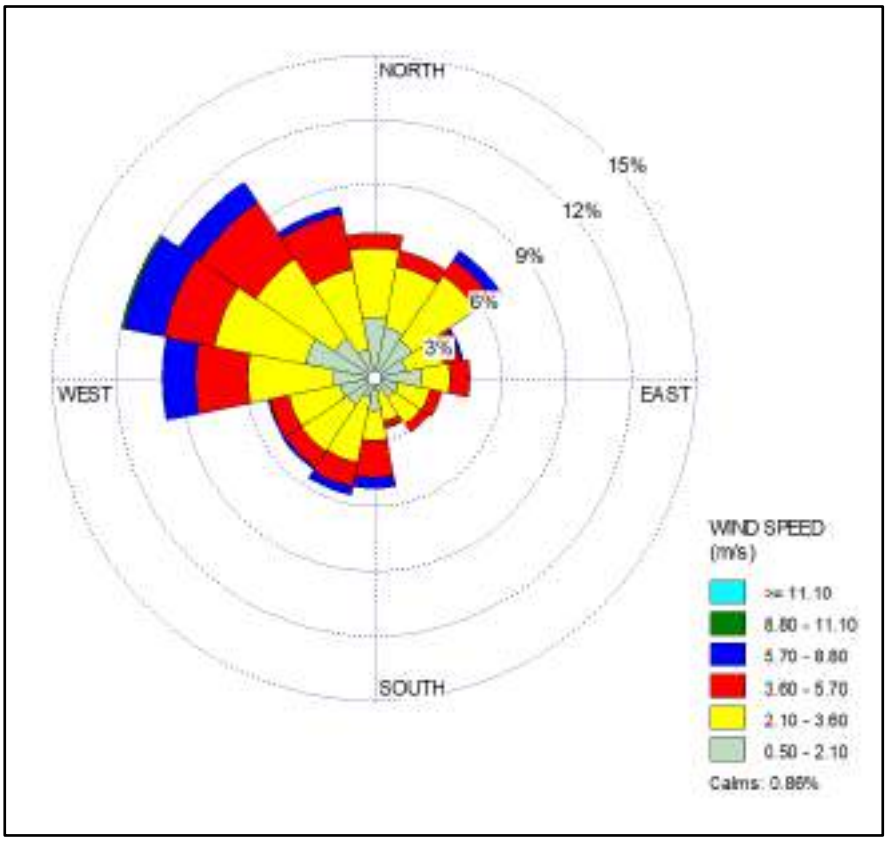


FIGURE 3.2.1: SITE SPECIFIC WINDROSE (1ST MARCH 2022 – 31ST MAY 2022)

TABLE 3.2.3: **SUMMARY OF SITE SPECIFIC WIND PATTERN**

Predominant Wind Direction	**Pre-monsoon Season - 2022**
First Predominant Wind Direction	WNW (11.96%)
Second Predominant Wind Direction	NW (10.91%)
Third Predominant Wind Direction	W (9.87 %)
Calm conditions (%)	0.86
Avg. Wind Speed (m/s)	2.95

3.2.2 Baseline Status

The ambient air quality monitoring with respect to parameters of significance was carried out during pre-monsoon season (1st March 2022 – 31st May 2022) whereas additional AAQ monitoring at 2 different locations was conducted during 1st March 2023 to 31st March 2023 in line with approved ToR by EAC. The major sources of air pollution in the region are Industrial operations, heavy traffic, domestic activities and rural conditions. The prime objective was to assess the existing air quality of the area.

Methodology for air quality monitoring

Selection of monitoring locations

The baseline status of the ambient air quality was assessed through a scientifically designed ambient air quality monitoring network. The design of monitoring network in the air quality surveillance program was based on the following considerations:

- Meteorological conditions on synoptic scale.
- Topography of the study area.

- Representatives of regional background.
- Population and sensitive areas.
- Representation of valid cross sectional distribution in downwind direction.

Ambient air monitoring was carried out at 12 locations. The details about monitoring locations are depicted in **Figure 3.2.2** and presented in **Table 3.2.4.** The locations were identified keeping in view predominant wind directions prevailing during study period, sensitive receptors and human settlements. The levels of PM_{10}, $PM_{2.5}$, Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Carbon monoxide (CO), Volatile Organic Compound (VOC), were monitored for establishing the baseline status. For determination of PM_{10}, air is drawn through a size-selective inlet and through a 20.3 X 25.4 cm (8''x10'') filter at a flow rate, which is typically 1132 L/min. Particles with aerodynamic diameter less than the cut-point of the inlet are collected, by the filter. The mass of these particles is determined by the difference in filter weights prior to and after sampling. The concentration of PM_{10} in the designated size range is calculated by dividing the weight gain of the filter by the volume of air sampled.

For determination of $PM_{2.5}$, an electrically powered air sampler draws ambient air at a constant volumetric flow rate (16.7 lpm) maintained by a mass flow / volumetric flow controller coupled to a microprocessor into specially designed inertial particle-size separator (i.e. cyclones or impactors) where the suspended particulate matter in the $PM_{2.5}$ size ranges is separated for collection on a 47 mm polytetrafluoroethylene (PTFE) filter over a specified sampling period. Each filter is weighed before and after sample collection to determine the net gain due to the particulate matter. The mass concentration in the ambient air is computed as the total mass of collected particles in the $PM_{2.5}$ size ranges divided by the actual volume of air sampled, and is expressed in $\mu g/m^3$. The microprocessor reads averages and stores five-minute averages of ambient temperature, ambient pressure, filter temperature and volumetric flow rate. In addition, the microprocessor calculates the average temperatures and pressure, total volumetric flow for the entire sample run time and the coefficient of variation of the flow rate.

Sulphur dioxide (SO_2) from air is absorbed in a solution of potassium tetrachloro-mercurate (TCM). A dichlorosulphitomercurate complex, which resists oxidation by the oxygen in the air, is formed. Once formed, this complex is stable to strong oxidants such as ozone and oxides of nitrogen and therefore, the absorber solution may be stored for some time prior to analysis. The complex is made to react with para-rosaniline and formaldehyde to form the intensely coloured pararosaniline methyl sulphonic acid. The absorbance of the solution is measured by means of a suitable spectrophotometer.

Ambient nitrogen dioxide (NO_2) is collected by bubbling air through a solution of sodium hydroxide and sodium arsenite. The concentration of nitrite ion (NO_2) produced during sampling is determined colorimetrically by reacting the nitrite ion with phosphoric acid, sulfanilamide, and N-(1-naphthyl)-ethylenediamine di-hydrochloride (NEDA) and measuring the absorbance of the highly colouredazo-dye at 540 n m.

For determination of **Ozone** Micro-amounts of ozone and the oxidants liberate iodine when absorbed in a 1% solution of potassium iodine buffered at pH 6.8 + 0.2. The iodine is determined spectrophotometrically by measuring the absorption of tri-iodide ion at 352 nm.

The stoichiometry is approximated by the following reaction:

$$O_3 + 3\ KI + H_2O \text{ --> } KI_3 + 2\ KOH + O_2$$

Ammonia in the atmosphere is collected by bubbling a measured volume of air through a dilute solution of sulphuric acid to form ammonium sulphate. The ammonium sulphate formed in the sample is analyzed colorimetrically by reaction with phenol and alkaline sodium hypochlorite to produce

indophenol, a blue dye. The reaction is accelerated by the addition of sodium nitroprusside as catalyst.

PAHs in ambient air are collect in particulate phase and determine individual PAH compounds using capillary gas chromatograph equipped with flame ionization detector. It is a high volume ($1.2m^3$/min) sampling method capable of detecting sub.ng/m^3 concentration of PAH in 24 hours sample.

TABLE 3.2.4: **DETAILS OF AIR MONITORING LOCATIONS**

Code	Monitoring Locations	Dis (km) / dir. w.r.t Project Site	Coordinates	Justification
AAQ1	Project site- Location at North end	--	21°10'41.67"N, 78°55'23.20"E	Core zone
AAQ 2	Project site- Location at South end	--	21° 8'12.86"N, 78°55'45.87"E	Core zone
AAQ 3	Kalambi	0.80/NNW	21°11'20.26"N, 78°55'3.46"E	Downwind
AAQ 4	Waddhamna	2.74/SE	21° 8'54.09"N, 78°57'58.66"E	Downwind
AAQ 5	Carmel Academy CBSE	0.43/SSE	21° 7'55.66"N, 78°56'26.39"E	Upwind
AAQ 6	Ketapar	1.68/NW	21°11'1.83"N, 78°53'48.93"E	Upwind
AAQ 7	Alesar	0.30/ENE	21°10'11.85"N, 78°55'56.91"E	Cross wind
AAQ 8	Gondkhairi	1.76/SW	21° 8'12.89"N, 78°54'18.63"E	Cross wind
AAQ 9	Surabardi	0.50Km/ESE	21° 9'21.87"N, 78°56'33.60"E	Downwind
AAQ 10	Khapri	2.19Km/WNW	21° 9'11.79"N, 78°53'44.89"E	Upwind
AAQ 11	Sahuli	1.72Km/ENE	21°11'0.39"N, 78°56'34.10"E	Cross wind
AAQ 12	Drugdhamna	2.27Km/E	21° 9'23.96"N, 78°57'35.60"E	Downwind

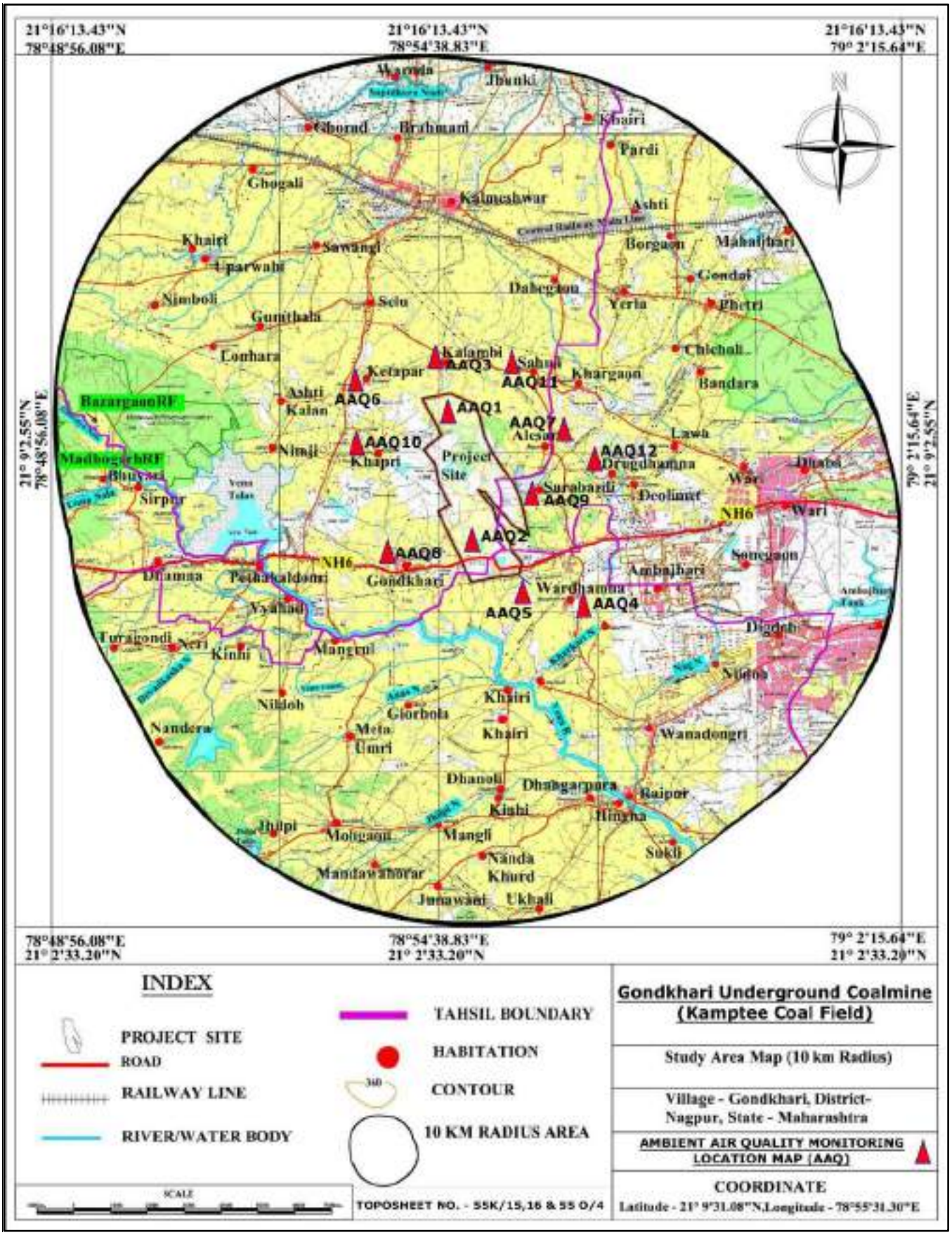


FIGURE 3.2.2: AMBIENT AIR QUALITY MONITORING LOCATIONS

Methodology of ambient air quality monitoring

Sl. No.	PARAMETER	TEST METHOD	UNIT	LIMITS AS PER CPCB Guideline
1.	Particulate Matter (PM_{10})	IS: 5182: Part-23 -2006	µg /m^3	100 (24 hrs)
2.	Particulate Matter ($PM_{2.5}$)	CPCB NAAQM , Regulations, 2009	µg /m^3	60 (24 hrs)
3.	Sulphur dioxide (as SO_2)	IS: 5182: (Part-2)2001	µg /m^3	80 (24 hrs)
4.	Nitrogen dioxide (as NO_2)	IS: 5182: (Part-6)2006	µg /m^3	80 (24 hrs)
5	Carbon Monoxide (as CO)	IS: 5182 (Part 10): 1999	mg /m^3	2.0 (8 hrs)
6.	Ammonia (as NH_3)	CPCB NAAQM , Regulations, 2009	µg /m^3	400 (24 hrs)
7.	Ozone (as O_3)	IS: 5182 (Part 9): 1974	µg /m^3	100 (24hrs)
8.	Benzene (as C_6H_6)	IS: 5182 (Part 11):2006	µg /m^3	05 (Annual)
9.	Benzopyrene (as BaP)	IS: 5182 (Part 12): 2004	ng /m^3	01 (Annual)
10.	Lead (as Pb)	CPCB NAAQM , Regulations, 2009	µg /m^3	01 (24 hrs)
11.	Arsenic (as As)		ng /m^3	06 (Annual)
12.	Nikel (as Ni)		ng /m^3	20 (Annual)

Ambient Air Quality Monitoring was carried out on 24 hourly bases for PM_{10}, $PM_{2.5}$, SO_2, and NO_2 for parameters as mentioned in the above table and analyzed as per analytical methods given above. 8 hourly samples were collected for carbon monoxide.

Presentation of primary data

Various statistical parameters like 98th percentile, average, maximum and minimum values were computed from the observed raw data for all the AAQ monitoring stations. The results of monitoring carried out are presented in **Annexure VI (a).** The summary of these results are given in **Tables 3.2.5 & Tables 3.2.6.** These levels were compared with the prevailing environmental quality standards prescribed by Central Pollution Control Board (CPCB) for Industrial, Residential, Rural and other area.

TABLE 3.2.5: SUMMARY OF AMBIENT AIR QUALITY RESULTS

Sr. No.	Location		PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	Ozone	NH_3
			µg/m^3	µg/m^3	µg/m^3	µg/m^3	mg/m^3	µg/m^3	µg/m^3
1	Project site-Location at North end	Min	55.4	21.6	7.3	18.1	0.323	6.2	5.3
		Max	74.3	35.6	10.4	28.9	0.369	9.9	7.9
		Avg	67.1	28.4	9.1	23.8	0.345	8.1	6.7
		98th	73.8	35.0	10.3	28.2	0.368	9.9	7.9
2	Project site-Location at South end	Min	52.8	18.7	5.8	14.9	0.224	5.1	4.2
		Max	67.4	32.4	8.1	20.3	0.286	7.4	6.1
		Avg	59.8	25.1	6.9	17.6	0.263	6.3	5.2
		98th	66.9	31.7	8.1	20.1	0.285	7.2	6.0
3	Kalambi	Min	41.5	15.8	4.8	11.4	0.215	4.8	4.3
		Max	56.6	22.1	6.9	15.1	0.258	7.0	6.2
		Avg	49.6	18.6	5.9	13.2	0.235	5.9	5.1
		98th	55.8	21.5	6.9	14.8	0.255	7.0	6.0
4	Waddhamna	Min	59.9	26.2	8.9	21.4	0.328	6.4	5.9
		Max	77.2	34.0	13.8	26.6	0.421	9.2	8.3
		Avg	68.2	30.1	11.5	24.6	0.377	7.9	6.8
		98th	75.4	33.8	13.6	26.5	0.415	9.1	8.2

Sr. No.	Location		PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	Ozone	NH_3
			µg/m^3	µg/m^3	µg/m^3	µg/m^3	mg/m^3	µg/m^3	µg/m^3
5	Carmel Academy CBSE	Min	51.6	22.4	6.6	16.1	0.328	5.9	5.1
		Max	70.2	31.3	9.7	25.8	0.388	8.6	7.9
		Avg	61.5	26.4	8.2	21.2	0.356	7.2	6.4
		98th	69.2	30.6	9.7	25.2	0.383	8.6	7.9
6	Ketapar	Min	49.5	19.4	6.0	14.0	0.278	5.4	4.8
		Max	63.9	27.5	9.2	19.9	0.376	7.9	6.9
		Avg	56.5	23.6	7.6	16.4	0.319	6.7	5.9
		98th	63.4	27.2	9.0	19.5	0.372	7.8	6.8
7	Alesar	Min	59.5	25.7	7.0	14.8	0.314	5.2	5.5
		Max	71.6	33.0	10.4	23.5	0.423	9.8	9.1
		Avg	65.3	29.1	8.7	18.8	0.373	7.8	7.3
		98th	71.5	32.5	10.3	22.5	0.419	9.8	8.8
8	Gondkhari	Min	66.4	29.0	8.8	21.0	0.380	7.0	5.4
		Max	88.4	41.0	15.9	31.1	0.419	9.6	9.2
		Avg	74.5	34.9	13.2	27.5	0.402	8.5	7.6
		98th	86.5	40.6	15.9	31.1	0.417	9.6	8.9
9	Surabardi	Min	57.6	22.7	9.3	15.6	0.351	6.1	4.5
		Max	76.7	32.1	13.8	23.1	0.387	8.4	7.6
		Avg	64.7	27.3	11.5	20.4	0.371	7.4	6.3
		98th	75.0	31.8	13.6	23.1	0.385	8.4	7.4
10	Khapri	Min	44.5	17.4	5.8	12.7	0.270	5.1	4.4
		Max	60.6	24.3	8.5	20.3	0.319	7.4	6.8
		Avg	53.1	20.5	7.2	16.7	0.293	6.2	5.5
		98th	59.7	23.7	8.5	19.8	0.315	7.4	6.8
11	Sahuli	Min	47.2	23.5	6.7	8.8	0.280	5.3	5.5
		Max	59.8	28.7	8.3	12.1	0.328	7.7	7.0
		Avg	54.7	26.2	7.5	10.4	0.305	6.8	6.3
		98th	59.7	28.5	8.2	12.0	0.327	7.7	7.0
12	Drugdhamna	Min	50.9	22.6	7.1	13.9	0.373	6.2	5.7
		Max	62.0	32.1	10.0	17.6	0.435	8.7	8.2
		Avg	57.3	28.1	8.3	15.6	0.412	7.5	6.9
		98th	61.9	32.0	9.8	17.5	0.435	8.7	8.1
CPCB Standards			**100 (24hr)**	**60 (24hr)**	**80 (24hr)**	**80 (24hr)**	**2 (8hrs)**	**100 (8hr)**	**400 (24hr)**

TABLE 3.2.6: CONCENTRATION OF HEAVY METALS &VOCS IN AMBIENT AIR

Location	Pb(µg/m^3)	As (ng/m^3)	Ni (ng/m^3)	Benzene (µg/m^3)	BaP(ng/m^3)
Project site- Location at North end	0.24	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Project site- Location at South end	0.07	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Kalambi	0.09	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Waddhamna	0.18	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Carmel Academy CBSE	0.12	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Ketapar	0.16	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)

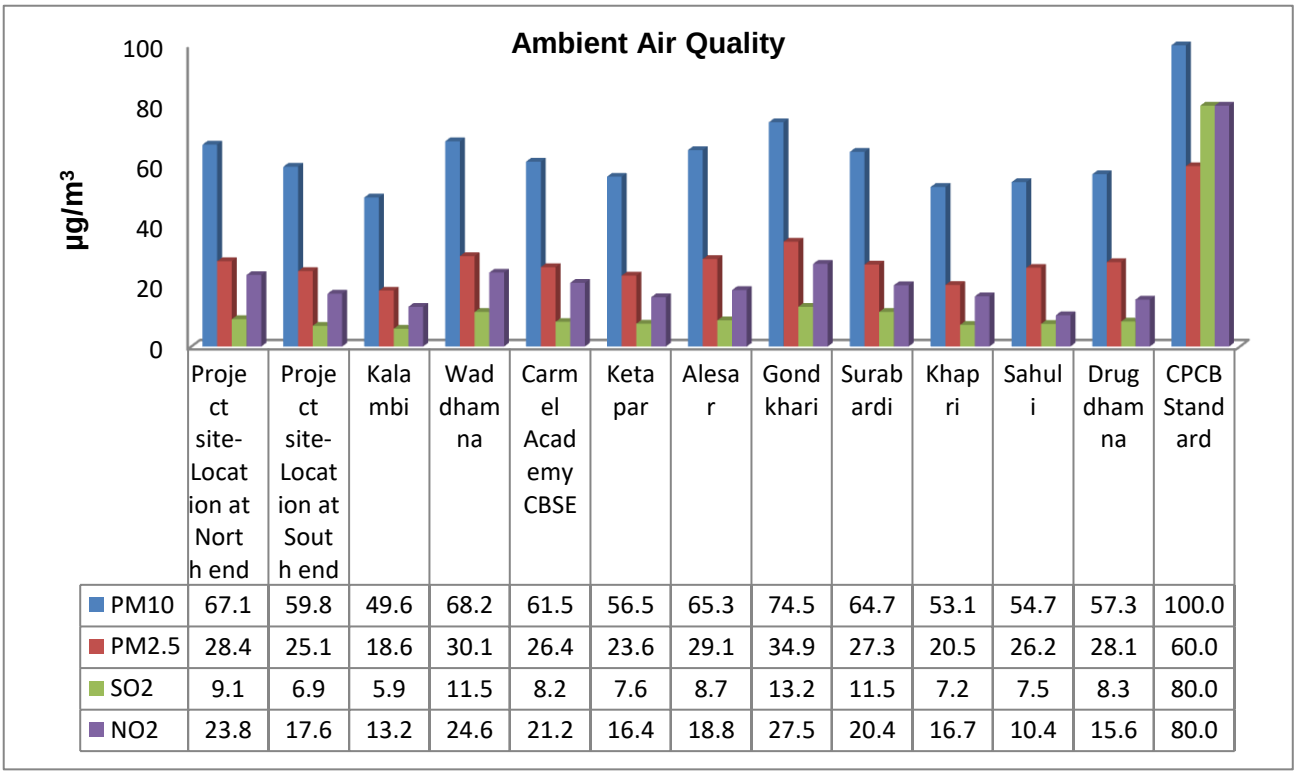
Location	Pb(µg/m^3)	As (ng/m^3)	Ni (ng/m^3)	Benzene (µg/m^3)	BaP(ng/m^3)
Alesar	0.13	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Gondkhairi	0.21	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Surabardi	0.19	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Khapri	0.08	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Sahuli	0.11	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Drugdhamna	0.14	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Ambient Air Quality CPCB Standard	**1 (24 hrs)**	**6 (Annual)**	**20 (Annual)**	**5 (Annual)**	**1 (Annual)**

BDL: *Below Detectable Limit.*

3.2.3 Observations:

Based on the table 3.2.5, if we consider only main criteria pollutants then overall minimum and maximum concentration of criteria pollutant during pre-monsoon season (1st March to 31st May – 2022 for 10 location and 1st March to 31st March – 2023 for additional two location) study period is shown in below table.

Sl. No.	Name of Pollutant	Range	
		Min	Max
1	PM_{10} (µg/m^3)	41.5	88.4
2	$PM_{2.5}$ (µg/m^3)	15.8	41.0
3	SO_2 (µg/m^3)	4.8	15.9
4	NO_2 (µg/m^3)	8.8	31.1
5	CO (µg/m^3)	215	435



	Project site-Location at North end	Project site-Location at South end	Kalambi	Wadhamna	Carmel Academy CBSE	Ketapar	Alesar	Gondkhari	Surabardi	Khapri	Sahuli	Drugdhamna	CPCB Standard
PM10	67.1	59.8	49.6	68.2	61.5	56.5	65.3	74.5	64.7	53.1	54.7	57.3	100.0
PM2.5	28.4	25.1	18.6	30.1	26.4	23.6	29.1	34.9	27.3	20.5	26.2	28.1	60.0
SO2	9.1	6.9	5.9	11.5	8.2	7.6	8.7	13.2	11.5	7.2	7.5	8.3	80.0
NO2	23.8	17.6	13.2	24.6	21.2	16.4	18.8	27.5	20.4	16.7	10.4	15.6	80.0

Graphical Representation of Ambient Air Quality as shown in below-

From above graph, considering **average concentration** of main criteria pollutants then mean minimum and maximum concentration of criteria pollutant during study period is shown in below table.

Sl. No.	Name of Pollutant	Range (Avg. Concentration)	
		Min	Max
1	PM_{10} (µg/m^3)	49.6	74.5
2	$PM_{2.5}$ (µg/m^3)	18.6	34.9
3	SO_2 (µg/m^3)	5.9	13.2
4	NO_2 (µg/m^3)	10.4	27.5

Heavy metals were estimated from PM_{10} to know the concentration levels in particulate matter and observed that all concentrations were found to be within the standard limit. Overall concentrations of heavy metals were found to be withing the prescribed limits.

3.2.4 Interpretation and Conclusion of Air Quality Assessment in the Study Area

The air quality of different locations has been compared with the respective NAAQS. The air quality has been categorized into four broad categories based on an Exceedance Factor (the ratio of average concentration of a pollutant with that of a respective standard).

The Exceedance Factor (EF) is calculated for major pollutants as follows:

Exceedance Factor = (Observed Average concentration of criteria pollutant) / (National Ambient Air Quality standard for the respective pollutant).

The four air quality categories are:

- Critical pollution (C) : when EF is > 1.5
- High pollution (H) : when the EF is between 1.0 - < 1.5
- Moderate pollution (M) : when the EF between 0.5 - < 1.0
- Low pollution (L) : when the EF is < 0.5

Exceedance factor during baseline period
(1st March to 31st May – 2022 and 1st March to 31st March – 2023)

Location	PM_{10}		$PM_{2.5}$		SO_2		NO_2	
	EF	Pollution Category	EF	Pollution Category	EF	Pollution Category	EF	Pollution Category
Project site- Location at North end	0.67	Moderate	0.47	Low	0.11	Low	0.30	Low
Project site- Location at South end	0.60	Moderate	0.42	Low	0.09	Low	0.22	Low
Kalambi	0.50	Moderate	0.31	Low	0.07	Low	0.17	Low
Waddhamna	0.68	Moderate	0.50	Moderate	0.14	Low	0.31	Low
Carmel Academy CBSE	0.62	Moderate	0.44	Low	0.10	Low	0.27	Low
Ketapar	0.57	Moderate	0.39	Low	0.10	Low	0.21	Low

Location	PM 10		PM 2.5		SO_2		NO_2	
	EF	Pollution Category	EF	Pollution Category	EF	Pollution Category	EF	Pollution Category
Alesar	0.65	Moderate	0.49	Low	0.11	Low	0.24	Low
Gondkhairi	0.75	Moderate	0.58	Moderate	0.17	Low	0.34	Low
Surabardi	0.65	Moderate	0.46	Low	0.14	Low	0.26	Low
Khapri	0.53	Moderate	0.34	Low	0.09	Low	0.21	Low
Sahuli	0.55	Moderate	0.44	Low	0.09	Low	0.13	Low
Drugdhamna	0.57	Moderate	0.47	Low	0.10	Low	0.20	Low

From the above table, it has been observed that the Exceedance Factor for SO_2 and NO_2 for all location is less than 0.5. The Exceedance Factor for $PM_{2.5}$ is also found less than 0.5 for all location except **AAQ-4 & AAQ-8 (EF – 0.50 & 0.58)** and PM_{10} for all locations falling in the third category are meeting the standards as of now but likely to exceed the standards in future if pollution continues to increase and is not controlled.

3.3 NOISE ENVIRONMENT

Methodology for Noise Monitoring

I. General:

1. The station should be located at the ambient level i.e. away from the direct source, away from any vibration and any obstruction.
2. Categorize the area with land use pattern.
3. Reconnaissance survey of study area,
4. Existing topography,
5. Land use pattern,
6. Surrounding location (existing industries),
7. GPS receiver is used to record the location,
8. Background noise levels,
9. Climatic condition during sampling, temperature, cloud cover, solar radiation.

II. Specific:

Always use tripod stand at above the ground level of 1 to 1.5 m for areas. Hand held monitoring should be avoided.

III. Positioning of the Instrument:

1. Microphone must be placed 1.2 -1.5m above the ground level.
2. In dry conditions with a wind speed of less than 5 m/s.
3. Isolate the instrument from strong vibration and shock.

IV. Monitoring Time:

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). The exercise has to be carried out for 6 to 8 hrs. in the said time frame of day & night. It is always preferable to have large number of data sets thus 1sec sampling

frequency is recommended.

V. Monitoring Parameters:

Leq - Equivalent Continuous Sound Pressure Level (with 1 hour sampling period at all locations).

Summary of Noise Monitoring Methodology

Environment Component	Sampling Location	Unit	Sampling Frequency	Sample Collection		Instrument/ Methodology
				Sampling Equipment	Detection Limit	
Ambient Noise levels	8 locations	Decibels-dB (A)	Once during the study period.(hourly reading for 24 hrs at each location)	Noise level Meter	30-130 dB (A)	SLM 100 [IS 9876-1981 (Reaffirmed 2001)]

NOISE MONITORING LOCATIONS

Site of an area shall be selected such that it meets the land use pattern as prescribed in the standard e.g. Industrial, Commercial, Residential and Silence Zone. Eight (8) locations were identified based on the activities in the village area, traffic and sensitive areas like hospitals and schools. The noise monitoring locations are shown in **Figure 3.3.1** and details are given in **Table 3.3.1**.

Sound pressure levels (SPL) were measured at all locations considering residential, commercial, Industrial and sensitive locations. The noise levels were taken for 24 hours. The day time noise levels were monitored during 6 am to 10 pm and night time levels during 10 pm to 6 am at all the locations within 10 km radius of the study area. The noise levels measured are shown in **Table 3.3.2**.

TABLE 3.3.1: **NOISE MONITORING LOCATIONS**

Code	Monitoring Locations	Dis (km) / dir. w.r.t Project Site	Coordinates	Monitoring Zone
N1	Project site- Nr. Alesur Lake Farm House	--	21° 9'48.74"N, 78°55'26.38"E	Proposed Industrial zone
N2	Ketapar	1.65/NW	21°11'2.95"N, 78°53'50.30"E	Residential
N3	Khapri	2.12/WNW	21° 9'21.83"N, 78°53'47.69"E	Residential area
N4	Alesur	0.13/ENE	21°10'8.32"N, 78°55'52.31"E	Residential area
N5	Gondkhairi	1.71/SW	21° 8'10.61"N, 78°54'19.14"E	Commercial area
N6	Surabardi	0.55/E	21° 9'21.83"N, 78°56'33.52"E	Commercial area
N7	Kalambi – Pratap High School	0.81/NNW	21°11'20.60"N, 78°55'5.13"E	Silence Zone (School)
N8	Somalwad School Waddhamna	0.15/SE	21° 7'58.25"N, 78°55'56.16"E	Silence Zone (School)

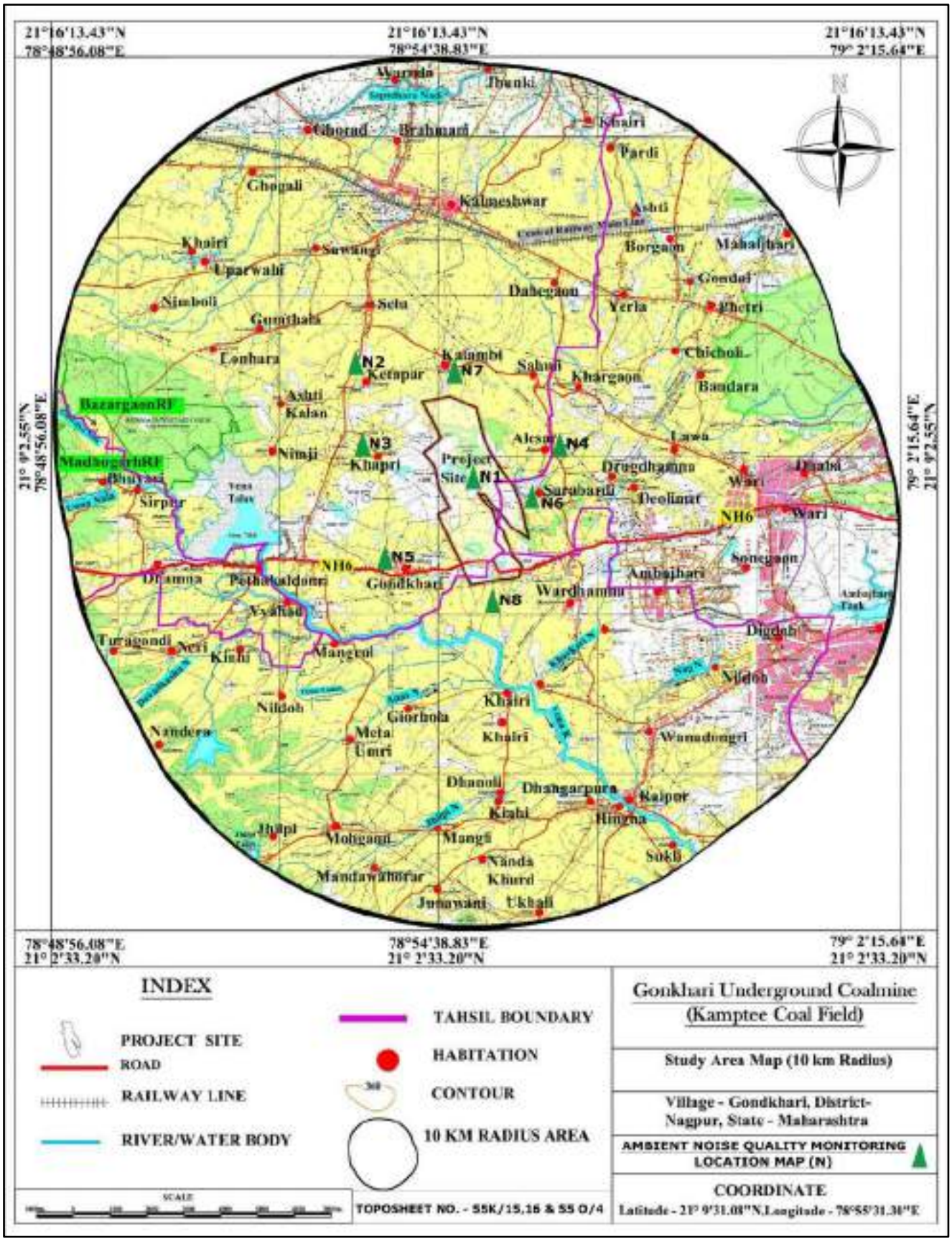


FIGURE 3.3.1: NOISE MONITORING LOCATIONS

3.3.1 Noise Levels in the Study Area

TABLE 3.3.2: **EQUIVALENT NOISE LEVELS IN THE STUDY AREA**

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq_{Day}	Leq_{Night}
Residential Area			
1.	Ketapar	53.9	41.3
2.	Khapri	54.7	42.6
3.	Alesur	51.2	39.7
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
4.	Gondkhairi	62.5	47.2
5.	Surabardi	59.8	43.7
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
6.	Kalambi – Pratap High School	46.7	37.4
7.	Somalwad School Waddhamna	48.1	39.2
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
8.	Project site- Nr. Alesur Lake Farm House	51.5	38.3
CPCB Standards dB(A)		**75.0**	**70.0**

Source: *Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur*

3.3.2 Equivalent Noise Levels

L_{eq} was monitored at all locations considering residential, commercial, industrial and sensitive locations. For residential areas the main sources of noise are regular human activities and traffic movements. The main noise generating sources of noise in the commercial areas in the study area were shopping and other associated activities of residents of the nearby areas. Nearby traffic activities also contributed to the existing noise levels in these commercial areas. The study region also comprising of primary schools, primary health centers etc. L_{eq} was monitored in these sensitive areas. Since most of these were located on busy roads, the nearby traffic in these areas also contributed to the existing noise levels. Equivalent noise levels (L_{eq}) were monitored at the project site area and average equivqlent noise level was observed as **51.5 dB (A)** & **38.3 dB (A)** during day time & night time study period respectively.

The overall ambient noise quality with respect to various zones was found to be within prescribed limits by CPCB. The results of Noise Level monitoring carried out are presented in **Annexure VI (b).**

3.3.3 Noise Levels Due to Traffic In The Study Area

Adjacent road is passing through this region. The adjacent road and Amravati – Nagpur Highway with respect to project site also has major traffic activities. Agglomeration and congestion of traffic was observed on main roads and at the crossing of important roads near petrol pumps, market and industrial areas. The vehicular traffic was monitored at different crossings within the study area near highways.

The noise levels monitored at some of the major traffic junctions along with their peak traffic density are listed in Table 3.3.3. During survey period, the traffic density at these junctions was observed to be very high (Table 3.3.4).

TABLE 3.3.3: **BACKGROUND NOISE LEVELS NEAR HIGHWAYS**

Sr. No.	Location	Leq_{day}	Leq_{night}
1.	SH 248 Nagpur to Dohegaon	67.1	51.5
2.	Kalmeshwar City Bypass Road	69.4	54.2
CPCB Standards dB(A) Industrial Area		**75**	**70**

Source: *Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur*

TABLE 3.3.4**:** VEHICULAR TRAFFIC AND CORRESPONDING NOISE LEVELS DURING PEAK HOURS **IN THE STUDY AREA**

Sr. No.	Traffic Intersection	Traffic Density per Peak Hours			Sound Pressure Levels (peak hours)
		H	M	L	
1	SH 248 Nagpur to Dohegaon	38	22	45	72.7
2	Kalmeshwar City Bypass Road	21	15	32	70.5

Observations:

1. Moderate traffic was observed on the main roads passing through the region during day time, contributed significantly to the increase in noise levels in the nearby residential areas. During night time, traffic was less, thereby; noise was mainly due to industrial activities.
2. The major commercial activities in the region were the local markets at various places. Other than regular human activities, the traffic, particularly, industrial goods vehicles were the noise generating sources creating marginal increase in noise levels in these areas.

3.4 WATER ENVIRONMENT

3.4.1 Geology and Hydrogeology

Geological Field Survey Methodology:

1. Secondary data collection for the study with the help of satellite imageries, GSI reports and research paper if available, it is very helpful for planning of field survey in 10 km radius.
2. During filed survey, verification of secondary data available with actual geology of that area observed during site visit. For field survey GPS, toposheet map and Google imagery plays very important role.
3. Geological sequence is observed along sites such as Nallah cutting, Exposures along Road/Highway construction sites and nearby opencast mining areas.
4. Geological maps are prepared with the help of District Resource Map of GSI and data collected through field survey.

Hydrogeological Survey Methodology:

1. Secondary data collection for the study area with the help of CGWB brochures and data available with state ground water departments like long term water levels data, groundwater usage, etc.
2. During field survey well inventory is critically done to assess water level scenario in particular season to verify the secondary data.
3. In case of mining projects pumping test are carried out to assess the aquifer parameters. In case of thermal power plant, ash pond sites are critically surveyed qualitatively as well as quantitatively so as to foresee the probable impact on it and discuss the preventive measures.
4. Groundwater level maps are prepared as per water level data of Govt. agencies and data collected

through field survey.

5. Groundwater recharge and harvesting techniques are suggested as per CGWA guidelines.

Regional Geology:

The geologically area consist of Deccan trap of cretaceous age and Gneisses, Sandstone, Quartzite, Cherty Limestone. There are no major geological structure present in the area except faults as far as concern with construction of buildings and other structure. The area falls in seismic zone-II i.e. low damage risk zone.

Stratigraphy

Based on the drilling data generated by various exploration agencies in the past and the recent promotional drilling carried out by MECL the following generalized geological succession has been updated for the Kamptee coalfield.

Stratigraphic Succession of Kamptee Coalfield

Age	Formation	Thickness Range (m)	Lithology
Recent to Sub Recent	Alluvium	1.00 - 53.20	Black cotton soil and sandy soil with pebbles
Unconformity			
Eocene to Cretaceous	Deccan Trap	0.25 - 107.00	Basalt
Eocene	Lametas	0.85-25.95	Cherly limestone and sandstone
Unconformity			
Upper Permian	Kamthi	Nil - 225.30	Yellowish brown medium to coarse, grained ferruginous sandstones with occasional shale/clay bands.
Unconformity (Overlap)			
Middle Permian	Moturs	1.22 - 348.00	Thick variegated clays, greenish white sandstones with occasional shale/carb shale bands.
Lower Permian	Barakars	15.35 - 284.40	Fine to coarse grained sandstone, sandy shale and carbonaceous shale and coal seams
Upper carboniferous	Talchirs	3.75 -117.80	Greenish shale and siltstone.
Unconformity (Overlap)			
Archaeans	Metamorphics		Gneisses and schists

Site Specific Geology:

Project area consists of basalt, Cherty Limestone and soil cover which is having thickness of around 1.0-1.5m. Outcrops are very rare in project site. The Gondkhary block covered by a thick layer of Deccan trap followed by a blanked of Kamthis. Structurally Gondkhari block is moderately complicated. The major faults have a trend of NW-SE i.e. sub parallel to the strike of beds.

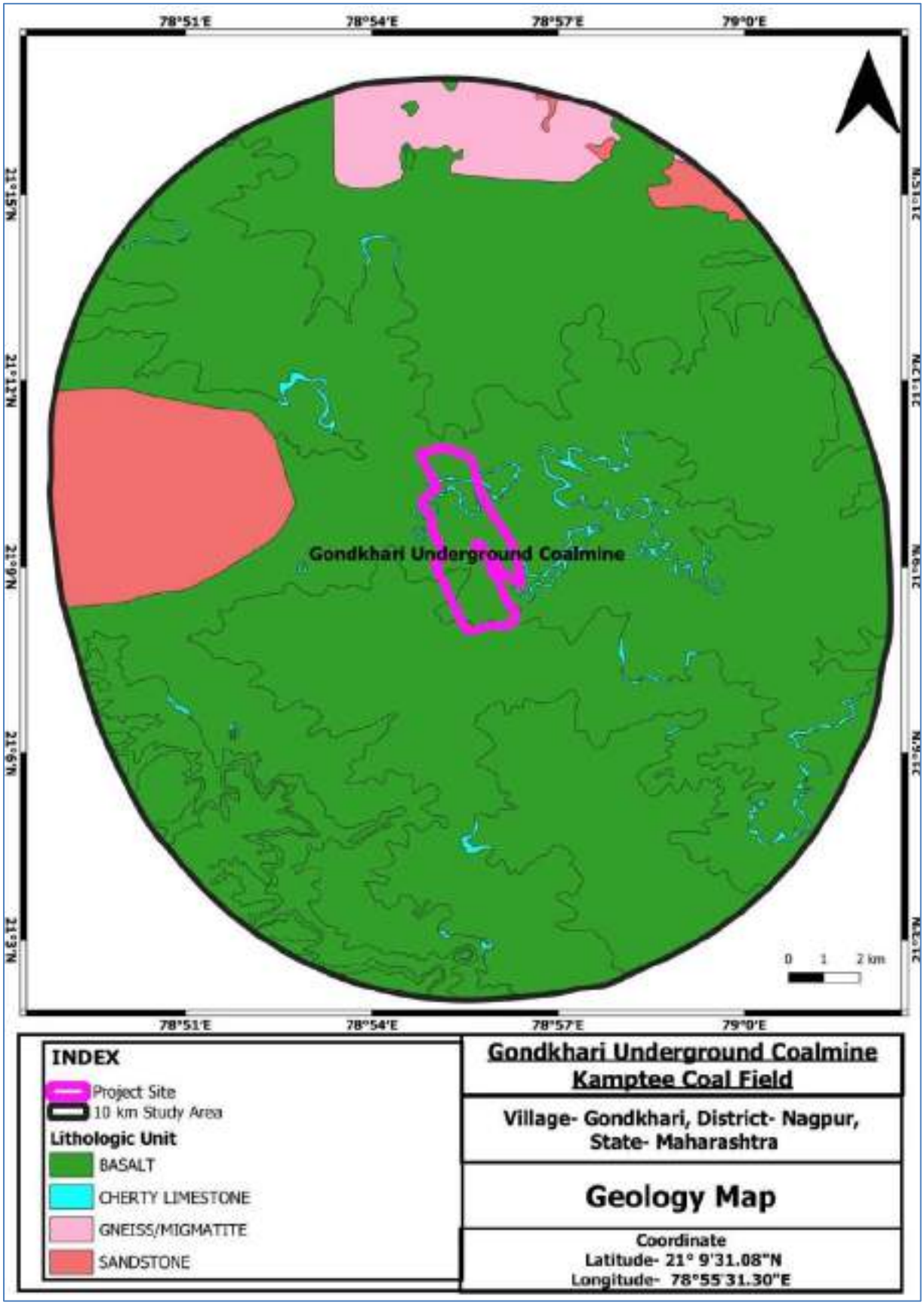


FIGURE 3.4.1: GEOLOGICAL MAP OF THE STUDY AREA

(SOURCE: DISTRICT RESOURCE MAP OF NAGPUR)

Regional Hydrogeology:

Entire study area is comprises of basaltic rock formations of cretaceous age belongs to Deccan trap formation. The primary porosity and permeability of these formations is very poor. The ground water in these formations occurs in fractured zone and joints. The weathered part and fractured zones constitute the aquifers in the area.

Depth to water level scenario in the study area:

Pre-monsoon Water levels- 4.5 to 9.5 m bgl

Post-monsoon water levels: 1.5 to 5.2 m bgl

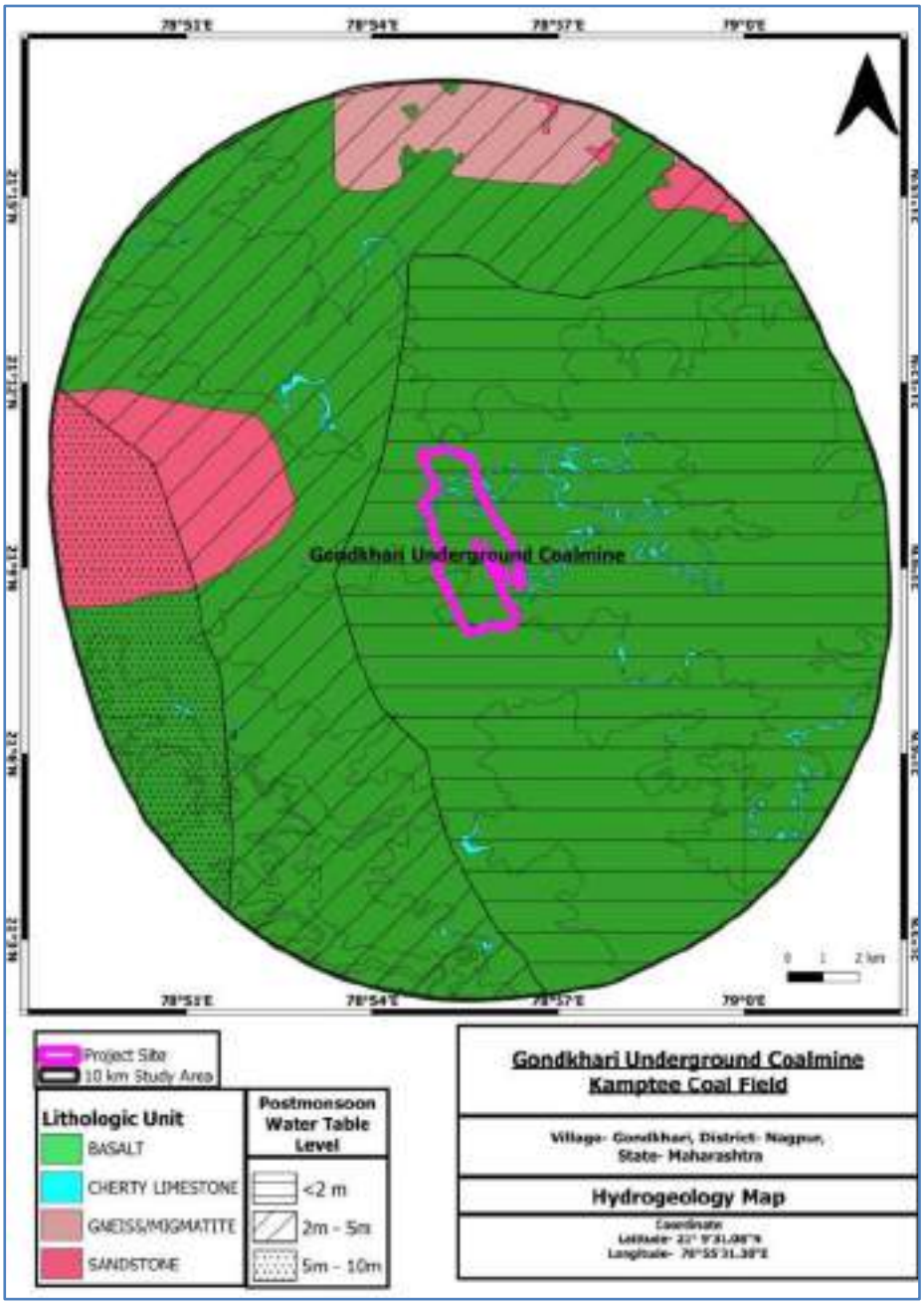


FIGURE 3.4.2: HYDROGEOLOGICAL MAP OF THE STUDY AREA

(Source: district resource map of Nagpur)

Geomorphology:

Study area comprises undulating pediment and pediplain, Water body, Dams and Reservoir. Flood plains are observed along River courses. There are no major geomorphological structures present in study area.

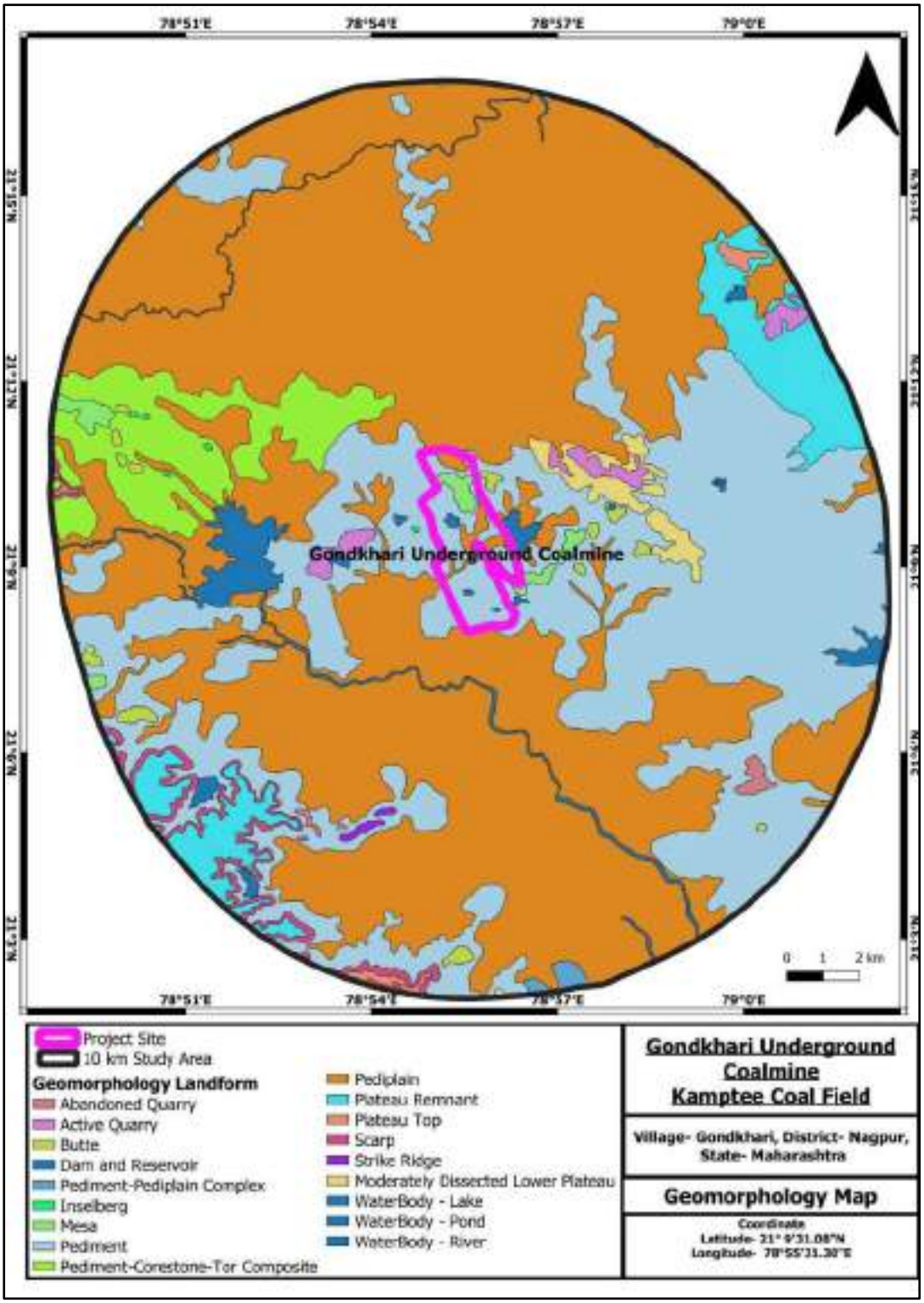


FIGURE 3.4.3: GEOMORPHOLOGICAL MAP OF THE STUDY AREA

(SOURCE: DISTRICT RESOURCE MAP OF NAGPUR)

3.4.2 Surface and Ground Water Quality

Analytical Procedures for Water Quality Parameters

Followings are the methodologies adopted for analysis of ground and surface water:

Sample Container: Use cleaned polyethylene container having tight cap. Sterile glass container should be used for collecting samples for microbiological analysis and glass bottles also used for the sampling of Oil & Grease analysis.

Quantity of sample: A 200 ml sample is required for microbiological test in sterilized bottle; One liter sample is required for analysis of general parameters of drinking water. A two liter sample should suffice for most physical and chemical analysis. For certain special determinations, larger sample may be required.

Sample Collection: In the case of sample collection for the determination of physico- chemical parameters precaution should be taken to fill the sampling container completely and stopper them in such a way that there is no air above the sample. This limits interaction with the gas phase and agitation during transport (thus avoiding the contact of carbon dioxide contain from the air which prevents variation in pH; hydrogen carbonates are not converted into precipetable carbonates; iron has less tendency to be oxidized, thus limiting colour variations; etc,)

Time interval between collection and analysis: The shorter the time that elapses between collection of a sample and its analysis, the more reliable will be the analytical results. Otherwise the samples must be stored in dark and at low temperature until it is submitted to laboratory for analysis.

Sample preservation: Water sample should be preserved at 4°C in a refrigerator. Waste water sample usually the decomposed rapidly at room temperature, therefore, certain test, namely, dissolved oxygen, sulphides , residual chlorine, nitrite, pH, etc., should be carried out or fixed at site. For certain other test, preservatives should be added immediately to individual samples of the same water or waste water in different sampling bottles for each test.

TABLE 3.4.1: WATER ANALYSIS METHODOLOGY AND SPECIFICATIONS

Sr. No.	Parameters	Methodology	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2	
			Acceptable Limit	Permissible Limit #
1	pH	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation
2.	Electrical Conductivity at 25^0C	IS 3025 (Part 14) 2013	--	--
3.	Turbidity	IS 3025 (Part 10) : 1984	1	5
4.	Dissolved Oxygen	IS 3025 (Part 38) :1989	--	--
5.	Total dissolved solids	IS 3025 (Part 16) : 1984	500	2000
6.	Total suspended solids	IS 3025 (Part 17) :1984	--	--
7.	Total Alkalinity (as $CaCO_3$)	IS 3025 (Part 23) : 1986	200	600
8.	Total hardness (as $CaCO_3$)	IS 3025 (Part 21) : 2009	200	600
9.	Calcium (as Ca)	IS 3025 (Part 40) : 1991	75	200
10.	Magnesium (as Mg)	IS 3025 (Part 46) : 1994	30	100
11.	Potassium (as K)	IS 3025 (Part 45) :1993	--	--
12.	Sodium (as Na)	IS 3025 (Part 45) :1993	--	--
13.	Sulphate (as SO_4)	IS 3025 (Part 24) : 1986	200	400
14.	Nitrate (as NO_3)	APHA Method 23rd Edition	45	No relaxation
15.	Chloride (as Cl)	IS 3025 (Part 32) :1988	250	1000
16.	Fluoride (as F)	IS 3025 (Part 60) : 2008	1.0	1.5
17.	Total Nitrogen (as N)	IS 3025 (Part 34) : 2019	--	--
18.	Chemical oxygen demand	IS 3025 (Part 58) : 2006	--	--
19.	Biochemical oxygen demand (at 27^0C for 3 days)	IS 3025 (Part 44) :1993	--	--

Sr. No.	Parameters	Methodology	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 2	
			Acceptable Limit	Permissible Limit #
20	Oil & grease	IS 3025 (Part 39) :1991	--	--
21.	Total Phosphate (as PO_4)	IS 3025 (Part 31) : 1988	-	-
22.	Iron (as Fe)	IS 3025 (Part 2) : 2019	1.0	No relaxation
23.	Copper (as Cu)	IS 3025 (Part 2) : 2019	0.05	1.5
24.	Manganese (as Mn)	IS 3025 (Part 2) : 2019	0.1	0.3
25.	Cobalt (as Co)	IS 3025 (Part 2) : 2019	-	-
26.	Cadmium (as Cd)	IS 3025 (Part 41) : 1992	0.003	No relaxation
27.	Arsenic (as As)	IS 3025 (Part 37) : 1988	0.01	No relaxation
28.	Lead (as Pb)	IS 3025 (Part 2) : 2019	0.01	No relaxation
29.	Zinc (as Zn)	IS 3025 (Part 2) : 2019	5	15
30.	Nickel (as Ni)	IS:13428:2005 (Annexure L)	0.02	No relaxation
31.	Total Chromium (as Cr)	IS 3025 (Part 2) : 2019	0.05	No relaxation
32.	Total coliform	IS 15185 : 2016	Absent	Absent
33.	Feacal coliform	IS 1622 : 1981	-	-

Surface and Ground Water Sampling Locations

16 water samples were collected from various sampling locations, eight (8) from each groundwater and eight (8) surface water sources. These samples were collected as grab samples, preserved and analyzed for various parameters. The samples were analyzed as per the procedures specified in standard methods for the examination of water and wastewater published by American Public Health Association (APHA/ IS 10500).

The water sampling locations are listed in **Table 3.4.2** and are depicted in **Figure 3.4.** The physico-chemical characteristics of surface and groundwater are presented in **Table 3.4.3 A and Table 3.4.3 B.**

TABLE 3.4.2: DETAILS OF WATER SAMPLING LOCATION

GROUND WATER			
Code	**Locations**	**Dis (km) / dir w r to Project Area**	**Coordinates**
GW1	Project site- area	--	21° 9'42.94"N, 78°55'29.88"E
GW2	Kalambi	0.93/NNW	21°11'24.40"N, 78°55'3.46"E
GW3	Ketapar	1.44/NW	21°11'0.67"N, 78°53'57.24"E
GW4	Khapri	2.17/WNW	21° 9'16.07"N, 78°53'47.29"E
GW5	Alesur	0.14/ENE	21°10'13.09"N, 78°55'49.93"E
GW6	Gondkhairi	1.58/SW	21° 8'15.67"N, 78°54'22.94"E
GW7	Surabardi	0.55/E	21° 9'20.67"N, 78°56'36.22"E
GW8	Waddhamna	2.75/SE	21° 9'2.05"N, 78°57'58.82"E
SURFACE WATER			
SW1	Vena Canal	1.7/SSW	21° 7'16.88"N, 78°54'42.98"E
SW2	Anas N	2.5/SSW	21° 6'23.70"N, 78°55'52.68"E
SW3	Nag N	5.5/SE	21° 6'30.52"N, 78°58'56.87"E
SW4	Jhilpi N	5.5/S	21° 4'12.24"N, 78°54'59.91"E
SW5	Kharkari N	3.1/SSE	21° 6'26.62"N, 78°56'38.24"E
SW6	Alesur local Lake	Within Lease area	21° 9'53.18"N, 78°55'27.05"E
SW7	Suraburdi Lake	Adjacent/E	21° 9'42.23"N, 78°56'6.56"E
SW8	Pond (nr. Highway)	Within lease area	21° 8'31.92"N, 78°55'41.30"E

Source: *Field monitoring& analysis by Anacon Laboratories Pvt. Ltd., Nagpur*

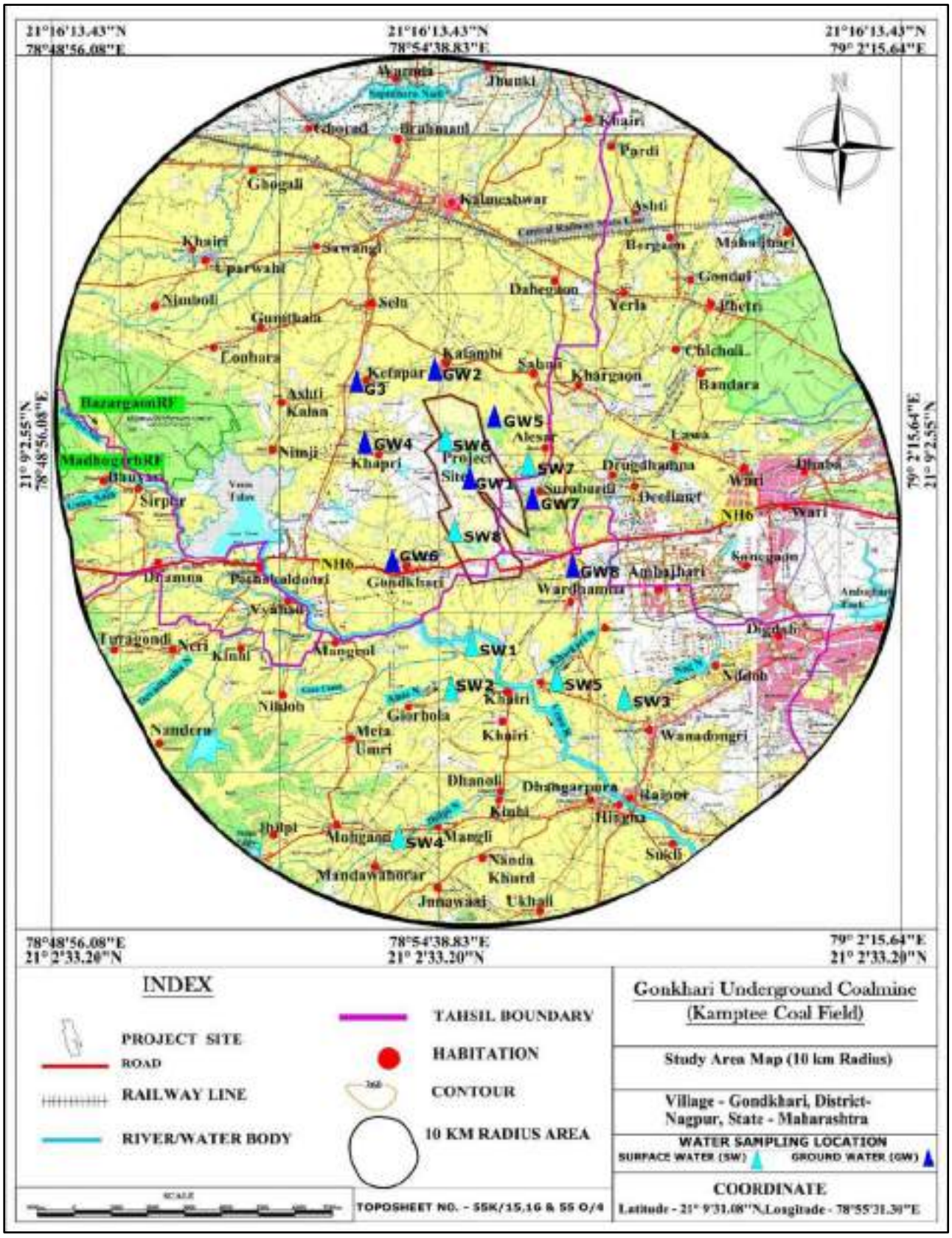


FIGURE 3.4.4: SURFACE AND GROUNDWATER SAMPLING LOCATION

TABLE 3.4.3 **A**: **SURFACE WATER QUALITY**

S.N.	Test Parameter	Measure-ment Unit	Vena Canal	Anas N	Nag N	Jhilpi N	Kharkari N	Alesur local Lake	Suraburdi Lake	Pond (nr. Highway)
			SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8
1	pH at 25^{0}C	-	7.72	8.15	8.36	8.37	7.59	7.12	8.34	7.30
2	EC at 25^{0}C	µs/cm	594.36	1727.3	1947	656.67	1374.24	1023.4	1466.1	917.4
3	Turbidity	NTU	0.3	0.6	0.2	0.4	0.9	0.4	0.8	0.7
4	Dissolved Oxygen	mg/l	5.9	5.7	5.1	6.2	5.8	6.1	6.3	6.2
5	Total dissolved solids (TDS)	mg/l	381	987	1100	413	818	595	905	556
6	Total suspended solids	mg/l	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)
7	Total Alkalinity (as $CaCO_3$)	mg/l	136	314	432	164	348	230	384	198
8	Total hardness (as $CaCO_3$)	mg/l	211.95	542.21	712.19	247.16	469.88	364.06	474.21	326.41
9	Calcium (as Ca)	mg/l	61.7	145.59	173.04	77.36	135.17	101.42	128.1	98.3
10	Magnesium (as Mg)	mg/l	14.05	43.4	68.08	13.09	32.13	26.91	37.49	19.64
11	Potassium (as K)	mg/l	12.18	15.68	17.21	10.01	12.68	10.68	14.61	13.58
12	Sodium (as Na)	mg/l	20.16	70.91	50.37	18.16	48.31	24.2	62.58	33.21
13	Sulphate (as SO_4)	mg/l	29.01	40.61	10.26	14.62	21.52	9.28	57.61	18.32
14	Nitrate (as NO_3)	mg/l	18.61	22.81	12.52	9.21	20.61	15.62	19.82	14.2
15	Chloride (as Cl)	mg/l	58.6	232.56	240.8	69.94	122.43	125.59	115.34	116.67
16	Fluoride (as F)	mg/l	0.32	0.48	0.16	0.2	0.22	0.19	0.26	0.21
17	Total nitrogen (as N)	mg/l	19.2	23.41	12.83	10.08	21.65	16.53	20.68	15.21
18	Chemical oxygen demand	mg/l	62	67	88	71	58	44	26	32
19	Biochemical oxygen demand (at 27^{0}C for 3 days)	mg/l	7.1	8.4	17.3	5.7	12.5	6.8	3.6	4.1
20	Oil & grease	mg/l	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)
21	Total Phosphate (as PO_4)	mg/l	0.58	0.48	0.54	0.62	0.42	0.36	0.45	0.44
22	Iron (as Fe)	mg/l	0.38	0.41	0.32	0.43	0.61	0.21	0.33	0.28
23	Copper (as Cu)	mg/l	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)
25	Cobalt (as Co)	mg/l	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)

S.N.	Test Parameter	Measure-ment Unit	Vena Canal	Anas N	Nag N	Jhilpi N	Kharkari N	Alesur local Lake	Suraburdi Lake	Pond (nr. Highway)
			SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8
26	Cadmium (as Cd)	mg/l	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
32	Total coliform	Per 100 ml	Present	Present	Present	Present	Present	Present	Present	Present
33	Feacal coliform	MPN/100ml	148	177	542	94	345	120	58	76

Source: *Anacon Laboratories Pvt. Ltd., Nagpur.*

TABLE 3.4.3 **B**: **GROUND WATER QUALITY**

Sl. No.	Test Parameter	Measure ment Unit	Project site	Kalambi	Ketapar	Khapri	Alesur	Gond-khairi	Surabardi	Wad-dhamna
			(GW-1)	(GW-2)	(GW-3)	(GW-4)	(GW-5)	(GW-6)	(GW-7)	(GW-8)
1	pH at 25^0C	-	7.47	7.15	7.28	7.1	7.03	7.61	7.19	7.52
2	Electrical Conductivity at 25^0C	µs/cm	811.44	1081.5	1212.1	965.26	568.85	1399.08	553.32	909.54
3	Turbidity	NTU	0.2	0.4	0.3	0.4	0.2	0.5	0.2	0.6
4	Dissolved Oxygen	mg/l	6.2	6.1	6.5	6.7	6.3	6.4	6.2	6.5
5	Total Dissolved Solids (TDS)	mg/l	504	618	713	578	367	786	348	558
6	Total Suspended Solids	mg/l	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)	BDL(DL-10)
7	Total Alkalinity (as $CaCO_3$)	mg/l	200	152	235	197	168	260	104	208
8	Total Hardness (as $CaCO_3$)	mg/l	283.11	380.03	436.38	344.23	210.63	478.05	214.27	339.38
9	Calcium (as Ca)	mg/l	85.3	105.49	122.1	99.07	62.11	135.17	72.65	89.84
10	Magnesium (as Mg)	mg/l	17.01	28.32	31.93	23.51	13.48	34.12	7.95	27.95
11	Potassium (as K)	mg/l	12.18	15.92	14.81	12.61	10.96	14.32	11.01	10.21
12	Sodium (as Na)	mg/l	28.61	40.12	36.72	32.62	12.81	43.22	13.62	25.28
13	Sulphate (as SO_4)	mg/l	10.51	22.61	24.01	12.81	9.62	17.88	9.92	21.52
14	Nitrate (as NO_3)	mg/l	9.62	11.52	14.61	9.82	12.6	14.52	10.97	18.59
15	Chloride (as Cl)	mg/l	95.19	207.86	181.75	148.61	39.82	209.81	94.68	109.58

Sl. No.	Test Parameter	Measurement Unit	Project site	Kalambi	Ketapar	Khapri	Alesur	Gond-khairi	Surabardi	Wad-dhamna
			(GW-1)	(GW-2)	(GW-3)	(GW-4)	(GW-5)	(GW-6)	(GW-7)	(GW-8)
16	Fluoride (as F)	mg/l	0.18	0.22	0.25	0.2	0.17	0.28	0.14	0.29
17	Total Nitrogen (as N)	mg/l	10.11	12.16	15.07	10.34	12.91	14.76	11.21	19.21
18	Oil & grease	mg/l	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)	BDL(DL-4)
19	Total Phosphate (as PO_4)	mg/l	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)
20	Iron (as Fe)	mg/l	0.13	0.24	0.16	0.18	0.21	0.19	0.22	0.13
21	Copper (as Cu)	mg/l	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
22	Manganese (as Mn)	mg/l	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)	BDL (DL – 0.05)
23	Cobalt (as Co)	mg/l	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
24	Cadmium (as Cd)	mg/l	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)
25	Arsenic (as As)	mg/l	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
26	Lead (as Pb)	mg/l	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)
27	Zinc (as Zn)	mg/l	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)
28	Nickel (as Ni)	mg/l	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
29	Total Chromium (as Cr)	mg/l	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
30	Total Coliform	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
31	Feacal Coliform	MPN/ 100 ml	BDL (DL-2)	BDL (DL-2)	BDL (DL-2)	BDL (DL-2)	BDL (DL-2)	BDL (DL-2)	BDL (DL-2)	BDL (DL-2)

Source: *Anacon Laboratories Pvt. Ltd., Nagpur.*

3.4.3 Observations and Interpretation

Surface water quality

The physico-chemical characteristics of the surface water samples collected and analysed are presented in **Table 3.4.3** and are compared with the IS-10500 standards. The analysis results indicate that the pH ranged between 7.12 – 8.37 which is well within the specified standard of 6.5 to 8.5. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 381 – 1100 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 211.95 – 712.19 mg/l as $CaCO_3$ which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 58.6 – 240.8 mg/l and 9.28 – 57.61 mg/l respectively.

Dissolved oxygen (DO) refers to the amount of oxygen (O_2) dissolved in water. Because fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. The reported value of range of 5.1 – 6.3 mg/l. Phosphorus (as PO_4) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. PO_4 concentration was found to be in the range of 0.36 – 0.62 mg/l. COD

ranges from 26 – 88 mg/l and BOD ranges from 3.6 – 17.3 mg/l.

Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.21 to 0.61 mg/l.

Ground Water Quality

The physico-chemical characteristics of ground water are presented in **Table 3.4.3** and compared with the IS-10500 standards. The analysis results indicate that the pH ranged 7.03 – 7.61. The TDS was ranging from 348 – 786 mg/l. Total hardness was found to be in the range of 210.63 – 478.05 mg/l. The fluoride concentration was found to be in the range of 0.14 – 0.29 mg/l. The nitrate and sulphate were found in the range of 9.62 – 18.59 mg/l and 9.62 – 24.01 mg/l respectively. The chloride concentration was found in the range of 39.82 to 209.81 mg/l. The Total suspended solid concentration was found below detection limit (DL -10mg/l) at all sampling location. Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.13 to 0.24 mg/l.

Ground Water Quality Interpretation

Each of the groundwater samples were analyzed for various parameters such as pH, total hardness, calcium, magnesium, bicarbonate, chloride, TDS, fluoride, nitrate, iron, sulphate, manganese, turbidity, total alkalinity, sodium, potassium, electrical conductivity and carbonate. In order to assess water quality, a concept is introduced - for computing WQI (Water Quality Index) of Groundwater; three steps are followed (*Ramakrishnaiah et al, 2009*):

In the first step, each of the selected parameters has been assigned a weight (wi) according to its relative importance in the overall quality of water for drinking purposes. The relative weight of chemical parameters as considered by Ramakrishnaiah et al. is given in the following **Table 3.4.4**.

TABLE 3.4.4: **RELATIVE WEIGHT OF CHEMICAL PARAMETERS**

Parameters	Indian Standards (Desirable Limit)	Weight	Relative Weight
pH	6.5-8.5	4	0.09756
Total Hardness	200	2	0.04878
Calcium	75	2	0.04878
Magnesium	30	2	0.04878
Bicarbonate	244	3	0.07317
Chloride	250	3	0.07317
Total Dissolved Solids	500	4	0.09756
Fluoride	1.0	4	0.09756
Manganese	0.05	4	0.09756
Nitrate	45	5	0.12195
Iron	1.0	4	0.09756
Sulphate	200	4	0.09756

In the second step, the relative weight (Wi) is computed from the following equation:

Relative weight = Individual weight/Total weight

In the third step, 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 is multiplied by 100: Qi = (Ci/ Si) x 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 of the IS-10500.

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 * Qi) and (WQI = ∑SIi) where SIi is the subindex of 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 into five types,"excellent water" to "water, unsuitable for drinking" is given in **Table 3.4.5**.

TABLE 3.4.5: **WATER QUALITY CLASSIFICATION BASED ON WQI VALUE**

WQI Value	Water Quality
< 50	Excellent
50 - 100	Good
100 - 200	Poor
200 - 300	Very Poor
>300	Unsuitable for Drinking

(Source: Ramakrishnaiah et al.2009)

Based on above literature support and the water quality sampling and analysis reports the WQI is as follows –

TABLE 3.4.6: **LOCATION WISE WATER QUALITY ASSESSMENT**

Sr. No.	Locations	WQI	Quality	Remark
1	Project site	60.77	Good	**Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good.**
2	Kalambi	72.21	Good	
3	Ketapar	79.96	Good	
4	Khapri	67.48	Good	
5	Alesur	52.33	Good	
6	Gondkhari	86.04	Good	
7	Surabardi	50.69	Good	
8	Waddhamna	70.09	Good	

Remarks

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

3.5 LAND ENVIRONMENT

3.5.1 Land use of Study Area

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 24th MAY 2022 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approx. about 21° 02'44.66"N to 21°16'0.51"N latitude and 78°49'28.29"E to79° 02'50.90"E longitude and elevation 289 to 4341 meters are used as per the project site confined within that area.

Land use pattern of the study area as well as the catchment area was carried out by standard methods of analysis of remotely sensed data and followed by ground truth collection and interpretation of satellite data. The outcome of land use study is presented below in subsequent tables and figures.

TABLE 3.5.1: DATA SPECIFICATION USED FOR PRESENTS STUDY

Satellite/ Image	Sensor	Scene-Spec	Spatial resolution	Date of Acquisition
Resource SAT-1	LISS-3	102-057	23.5 m	24th MAY 2022

The objectives of Land use studies are:

- To determine the present land use pattern as per EIA/EMP norms by MoEF & CC.
- To determine the drainage pattern, present in the study area.

3.5.2 Methodology

The land use pattern of the study area was studied by analysing the available secondary data published in the District Primary Census abstract of the year 2001 & 2011.

Salient features of the adopted methodology are given below:

- Acquisition of satellite data
- Preparation of base map from Survey of India toposheets
- Data analysis using visual interpretation techniques
- Ground truth studies or field checks using GPS
- Finalization of the map
- Digitization using head up vectorisation method
- Topology construction in GIS
- Area calculation for statistics generation
- Masking

3.5.3 Pre-field Interpretation of Satellite Data

The False Color Composite (FCC) of LISS-3satellite imagery having 23.5 m spatial resolution satellite data at 1:50,000 scale was used for pre-field interpretation work. Taking the help of toposheets, geology, geo-morphology and by using the image elements, the features were identified and delineated the boundaries roughly. Each feature was identified on image by their image elements like tone, texture, color, shape, size, pattern and association. A tentative legend in terms of land cover and land use was formulated. The sample area for field check is selected covering all the physiographic, land use/land cover feature cum image characteristics. Figure 3.5.1shows the FCC of 10 KM radius of LISS-3 Imagery.

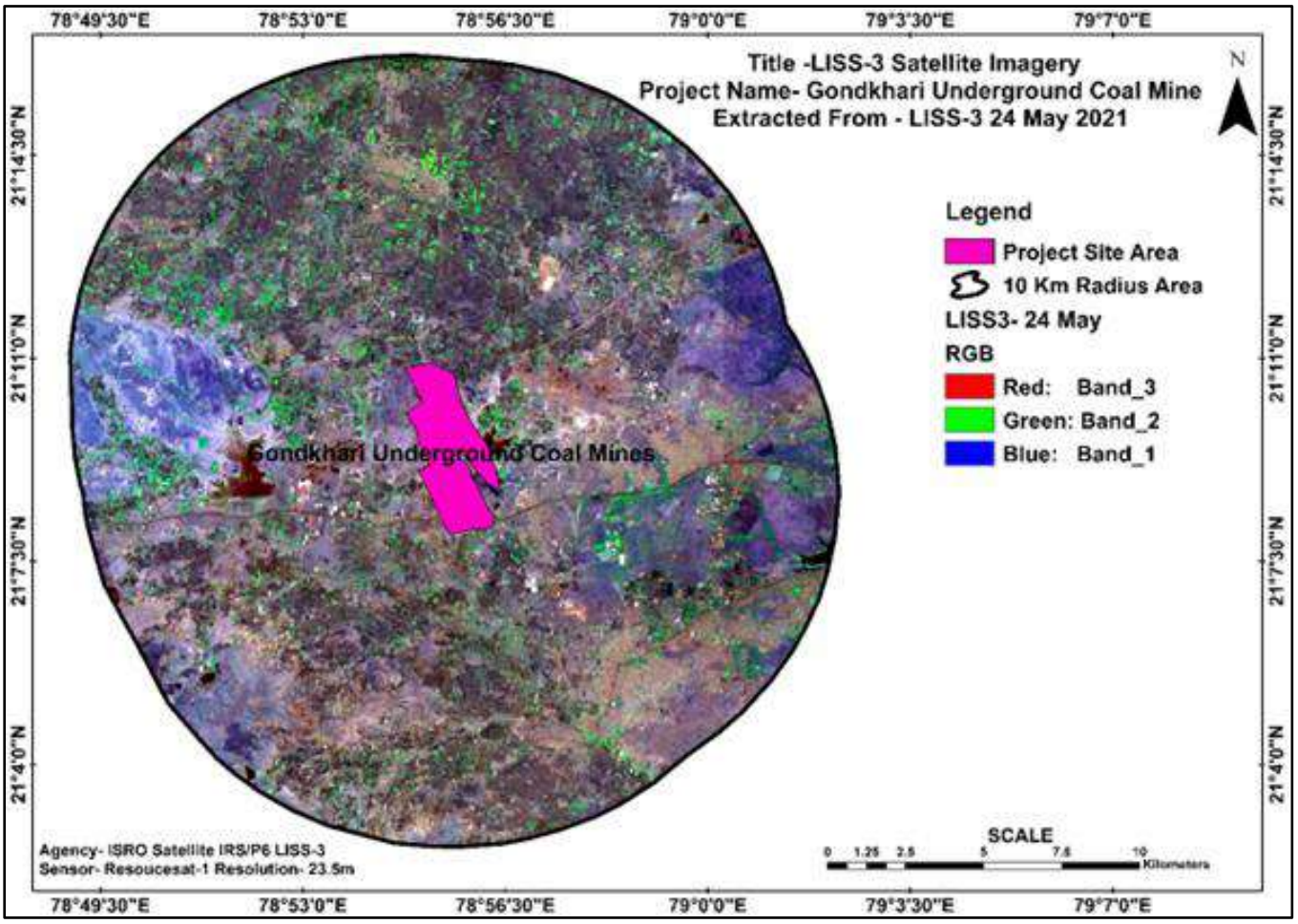


FIGURE 3.5.1: FCC OF 00-10 KM RADIUS WITH PROJECT LOCATION

3.5.4 Ground Truth Collection

Both topo sheets and imagery were carried for field verification and a transverse plan using existing road network was made to cover as many representative sample areas as possible to observe the broad land use features and to adjust the sample areas according to field conditions. Detail field observations and investigations were carried out and noted the land use features on the imagery.

3.5.5 Post Field Work for Land Use/Land Cover Classification

The base maps of the study area were prepared, with the help of Survey of India Toposheets on 1:50,000 scale, 55K/15 old (New- F44M15), 55K/16 old (New- F44M16), 55O/3 old (New- F44N3), & 55O/4 (New- F44N4). Preliminary interpreted land use and the land cover features boundaries from IRS P6 False Colour Composite were modified in light of field information and the final thematic details were transferred onto the base maps. The final interpreted and classified thematic map was cartograph. The cartographic map was categorically differentiated with standard colour coding and described features with standard symbols. All the classes were identified and marked by the standard legend on the map as per the level I and II LULC classification based on NRSA-TR-LU & CD-01-90. **Table 3.5.2** represents the LU/LC classification system. Total area of 10 km radius is about 453.74 sq. km.

TABLE 3.5.2: **LU/LC CLASSIFICATION SYSTEM**

Sr. No.	Level-I	Level-II
1	Built-up land	Settlement
		Industrial Settlement
		Road Infrastructure
		Railway track
2	Agricultural Land/ Crop Land	Single Crop
		Double Crop
3	Forest	Reserved Forest
		Open Jungle
		Open Mixed Jungle
		Dense Jungle
4	Scrubs/Wastelands	Open Scrub
		Dense Scrub
		Waste land
5	Waterbodies	River/Nala/Stream/Canal
		Pond/Lake/Reservoir
6	Mines Area	Stone Quarry

3.5.6 Land Use/Land Cover Classification- Interpretation

Total four major land use/land cover classes were demarcated in the study area following Level I classification (Table3.5.2) furthermore a level II classification also adopted as per the requirement of MoEF& CC in which total 16 classification has been classified in the study area. A thematic map of 1:50,000 scale was generated incorporating these classified categories considering the area of the project. The area represents flat to moderate slope. Only a major waterbody i.e., Vena River, Vena Dam, Bhivkund Dam, Ambazari Lake, Surabardi Lake present in the study area with network of small drainage, nalas and canals in the present study area. Vena River flowing 1.2 Km South direction from the Project site then Vena Dam is situated 4.2 Km towards West Side of the project site. Other than major waterbody there are more small waterbody such as Ghordyo Nala, Unna Nala, Devadkasha N, Vena Canal, Anas N, Nag N, Jhilpi N, Kharkari N are flowing in WNW, W,WSW,SSW,SSW,SE,S,SSE of the project site. The general trend and distance of these waterbodies observed in the study area are present in Table No. 3.5.3 and Figure 3.5.2 represent the drainage pattern of the study area.

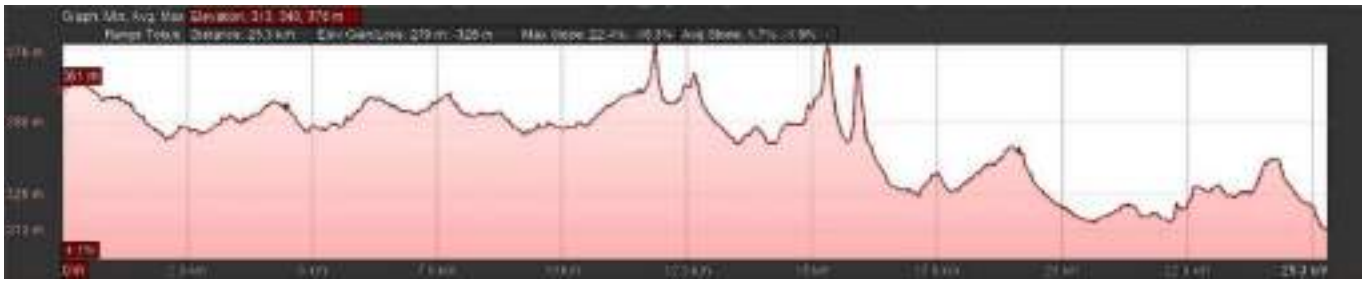


FIGURE 3.5.2: REPRESENTS THE (SLOPE) OF THE STUDY AREA WITHIN 10 KM RADIUS OF NW TO SE PROFILE

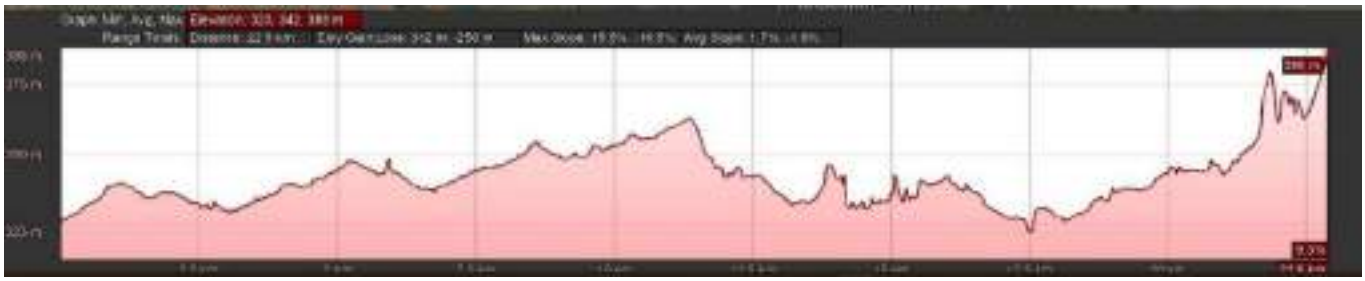


FIGURE 3.5.2A: REPRESENTS THE (SLOPE) OF THE STUDY AREA WITHIN 10 KM RADIUS OF NE TO SW PROFILE

TABLE 3.5.3: **DISTANCE & DIRECTION OF RIVER/STREAM/NALA WITHIN THE 10KM RADIUS**

Sr. No.	Name of River/Stream/Nala	Distance	Direction
1	Saptdhara Nadi	8.1	N
2	Vena R	1.2	S
3	Ghordyo Nala	8.9	WNW
4	Unna Nala	8.9	W
5	Devadkasha N	4.5	WSW
6	Vena Canal	1.7	SSW
7	Anas N	2.5	SSW
8	Nag N	5.5	SE
9	Jhilpi N	5.5	S
10	Kharkari N	3.1	SSE
11	Ambajhari Tank	8.5	ESE
12	Bhivkund Dam	9.9	SW
13	Futala Lake	10.0	E
14	Suraburdi Lake	Adjacent	E
15	Vena Dam	4.2	W
16	Jhilpi Talav	9.1	SW

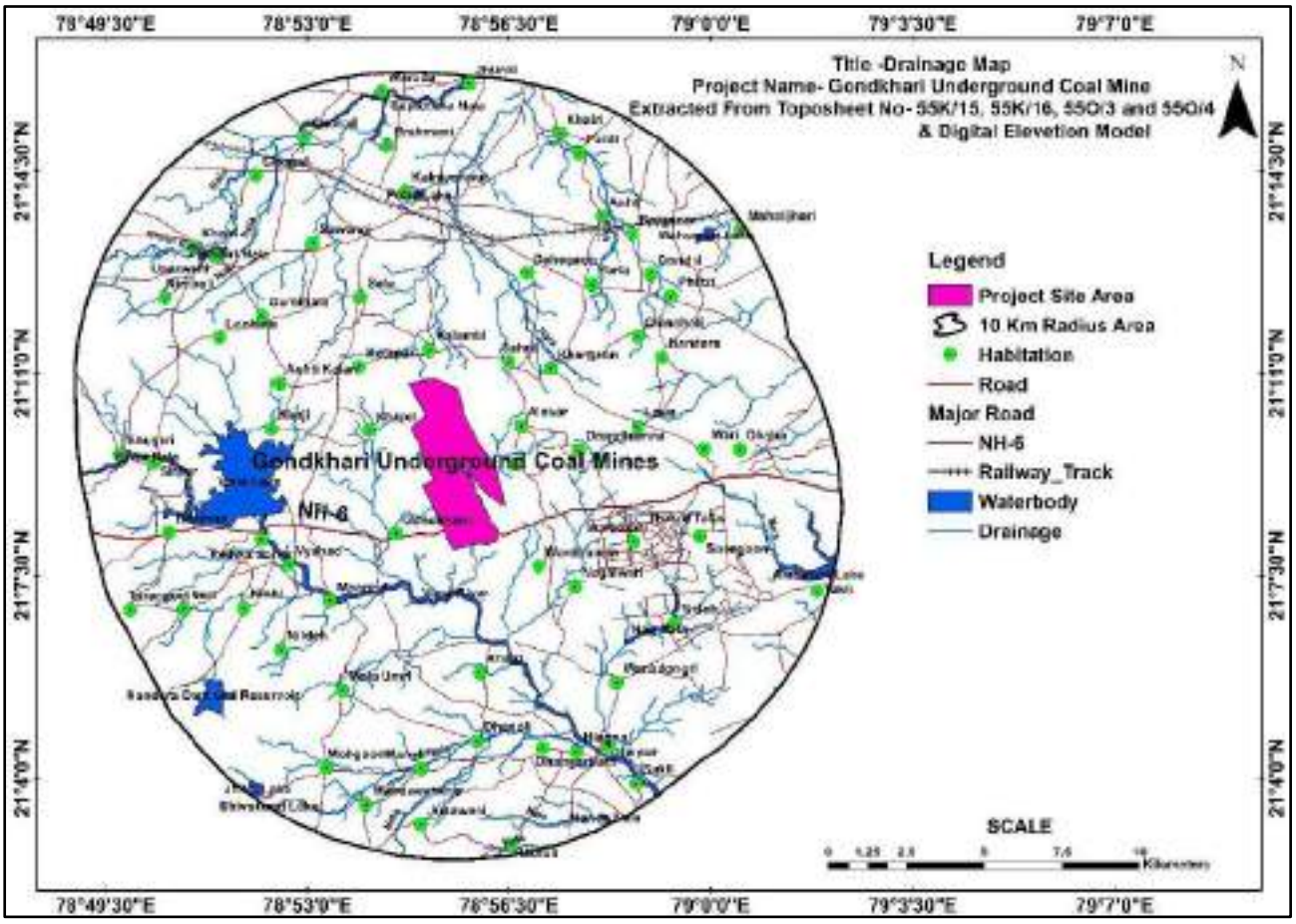


FIGURE 3.5.3: REPRESENTS THE (DRAINAGE) OF THE STUDY AREA WITHIN 10 KM RADIUS

As per the classification extracted by the visual interpretation method or on-screen digitization of the Resource Sat-2 Imagery, sensor LISS-3 and subsequent Table 3.5.4 and Figure 3.5.4 represents that the Agriculture Land area covered highest category of Land such as 63.08% (286.24 sq.km) which includes including plantation, orchards constitute the second highest category of land use includes double and single cropping pattern of the total study area. Thereafter the presence of scrubs and wasteland including barren land, land with scrubs and open scrubs as seen from the figure is about 13.84 % (62.81 sq.km). Thereafter settlement/industrial settlement/ road infrastructure, railway line category area covered second highest category of the land such as 10.68 % (48.48 sq.km). Thereafter there is a presence of Forest area including reserved forest, Dense Jungle, open jungle and open mixed jungle area is about 9.47 % (42.96 sq.km). Thereafter the presence of water bodies including the river, dam, canal, nala, stream, pond, reservoir area and tributaries as seen from the figure are about 2.62 % (11.88 sq.km) of the total 10 km study area. Thereafter there is a presence of Mines area such as Stone Quarry is 0.31 % (1.37 Sq. Km) of the total area of the 10 Km Radius Area.

Maximum settlement was seen in South EAST part of the study area and observed in numerous patches throughout the study area which is shown in figure. The terrain presumably makes it difficult to visualize some of the other features of the total project area. It is also observed that the area is prominent zone for various connectivity points of view such National Highway-06 which is under the 10 km radius of the study area as well as numerous metal roads were also present in the study area; it seems that the transportation of raw materials and finished goods will be easily movable as the connectivity is prominent in the study area. It is also observed that the open scrub and Wasteland area partially present throughout the 10 km radius area.

TABLE 3.5.4: **LU/LC AND ITS COVERAGE WITHIN 10 KM RADIUS**

Sr. No.	Level-I	Level-II	Area (Sq. Km²)	Percentage (%)
1	Built-up land	Settlement	38.03	8.38
		Industrial Settlement	8.02	1.77
		Railway Track	0.63	0.14
		Road Infrastructure	1.80	0.40
2	Agricultural Land/ Crop Land	Single Crop	186.52	41.11
		Double Crop	99.72	21.98
3	Forest	Reserved Forest	8.47	1.87
		Open Mixed Jungle	10.41	2.29
		Open Jungle	22.99	5.07
		Dense Jungle	1.09	0.24
4	Scrubs/Wastelands	Open Scrub	38.72	8.53
		Wasteland	7.37	1.62
		Dense Scrub	16.72	3.68
5	Waterbodies	Nala/Stream/Canal	7.43	1.64
		Pond/Lake	4.45	0.98
6	Mines Area	Stony Waste	1.37	0.30
		Total	453.74	100

TABLE 3.5.5: **LU/LC AND ITS COVERAGE WITHIN 5 KM RADIUS**

Sr. .No.	Level-I	Level-II	Area (Sq. Km²)	Percentage (%)
1	Built-up land	Settlement	9.25	5.91
		Industrial Settlement	3.56	2.28
		Railway Track	0.12	0.08
		Road Infrastructure	0.98	0.63
2	Agricultural Land/ Crop Land	Single Crop	74.70	47.74
		Double Crop	32.43	20.73
3	Forest	Open Mixed Jungle	1.88	1.20
		Open Jungle	0.91	0.58
4	Scrubs/Wastelands	Open Scrub	12.49	7.98
		Wasteland	7.37	4.71
		Dense Scrub	8.42	5.38
5	Waterbodies	Nala/Stream/Canal	1.56	1.00
		Pond/Lake	2.24	1.43
6	Mines Area	Stony Waste	0.56	0.36
		Total	**156.47**	**100**

TABLE 3.5.6: **LU/LC AND ITS COVERAGE WITHIN ML AREA**

Sl.	Level-I	Level-II	Area	
			(In Sq. Km²)	(In %)
1	Agricultural Land/ Crop Land	Single Crop	3.74	43.34
2	Built Up Land	Settlement	0.32	3.71
		Road Infrastructure	0.08	0.93
3	Scrubs/Wastelands	Open Scrub	3.22	37.31
4	Forest	Open Mixed Jungle	0.78	9.04
		Open Jungle	0.17	1.97
5	Water bodies	Pond/Lake	0.29	3.36
		Nala	0.03	0.35
	Total		**8.63**	**100**

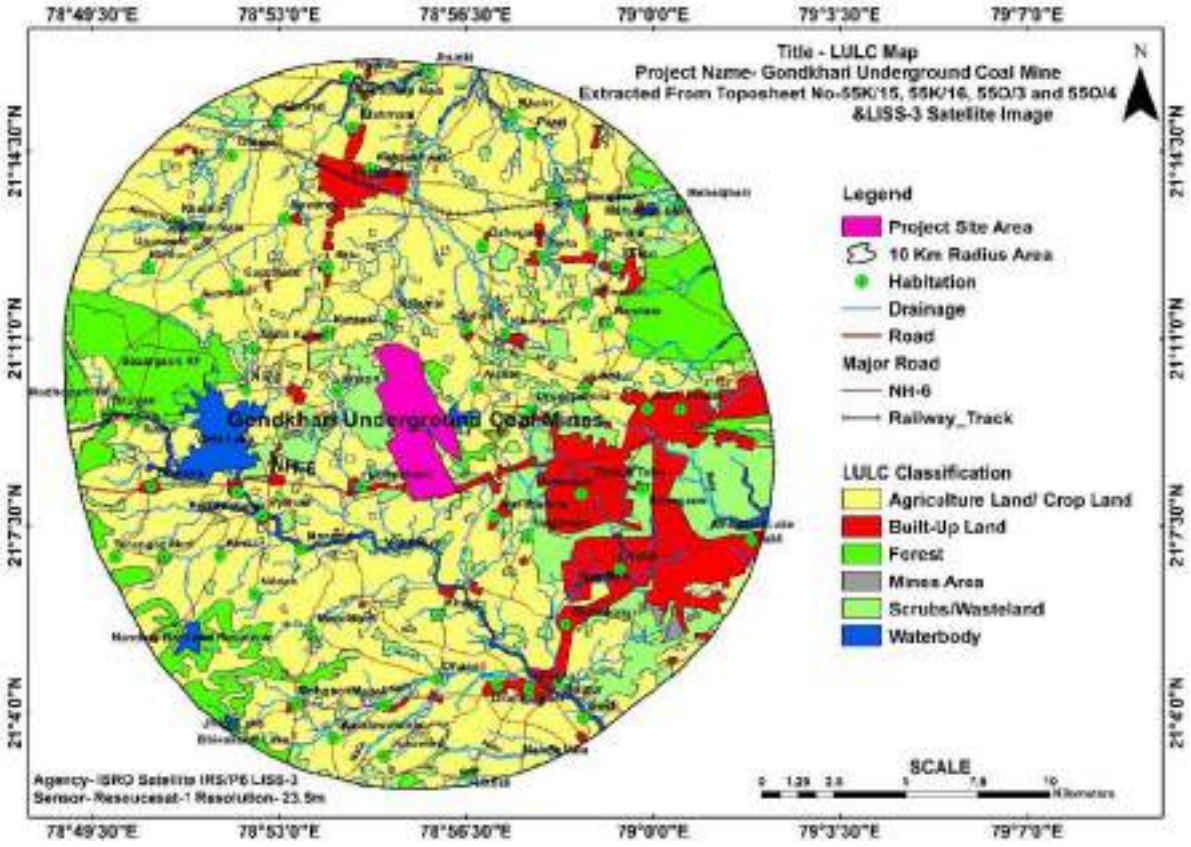


FIGURE 3.5.4A: LU/LC DETAILS OF 10 KM RADIUS

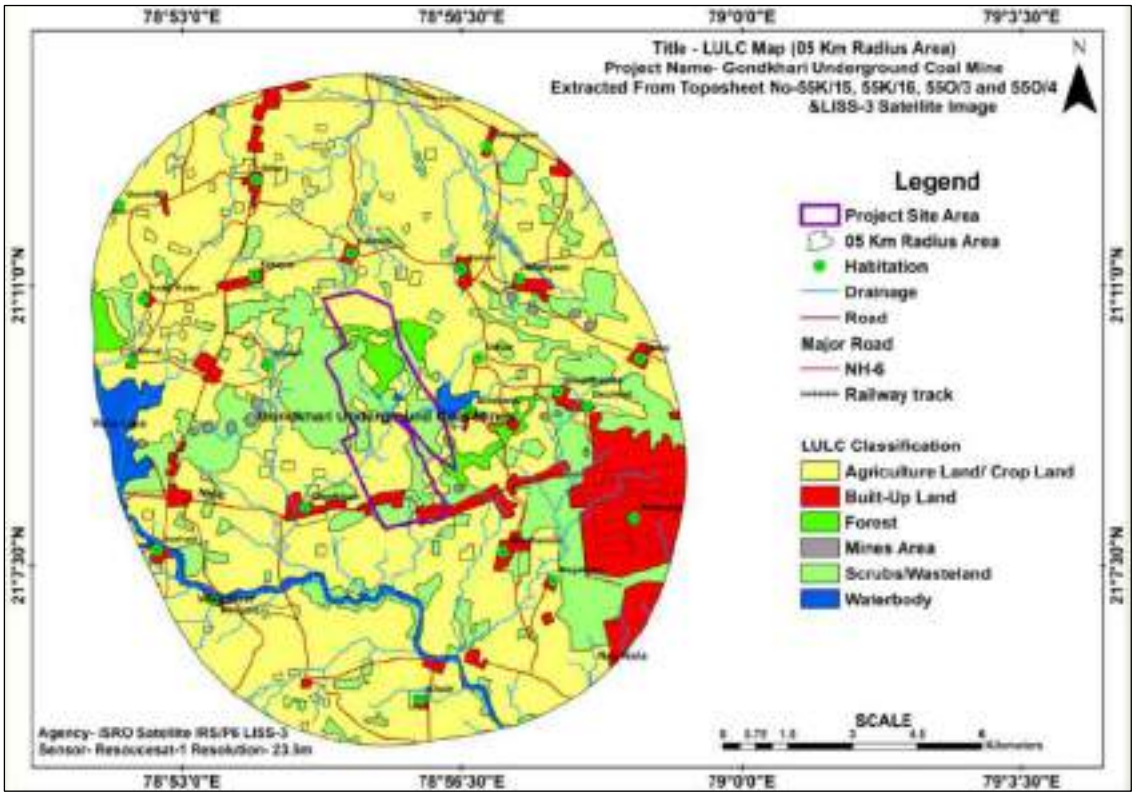


FIGURE 3.5.4B: LU/LC DETAILS OF 5 KM RADIUS

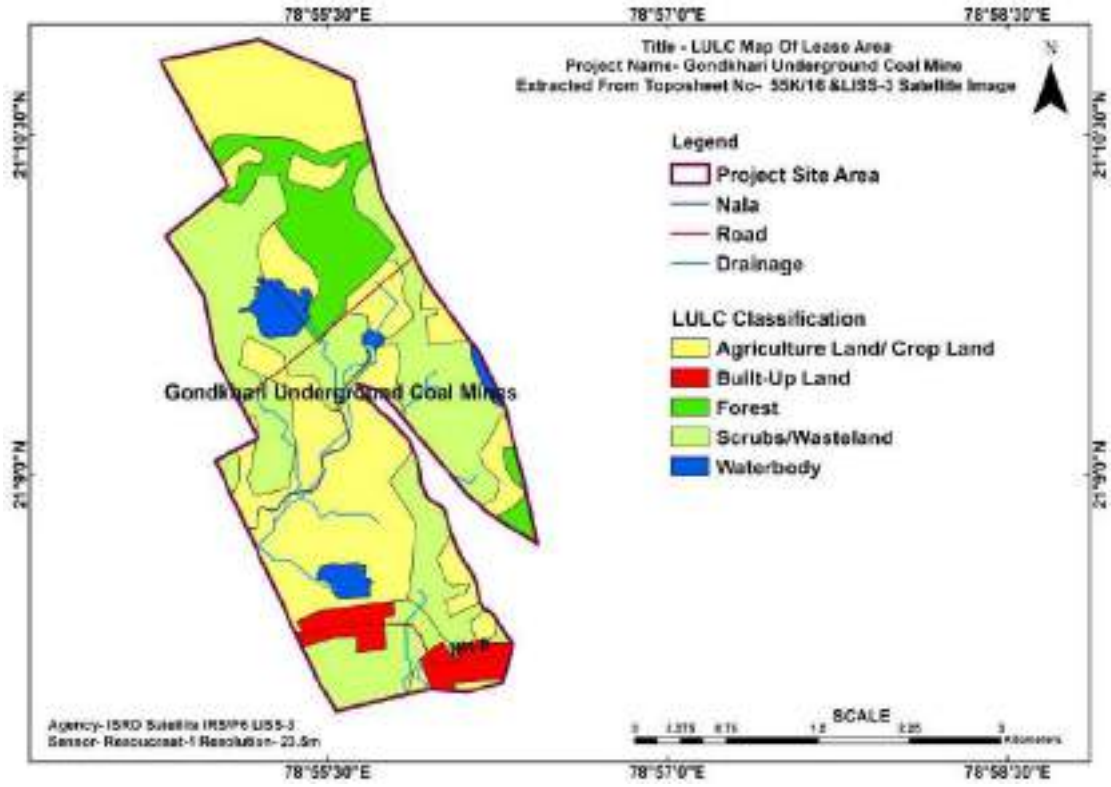


FIGURE 3.5.4C: LU/LC DETAILS OF ML AREA

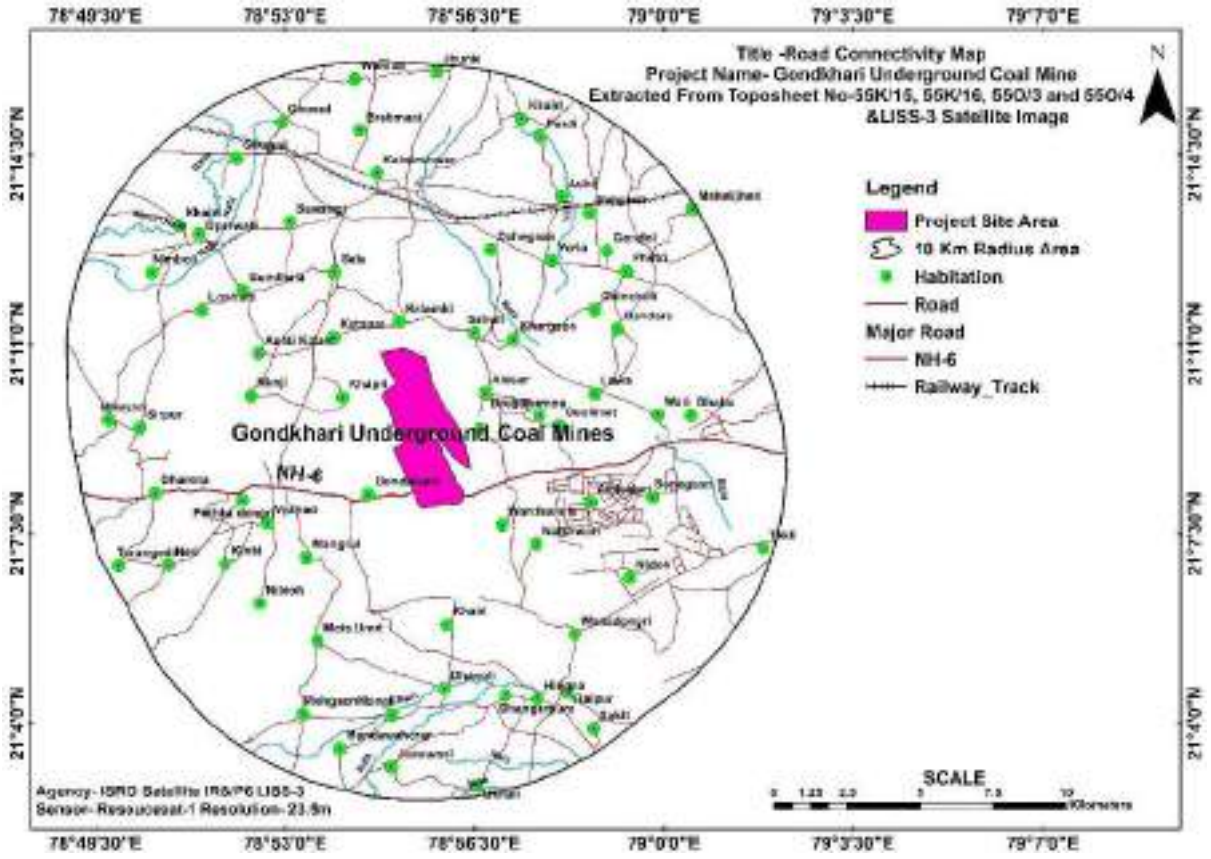


FIGURE 3.5.4D: ROAD NETWORK DETAILS OF 10 KM RADIUS

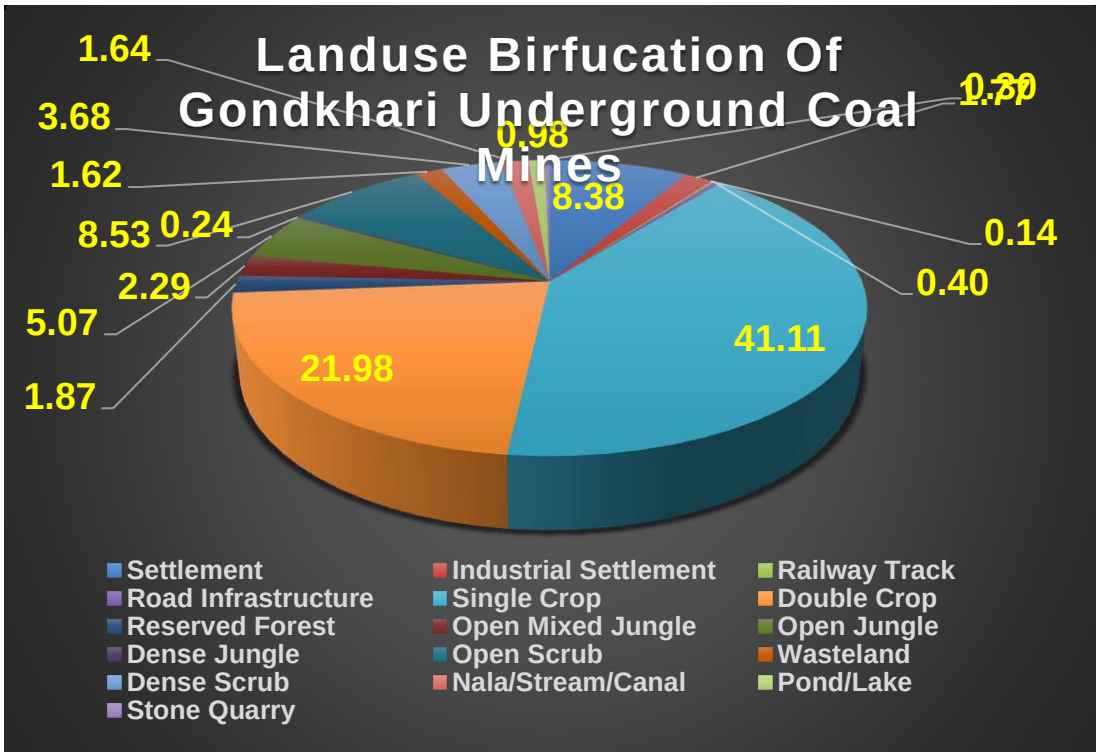


FIGURE 3.5.5: PIE CHART DISTRIBUTION OF THE LU/LC CLASSIFICATION WITHIN 10 KM RADIUS

TERRAIN ANALYSIS

Gondkhari Underground Coal Mine (Adani Power Maharashtra Limited project site and its terrain consist of flat to moderate slopes. The terrain is characterized by agricultural land, Forest land, various settlements, waterbody and open scrub/wasteland. The Stream, Nala in the project site is often found to be receiving sediments from the hill ranges and flow North East Part. There were agricultural fields in the vicinity of the areas. Some of these agricultural fields have also received sediments carried by rainwater run-offs and overflows from the lakes. Thus, the terrain could be described as a mixed terrain with forest land, open scrub, agriculture and covered with a network of natural and manmade watercourses, hilly areas as well as some portion of flat to moderate terrain. Figure 3.5.6 represents the contour map i.e., elevation details of the project site.

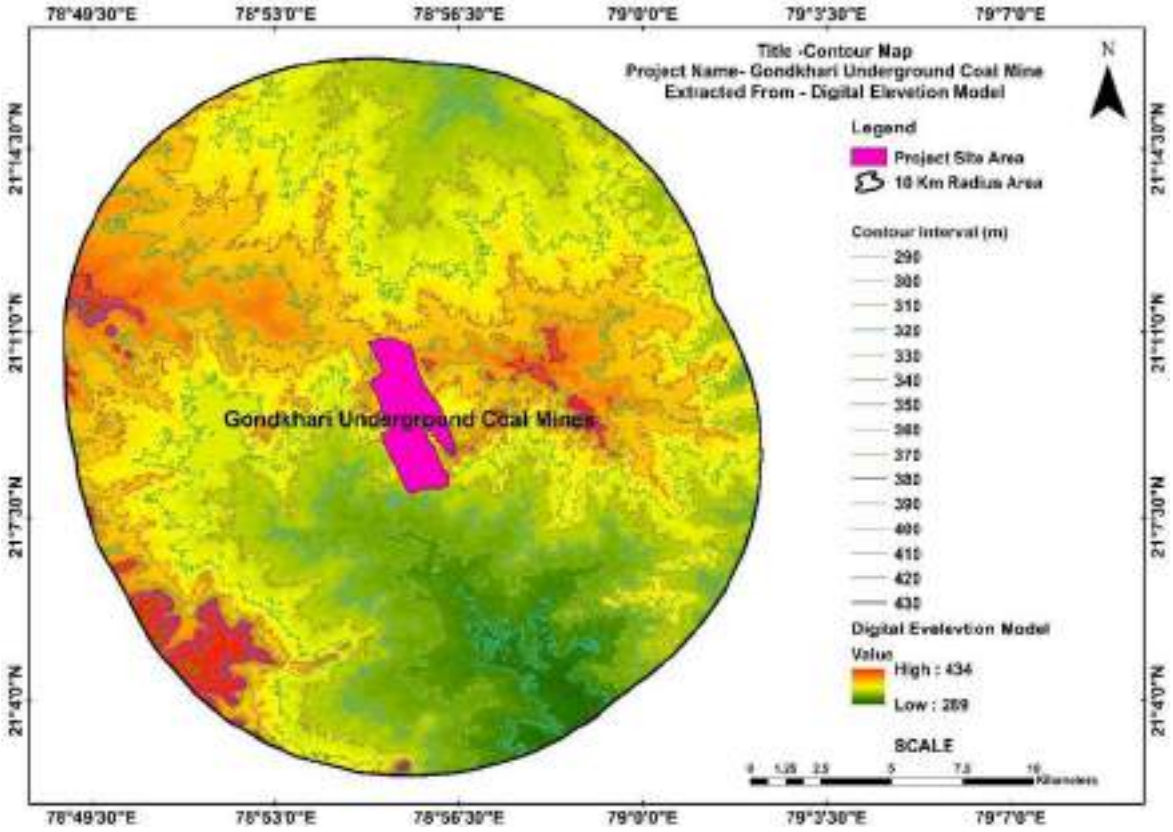


FIGURE 3.5.6: CONTOUR MAP OF THE PROJECT SITE WITHIN 10 KM RADIUS

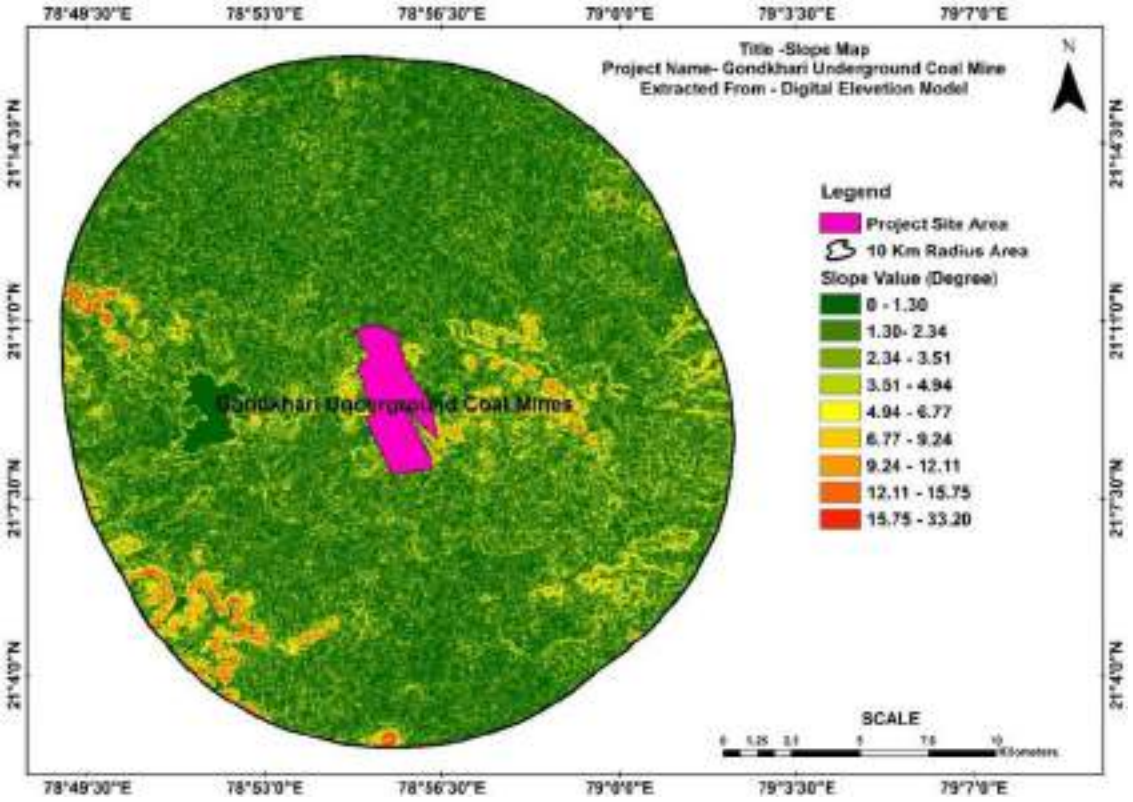


FIGURE 3.5.7: SLOPE MAP OF THE PROJECT SITE WITHIN 10 KM RADIUS DIGITAL ELEVATION MODEL AND TERRAIN MAPPING

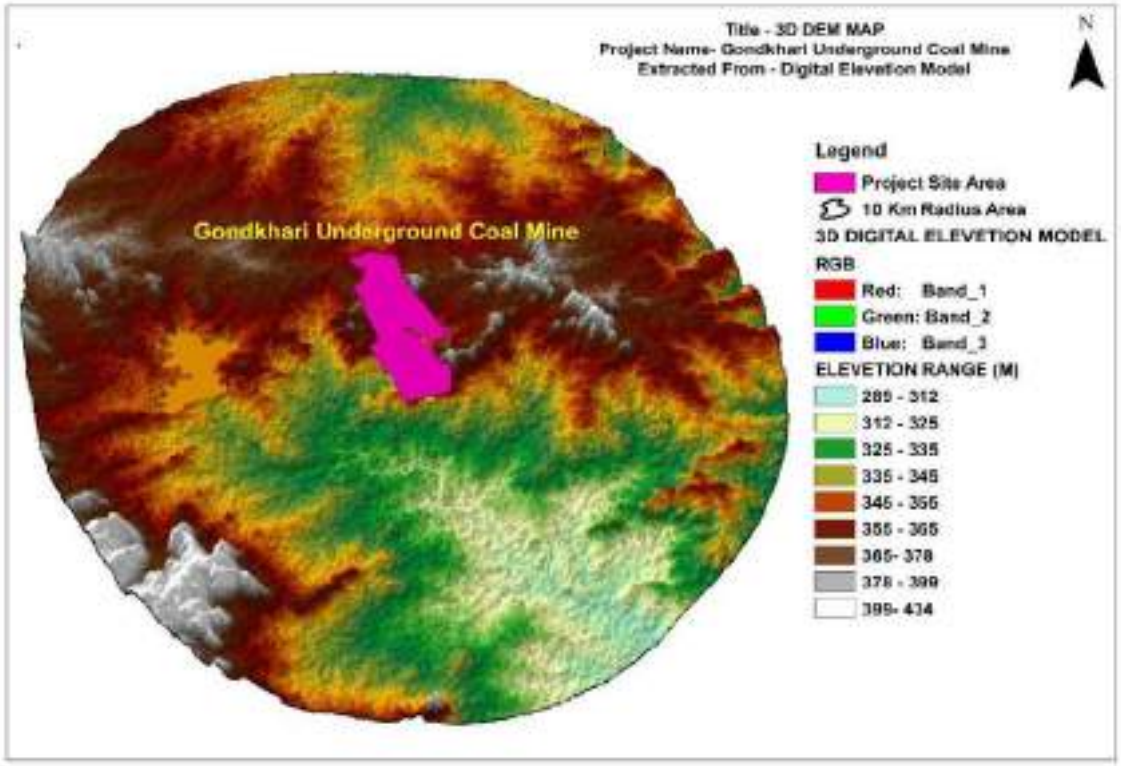


FIGURE 3.5.8: 3D DEM MAP OF THE PROJECT SITE WITHIN 10 KM RADIUS

Scientific literatures use the terms digital elevation model (DEM), digital terrain model (DTM) and digital surface model (DSM) for different type of geographic studies. The term digital surface model represents the earth's surface and includes all objects on it. In contrast to a DSM, the digital terrain model represents the bare ground surface without any objects like plants and buildings. The term Digital Elevation Model is often used as a generic term for DSMs and DTMs, only representing height information without any further definition about the surface. In this report the term DEM is used as a generic term for DSMs and DTMs. The DEM has been generated from the CartoSat-1 data having 2.45-meter spatial resolution. **Figure 3.5.8** shows the 3D DEM of the area.

3.5.7 Baseline status of Soil

3.5.7.1 Methodology for Soil Sampling

1. Materials required

a) Spade or auger (screw or tube or post hole type)

b) Khurpi

c) Core sampler

d) Sampling bags

e) Plastic tray or bucket

2. Procedure

a. Divide the field into different homogenous units based on the visual observation and farmer's experience.

b. Remove the surface litter at the sampling spot.

c. Drive the auger to a plough depth of 15 cm and draw the soil sample.

d. Collect at least 10 to 15 samples from each sampling unit and place in a bucket or tray.

e. If auger is not available, make a 'V' shaped cut to a depth of 15 cm in the sampling spot using spade.

f. Remove thick slices of soil from top to bottom of exposed face of the 'V' shaped cut and place in a clean container.

g. Mix the samples thoroughly and remove foreign materials like roots, stones, pebbles and gravels.

h. Reduce the bulk to about half to one kilogram by quartering or compartmentalization.

i. Quartering is done by dividing the thoroughly mixed sample into four equal parts. The two opposite quarters are discarded and the remaining two quarters are remixed and the process repeated until the desired sample size is obtained.

j. Compartmentalization is done by uniformly spreading the soil over a clean hard surface and dividing into smaller compartments by drawing lines along and across the length and breadth. From each compartment a pinch of soil is collected. This process is repeated till the desired quantity of sample is obtained.

k. Collect the sample in a clean cloth or polythene bag.

l. Label the bag with information like name of the farmer, location of the farm, survey number, previous crop grown, present crop, crop to be grown in the next season, date of collection, name of the sampler etc.

A. STANDARD SOIL CLASSIFICATION

Sr. No.	Soil Test	Classification
1	pH	< 4.5 Extremely acidic 4.51- 5.50 Very strongly acidic 5.51- 6.00 moderately acidic 6.01- 6.50 slightly acidic 6.51- 7.30 Neutral 7.31- 7.80 slightly alkaline 7.81- 8.50 moderately alkaline 8.51- 9.0 strongly alkaline 9.01 very strongly alkaline
2	Salinity Electrical Conductivity (µmhos/cm) (1ppm = 640 µmhos/cm)	Upto 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops (sensitive to salts)
3	Organic Carbon (%)	Upto 0.2 : very less 0.21-0.4 : less 0.41-0.5 medium, 0.51- 0.8: on an average sufficient >1.0 more than sufficient

Sr. No.	Soil Test	Classification
4	Nitrogen (Kg/ha)	Upto 50 very less 51-100 less 101-150 good 151-300 Better >300 sufficient
5	Phosphorus (Kg/ha)	Upto 0.2 : very less 16-30 less 31-50 medium, 51-65 on an average sufficient 66-80 sufficient >80 more than sufficient
6	Potash (Kg/ha)	0-120 very less 120-180 less 181-240 medium, 241-300 average 301-360 Better >360 more than sufficient

B. RELATIONSHIP OF CEC WITH PRODUCTIVITY AND ABSORPTIVITY

Sr. No.	CEC Range (meq/100g)	Productivity	CEC Range (meq/100g)	Absorptivity
1	< 10	Very Low	<10	Low
2	10 – 20	Low	10 – 20	Moderate
3	20 – 50	Moderate	20 – 30	Moderately high
4	> 50	High	30 – 40	High

3.5.7.2 Soil Sampling Location

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the project site representing various landuse conditions. The physical, chemical and heavy metal concentrations were determined. The samples were collected by ramming a core-cutter into the soil from 15 cm up to a depth of 60 cm. Total 8 representative samples were collected from different locations within the study area and analyzed. The details of the soil monitoring locations are given in **Table 3.5.7** and shown in **Figure 3.5.9**. The monitoring was carried out once in the study period during post-monsoon season-2022. The international pipette method (Black, 1964) was adopted for determination of particle size analysis. The physical parameters such as bulk density, porosity and water holding capacity were determined by following KR box method (Keen and racekowski) 1921.

TABLE 3.5.7**: DETAILS OF SOIL SAMPLING LOCATIONS**

Code	Locations	Dis (km) / dir	Coordinates	Soil Sampling Area
S1	Project site-	--	21° 9'27.23"N, 78°55'36.72"E	Fallow land
S2	Kalambi	0.8/NNW	21°11'20.12"N, 78°55'7.06"E	Agriculture field
S3	Madhogarh RF	9.28/W	21° 9'34.42"N, 78°49'37.33"E	Forest Land
S4	Asthi Kala	3.80/WNW	21°10'47.34"N, 78°52'35.31"E	Agriculture field
S5	Khargaon	6.40/NE	21° 9'28.27"N, 79° 0'1.47"E	Agriculture field
S6	Gondkhari	1.60/SW	21° 8'13.41"N, 78°54'23.48"E	Agricultural land
S7	Surabardi	0.10/E	21° 9'22.97"N, 78°56'32.98"E	Reclamation land
S8	Waddhamna	2.55/SE	21° 8'47.67"N, 78°57'52.96"E	Agriculture field

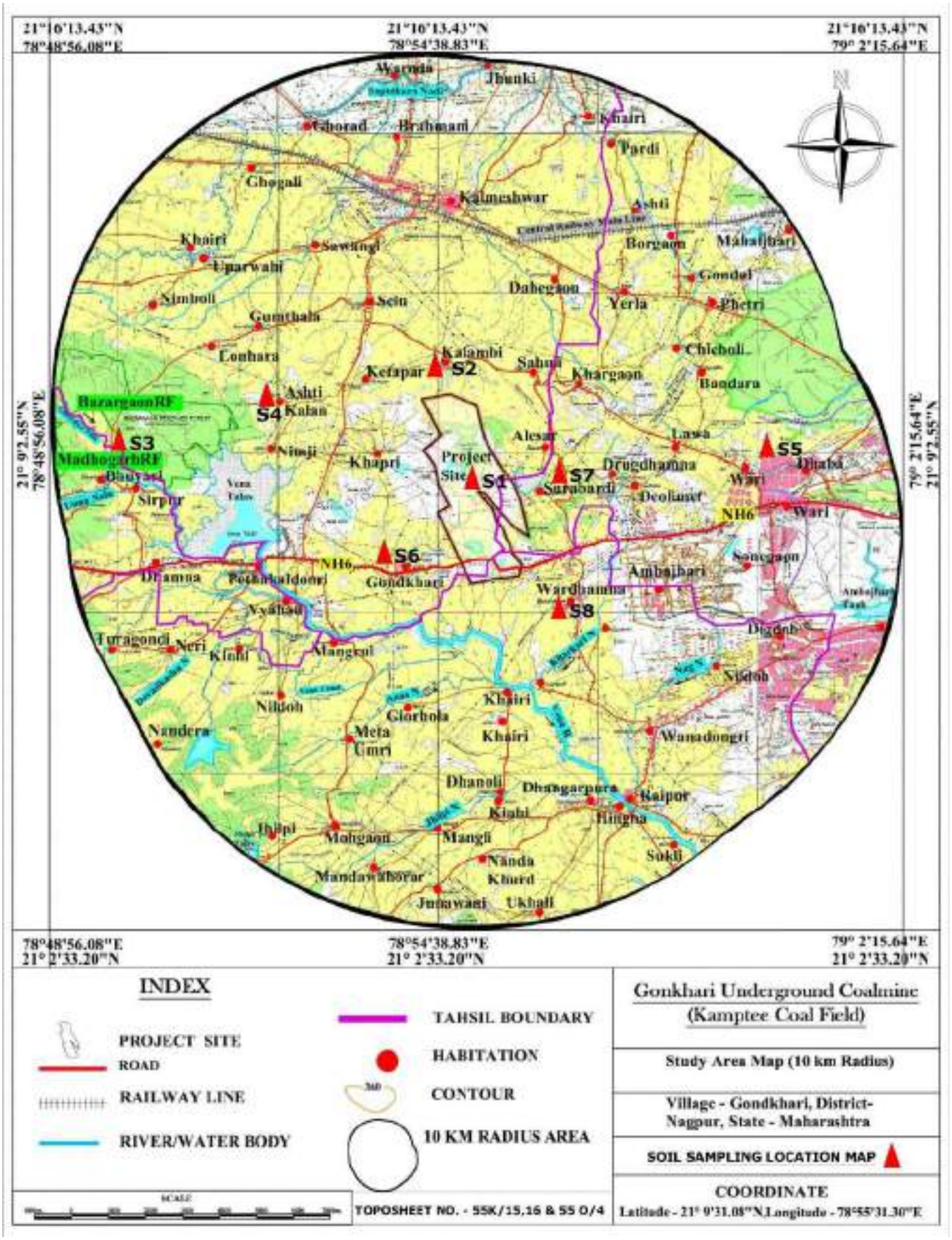


FIGURE 3.5.9: SOIL SAMPLING LOCATIONS

3.5.7.3 Soil Characteristics

Physical Characteristics of Soil

Physical characteristics of soils were determined through specific parameters viz. particle size distribution, bulk density, porosity, water holding capacity, texture and are presented in Table **3.5.5.**

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favourable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.498 - 1.643 g/cc which indicates favourable physical condition for plant growth. The water holding capacity is between 14.93 - 21.21%. Infiltration rate, in the soil is in the range of 18.37 – 22.15 mm/hr as shown in **Table 3.5.5**.

Chemical Characteristics of Soil

Data collected for chemical characteristics of soils through selected parameters viz. pH, cations, organic content and fertility status in the form of NPK values and organic matter are presented in **Table 3.5.5**.

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. Variation in the pH of the soil in the study area is presented in **Table 3.5.5** and it is found to be acidic (5.34 – 6.57) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 210 – 792 µS/cm as shown in **Table 3.5.5.**

The important water soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 229.5 – 825 mg/Kg and 234.72 – 417.12 mg/Kg respectively. Chloride is in the range of 107.2 – 161.5 mg/Kg.

Nutrient Status

Organic matter and organic carbon present in the soil influences its physical and chemical conditions and is responsible for stability of soil aggregates. Organic matter and organic carbon were found in the range of 0.37% – 1.15% and 0.22% – 0.67% as shown in **Table 3.5.5.**

Heavy Metals Content in the Soil

Plant requires some of the heavy metals at microgram levels for their metabolic activities. These heavy metals are also termed as macronutrients. Their efficiency becomes a limiting factor in the plant growth, but at the same time their higher concentration in soils may lead to toxicity. Some of the heavy metals were estimated and their concentration levels are presented in **Table 3.5.8.**

TABLE 3.5.8**: SOIL ANALYSIS RESULT**

S. N.	Test Parameter	Measure-ment Unit	Project site-	Kalambi	Modho-garh RF	Asthi Kala	Khar-gaon	Gondkhari	Surabardi	Wad-dhamna
			(S-1)	(S-2)	(S-3)	(S-4)	(S-5)	(S-6)	(S-7)	(S-8)
1	Infiltration rate	mm/hr	18.96	19.15	18.37	20.36	22.15	19.63	20.85	21.56
2	Bulk density	g/cm3	1.633	1.502	1.643	1.509	1.526	1.498	1.563	1.609
3	Water holding capacity	%	20.87	17.73	19.15	18.19	14.93	16.19	20.87	21.12
4	Particle size distribution									
	Sand	%	72.23	48.84	40.98	45.23	38.26	40.36	60.36	35.96
	Silt	%	10.23	10.8	40.23	21.54	19.38	29.38	14.01	18.68

S. N.	Test Parameter	Measure-ment Unit	Project site-	Kalambi	Modho-garh RF	Asthi Kala	Khar-gaon	Gondkhari	Surabardi	Wad-dhamna
			(S-1)	(S-2)	(S-3)	(S-4)	(S-5)	(S-6)	(S-7)	(S-8)
	Clay	%	17.54	40.36	16.79	33.23	42.36	30.26	25.36	45.36
5	Texture	-	Sandy Loam	Sandy Clay	Loam	Clay Loam	Clay	Clay Loam	Sandy Clay Loam	Clay
6	pH (1:2.5 Aq. Extract) at 25^0C	-	6.38 at 25°C	5.82 at 25°C	6.57 at 25°C	5.34 at 25°C	5.49 at 25°C	5.81 at 25°C	6.17 at 25°C	5.74 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	250	630	210	375	328	629	792	432
8	Water soluble Calcium (as Ca)	mg/Kg	492.9	825.3	658.35	719.55	229.5	719.4	792.45	685.36
9	Water soluble Magnesium (as Mg)	mg/Kg	271.2	285.36	322.8	410.4	236.4	234.72	417.12	378.52
10	Water soluble Sodium (as Na)	mg/Kg	286.5	492.6	435.2	577.8	415.6	436.4	516.8	472.5
11	Water soluble Potassium (as K)	mg/Kg	55.6	69.2	94.38	96.2	82.5	88.11	94.33	74.33
12	Water soluble Chloride (as Cl)	mg/Kg	139.4	146.2	155.0	134.3	107.2	139.2	156.0	161.5
13	Water soluble Sulphate (as SO_4)	mg/Kg	49.2	44.95	46.31	53.09	47.22	52.28	48.27	48.27
14	Exchangeable Sodium (as Na)	mg/Kg	260.1	446.6	373.0	528.8	383.3	398.6	458.2	431.9
15	Exchangeable Potassium (as K)	mg/Kg	55.0	68.7	92.7	95.4	81.7	87.2	93.2	73.7
16	Exchangeable Calcium (as Ca)	mg/Kg	403.2	677.2	494.9	632.4	218.2	601.6	634.4	587.3
17	Exchangeable Magnesium (as Mg)	mg/Kg	226.5	256.2	258.0	363.7	216.6	214.0	345.0	329.2
18	Sodium adsorption ratio	-	2.57	3.77	3.47	4.26	4.60	3.61	3.70	3.60
19	Total Organic matter	%	0.37	0.70	0.45	0.73	0.82	0.91	1.15	1.06
20	Total Organic Carbon	%	0.22	0.40	0.26	0.42	0.48	0.53	0.67	0.62
21	Available Nitrogen (as N)	Kg/hec	116.8	211	124.5	226.26	259.7	188.9	297	232.8
22	Available Phosphorous (as P)	Kg/hec	13.01	28.33	19.46	25.39	28.65	31.59	40.15	36.9
23	Available Potassium (as K)	Kg/hec	120.32	351.71	287.42	347.13	358.47	289.3	303.3	334.1
24	CEC	meq/100g	13.52	22.95	13.24	29.65	23.23	21.92	19.84	23.9
25	Total Arsenic (As)	mg/Kg	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
26	Available Boron (as B)	mg/Kg	0.21	0.19	0.22	0.27	0.24	0.26	0.16	0.22
27	Total Cadmium (asCd)	mg/Kg	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
28	Total Chromium (as Cr)	mg/Kg	34.83	28.44	19.65	27.72	33.98	21.12	16.89	29.22
29	Available Copper (as Cu)	mg/Kg	3.483	2.387	3.772	1.982	4.081	4.31	3.487	2.928

S. N.	Test Parameter	Measure-ment Unit	Project site-	Kalambi	Modho-garh RF	Asthi Kala	Khar-gaon	Gondkhari	Surabardi	Wad-dhamna
			(S-1)	(S-2)	(S-3)	(S-4)	(S-5)	(S-6)	(S-7)	(S-8)
30	Total Lead (as Pb)	mg/Kg	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
31	Total Nickel (as Ni)	mg/Kg	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
32	Total Cobalt (as Co)	mg/Kg	5.866	7.128	5.684	9.567	6.664	9.168	7.942	8.647
33	Available Iron (asFe)	mg/Kg	1.827	2.335	1.682	1.787	2.664	2.812	1.968	1.466
34	Available Manganese (as Mn)	mg/Kg	7.21	9.311	8.682	7.881	8.72	6.811	9.25	8.161
35	Available Zinc (asZn)	mg/Kg	0.967	0.886	0.96	0.987	1.082	0.968	0.891	0.987
36	Total Selenium (as Se)	mg/Kg	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

3.5.7.4 Interpretation

The bulk density of the soil in the study area ranged between 1.498 - 1.643 g/cc which indicates favourable physical condition for plant growth. pH is found to be neutral 5.34 – 6.57 in reaction. Based on the pH values, soil nature in the study area is found to be from moderately acidic to neutral. As based on result of available concentration of major nutrients fertility status of soil with respect to NPK value is found to be in the range of 116.80 – 297.0 kg/ha (quality good to better), 13.01 – 40.15 kg/ha (quality less to medium) and 120.32 – 358.47 kg/ha (quality less to better) respectively. Organic carbon was found in the range of 0.22% – 0.67% (quality less to an average sufficient).

3.6 BIOLOGICAL ENVIRONMENT

3.6.1 Introduction

Biological environment is one of the essential environmental components. It includes variability of flora & fauna in the specified region. Collection of comprehensive baseline information in particular flora and fauna is prerequisite steps for evaluation and identification of impact on REET species due to proposed operation of any extractive industries and its allied activities.

Loss of biological diversity over the year after year has become a national and a global concern. Ecological assessment therefore is very critical for decision making for the setting of a developmental project or an industry.

The present study was undertaken for proposed underground mining project as a part of EIA-EMP report to understand the present status of ecosystem prevailing in the study area, to compare it with the past condition with the help of available data, to predict changes as a result of present activities and to suggest measures for maintaining the conditions.

3.6.2 Objectives of the Study

The ecological study of the area was conducted in order to understand the existing status of the flora and fauna to generate baseline information and evaluate the possible impacts on biological environment. The present study highlights the various issues pertaining to floristic diversity and faunal wealth in the surrounding area up to 10 km radius of the proposed mining sites.

3.6.3 Study Area

Gondkhari Underground Coal mine, is proposed by underground mining method with an area of 862 ha, which belongs to M/s Adani Power Maharashtra Limited (APML). The project area is covered in Survey of India Topo sheet No. 55 K/16 and is bounded by East Longitudes 78°54’45.626” - 78°56’25.44”and North latitude 21°07’57.737” - 21°10’55.196”. Gondkhari Coal Block is part of Kamptee Coalfield located

in Nagpur District of Maharashtra. The block falls in the command area of Western Coalfield Ltd. The block is virgin area and is free of any mining activity except for surface quarrying for road metal but is not seen, as on date.

As per the bio-geographical classification, the project area comes under Bio-geographic province (6D) Deccan Peninsula-Central Plateau region. Whereas, as per Champion & Seth, 1968 vegetation types of the area grouped as Tropical Dry Deciduous Forest. The average annual rainfall of the region is 1100.3 mm. Soil of the area is black cotton soil and the texture of the soil varies from clay to sandy. Winter is moderately cold and the summer is very hot.

3.6.4 Study Approach & Methodology Adopted

Biological Survey was conducted 2 times within study area during Jan' 2022 and Mar' 2022. Study of flora and fauna carried out as per prescribed method addressed in SOP. A participatory and consultative approach was also followed. Field visits were under taken for survey of the vegetation and animals in the study area. The study area is divided into two parts as ML area (Core Zone) and the 10 Km readius from the periphery of ML area (i.e., Buffer Area).

Sampling Locations

- **Basis of Selection of sampling locations**

Selection of sampling location to study of biological aspects was made as per topography, land use, vegetation pattern, etc. Total two Reserve Forest observed in the study area. Thus, biological survey was made by considering ecological sensitive receptors in forest and non-forest area like (agriculture field, water reservoir, riverside, open scrub, plain area, village wasteland, block plantation etc.

A total 10 sampling were selected for study on biological aspects based on topography, land use, vegetation pattern, etc. The biological survey was carried out in forested area (Protected Forest, Reserve Forest and Open Mixed Jungle), and non-forested area (agriculture field, dam, riverside, on hills, in plain area, village wasteland, etc. Secondary data i.e. Forest Working Plan also collected from Nagpur Forest Division (Period 2015-16 to 2024-25), Agriculture Dept., Nagpur and project authority to substantiate primary data. The biological survey is mainly concerned at selected locations including ML area.

Sampling Locations

TABLE 3.6.1**: SAMPLING LOCATIONS**

Sr. No.	Location	Sr. No.	Location
1.	ML Area	2.	Gondhkhari
3.	Alesar	4.	Surabardi
5.	Waddhamna	6.	Gorewada
7.	Bazargaon	8.	Madhogarh
9.	Khapri	10.	Khairi
11.	Sirpur		

Survey Methodology

The baseline study for existing biological environment was carried out in Jan' 2022 and Mar' 2022. Study of flora and fauna carried out as per prescribed method addressed in SOP. A participatory and consultative approach was also followed. Field visits were under taken for survey of the vegetation and animals in the study area. The study area is divided into two parts as ML area site (core zone) and buffer

zone. Mine Lease area i.e., 862.000 Ha is being considered as core area and 10 km radius from the periphery of ML area is considered as a buffer zone.

3.6.5 Threat Status Assessment/evaluation Criteria:

The biodiversity aspects in the form of endemic status, conservation status and life form were enumerated for all the plant species found in the area during ecological survey. The Red Data Book of the Botanical survey of India was screened to verify their conservation status. For wild animal species schedule of the Wildlife (Protection) Amendment Act 2022 was screened.

3.6.6 Ecosystems/ Habitat & Vegetation of the Study Area

ML Area: The terrain was found to be almost plain without much undulation; except Hillocks observed in North direction. Dense vegetation is restricted in this hillock as compare to the plain area. Alesur local lake which is the major waterbody observed in the ML area. Beside that Surabardi Reservoir is the major source of Freshwater fishes located in the East boundary (Adjecent) of ML area.

The block is virgin area and is free of any mining activity. Vegetation observed within ML site is *Butea monosperma* (Palash), *Tectona grandis* (Teak), *Acacia sp.*, *Maytenus emarginata* (Bharati), Neem, coppice generation of Tendu, *Lantana camera* (Ghaneri) and *Hyptis suaveolens* (Rantulsi), *Calotropis procera* (Rui), etc. Some upper story trees are found on the banks of nala crossing over within the ML area and the central northern part of the ML area.

Trees: The main tree species was observed within the mine lease area and its immediate surrounding are *Azadirachta indica* (Neem), *Terminalia arjuna* (Arjun), *Cassia fistula* (Cassia), *Bauhinia racemosa* (Asta), *Emblica officinalis* (Aawla), *Tamarindus indica* (Emali), *Bauhinia variegate* (Apta), *Dalbergia sissoo* (Sisam), *Syzygium cumini* (Jambhul), *Acacia nilotica* (Babul), *Mangifera indica* (Aamba), *Tecoma stans* (Ghanti), *Leucaena leucocephala* (Subabul), *Peltophorum pterocarpum* (Copper pod), *Samanea saman* (Gulabi Shiris), *Pongamia pinnata* (Karanj), *Cassia siamea* (Kashid), *Albizia lebbeck* (Shiris), *Acacia catechu* (Khair), *Phoenix sylvestris* (KhajuSindi), *Ziziphus xylopyrus* (Ghont), *Butea monosperma* (Palash), *Ziziphus mauritiana* (Ber), *Ailanthus excels* (Maharukh), *Acacia leucophloea* (Hivar), *Tectona grandis* (Sagaun), *Anona squamosa* (Sitafal).

Shrubs: *Helicteres isora* (Marodfalli), *Lantana Camera* (Ghaneri), *Calotropis gigantea* (Rui), *Nerium indicum* (Kanher), *Bougainvillea sp.* & *Cascabela thevetia* (Ghanti).

Herbs: *Acanthospermum hispidum* (Landga), *Xanthium strumarium* (Ghagara), *Cassia tora* (Travad), *Tridax procumbens* (Kambarmodi), *Parthenium hysterophorus* (Gajar gawat), *Alternanthera sessilis* (Bechkusal Garundi) & *Aerva lanata* (kapurmadhuri) & *Cissus quadrangularis* (Hadjodi) etc.

Grasses and Bamboos: *Phyllostachys aurea* (Golden Bamboo), *Eragrostis tenella* (Bhurbhusi) & *Cynodon dactylon* (Durva) etc., species are observed during the baseline survey.

Climbers: Majority of climbers were observed in the moist patches and roadside in the study area. The main Species were *Bauhinia Vahlii* (Chambuli), *Butea superba* (Palasvel), *Acacia pennata* (Shembarati), *Ziziphus oenoplia* (Yeroni) and *Smilax Zeylanica* (Ghotvel), and a few others.

Parasite/Epiphyte: *Cuscuta reflexa* (Amarvel) observe in the study area.

Buffer Area: In the buffer area, Vena River, followed by Vena Dam, are major waterbodies in 1.2 km in southerly direction from the ML boundary. Several nalas and lakes are also observed. Fishing activities are observed during the baseline survey period in the Vena River. Natural vegetation is observed near the waterbodies and hedges of the agricultural land. Teak, Ain, Dhaora, Tendu, Arjun, Khair, Palas, etc. Dense vegetation is observed in the reserve forests. Some small hillocks and open jungles are also found in the study area, where the natural vegetation occurs.

In the Buffer area Vena River followed by Vena Dam are major water bodies in 1.2 km in South direction from the ML boundary. Several Nalas and Lakes are also observed. Fishing activities are observed during the baseline survey period in the Vena River and reservioir. Natural vegetations are observed near the waterbodies and hedges of the agricultural land. Teak, Ain, Dhaora, Tendu, Arjun, Khair, Palas etc. Dense vegetation are observed in the Reserve Forests. Some small hillocks and open jungles are also found in the study area where is the natural vegetation occurs. Land use pattern of this region was dominated by agricultural fields (63.08%) followed by Open Scrub / Wasteland (13.84%), Built-up land (10.68%) and Forest area (9.47%).

3.6.7 Details about Forest Type in the Study Area:

The forests in the study area belong to the Sub Group 5A – Southern Tropical Dry Deciduous Forests as per the revised classification of 'Champion and Seth'. Underneath this sub group the forest types found in the study area are as follows:

Type Notation	Types	Type Description
Group 5		**Tropical Dry Deciduous**
Sub-group 5 A		Southern Tropical Dry Deciduous Forests.
	5A/Ci	Dry Teak Bearing Forests
	5/D S1	Dry Deciduous (Mixed) Forests

Dry Teak Bearing Forest:

This type of forest is predominantly confined to the hilly & undulated region of Bazargaon Reserve Forest and Madhogarh Reserve Forest (very small part of this forest found in the study area) which about 5.1 Km and 9.7 Km respectively in West direction from the project site. These two forest area adjacent to each other. Teak having higher proportion as compare to other associate plant species.

The over-wood consists of Teak (Tectona grandis), Ain (*Terminalia tomentosa*), Dhaora (*Anogeissus latifolia*), Movai (*Lannea Coromandelica*) Salai (*Boswellia serrata*), Tendu (*Diospyros melanoxylon*), Bel (*Aegle marmelos*), Awla (*Phyllanthus emblica*), etc.

The common shrubs found are Dhyati (*Woodfordia fruticosa*), Bharati (*Maytenus emarginata*), Ber (*Zizypus* sp.) and Neel (*Indigofera tinctoria*).

The main climbers found in areas are Chilati (*Mimosa hamata*), and Eruni (*Ziziphus oenoplia*)

Dry Deciduous (Mixed) Forests:

A considerable variety of degenerated forests could be included in this type. These forests are the result of long continued maltreatment, of which excessive grazing and repeated cutting are the main factors. These forests usually grow under heavy grazing conditions. Ain (*Terminalia tomentosa*), Dhaora (*Anogeissus latifolia*), Lendia (*Lagerstroemia parviflora*) are the most common species observed in the study area. The other associates are Tendu (*Diospyros melanoxylon*), Moha (*Madhuca longifolia*), Palash (*Butea monosperma*), Hiwar (*Acacia leucophloea*), Khair (*Acacia catechu*), Ber (*Ziziphus mauritiana*), Ghoti (*Ziziphus xylopyrus*), Bhirra (*Chloroxylon swietenia*), etc. These types of species predominantly observed in Open Mixed Jungle at Gorewada area.

3.6.8 Details of Forest in the Study Area

There is Two Reserve Forest observed in the study area. The details are as under:

Sr. No.	Forest	Distance (km)	Direction
1.	Bazargaon RF	5.1	W
2.	Madhogarh RF	9.7	W

Sr. No.	Forest	Distance (km)	Direction
3.	Open Mixed Jungle – Gorewada	6.69	ENE

3.6.9 Information about Biological Sensitive Area, if any.

There is no National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, within the 10 km radius study area. Gorewada Jungle boundary is 6.69 km in ENE direction. The distance from periphery of Mine lease area to nearest tiger reserve i.e., Bor Tiger Reserve is 21.66 km whereas ESZ boundary of Bor Tiger Reserve is 15.3 km in SSW direction.



FIGURE 3.6.1 (A): GOREWADA JUNGLE BOUNDARY IS 6.69 KM IN ENE DIRECTION

Balasaheb Thackeray Gorewada International Zoological Park:

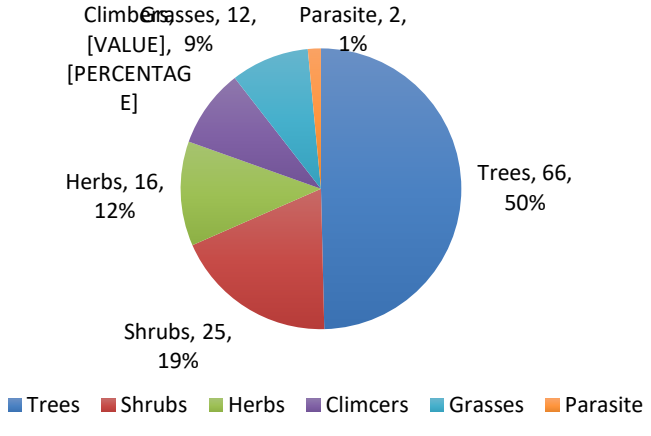
Gorewada forest is one of the tropical forests located in Nagpur district, (M.S.), India. Almost 50% of this forest falls within the 10 km study area of the project site. The distance from the periphery of the ML area to this forest is 6.69 km in ENE direction. It is a rich source of biodiversity which represents a valuable global resource such as food, fodder, fruits, fuel, gums and medicines that are beneficial to mankind. It is the home of large number of floral and faunal species. Some of the major faunal species are found in this forest/park are Nilgai, Leopard, Bear, Spotted deer, Tiger, Blackbuck, White buck, Monkey, Squirrels, Lizards, Peacock, Purple heron, Woodpecker, Owl, etc. Most of the plants are common which includes the leguminous plants which were in large number as compared to non-legumes. Leguminous plants found are *Abrus precatorius, Acacia sp., Albizia lebbeck, Butea monosperma, Bahunia sp., Caesalpinia pulcherima, cassia fistula, Cassia tora, Leucaena leucocephala, Mimosa hamata, Mucuna pruriens, Pithecellobium dulce, Pongamia pinnata, Tamarindus indica, Tephrosia purpurea, Tephrosia hamiltonii* etc. and were as non-legumes are *Blumea sp., Tectona grandis, Santalum album, Ziziphus sp., Celosia argentea, Cleistanthus collinus, Mytragyna parvifolia, Partheneium sp., Semecarpus anacardium, Sida sp., Vernonia cinerea* etc.



FIGURE 3.6.1 (B): BOR TIGER RESERVE IS 21.66 KM WHEREAS ESZ BOUNDARY OF BOR TIGER RESERVE IS 15.3 KM IN SSW DIRECTION

3.6.10 Enumeration of Terrestrial flora in the study area

The tree species shrubs, herbs, climbers and grasses were documented during this baseline study. The list of floral species documented in the study area is enlisted in **Annexure VII (A)**. Habit wise floristic diversity in the study area is showing in the following **figure 3.6.2**.



Habit	Species
Trees	66
Shrubs	25
Herbs	16
Climbers	12
Grasses	12
Parasite	2
Total=	**133**

FIGURE 3.6.2. HABIT WISE FLORISTIC DIVERSITY IN THE STUDY AREA

Phyto-sociological study

To understand the attribute of communities, a phyto-sociological study of vegetation was conducted in the study area. The study was conducted in Reserve Forest in the study area. The result of phytosociological studies shows that *Butea monosperma* (Palas) followed by *Tectona grandis* (Teak) is dominant species in Reserve Forest. The details of Phytosocio result provided in **Annexure – VII(D)**.

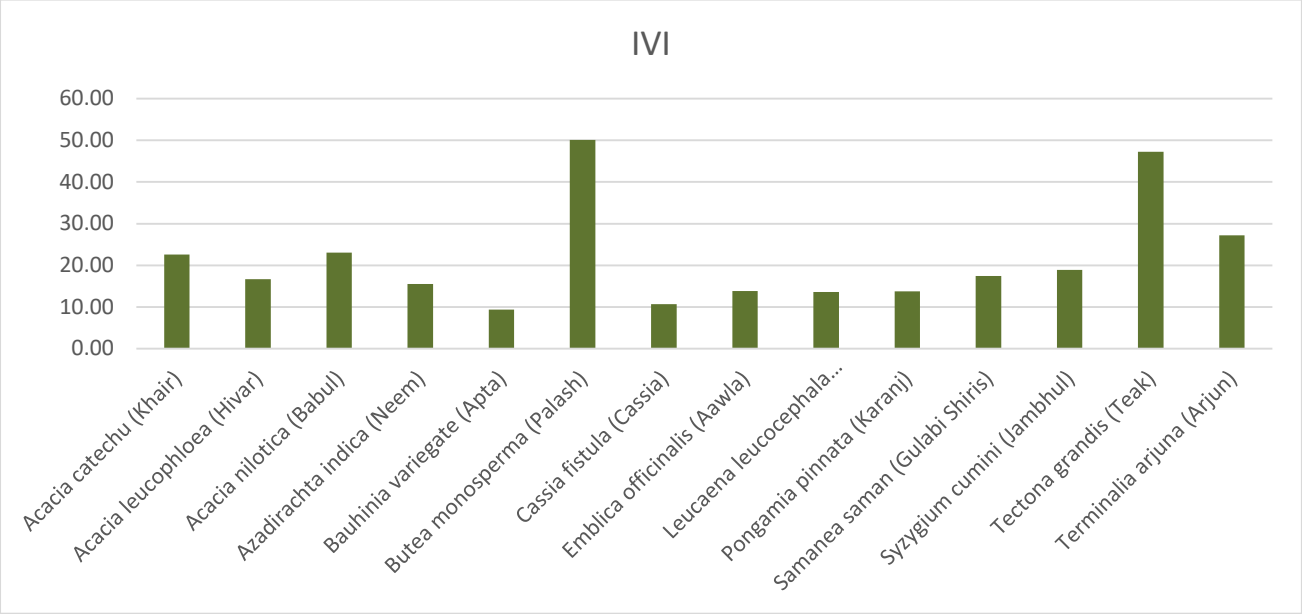


FIGURE 3.6.3. IMPORTANCE VALUE INDEX (IVI)

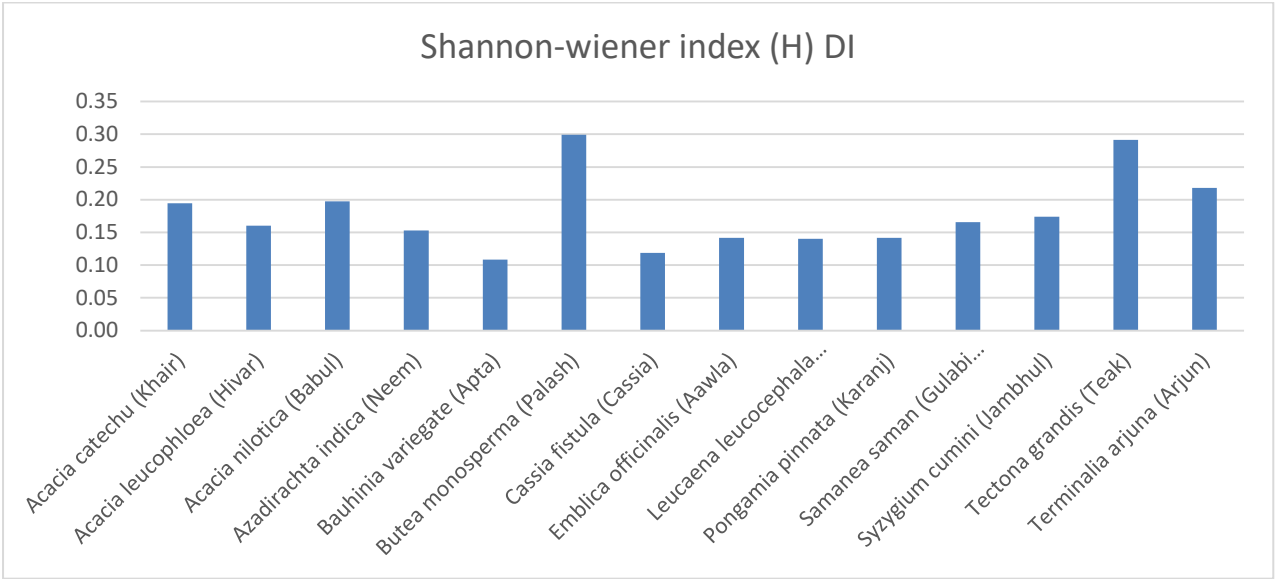


FIGURE 3.6.4. SHANNON-WIENER INDEX (H) DI

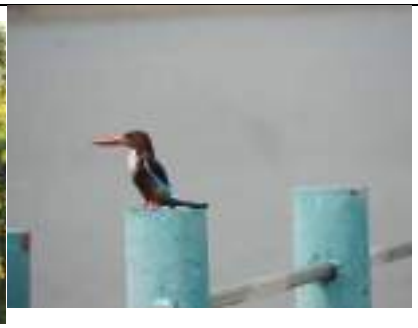
Vegetation near Human Habitation

Near the villages, the vegetation pattern was found to be abruptly changed from that what was observed in the forest areas. The common species are those which are useful to the human beings. The species commonly found were *Mangifera indica* (Mango), *Madhuca longifolia* (Moha), *Syzygium cumini* (Jambhul), *Tamarindus indica* (Chinch), *Terminalia bellirica* (Behada), *Ficus bengalensis* (Vad), *Ficus religiosa* (Pimpal), *Psidium guajava* (Peru), *Azadirachta indica* (Neem), etc.

PLATE 3.6.1: SITE SPECIFIC PHOTOGRAPHS OF BIOLOGICAL ENVIRONMENT



Tecoma stans (Yellow elder) near Surabardi



White-throated kingfisher observed near Suraburdi lake



Tilapia fish found in Surabardi lake



Veiw of Vena River



Allium cepa (Onion) field observed within the ML area



Semnopithecus entellus observed near Vena River



Tagetes patula observed in the ML area



Red-wattled lapwing (*Vanellus indicus*) observed in the ML area



Maytenus emarginata (Bharati) observed in the ML



Nala Passing through the ML area



Phoenix sylvestris (Shindi) observed in the ML area

		
Azadirachta indica (Neem) Observed in the ML area	*Acacia nilotica* (Babul) observed in the project site	*Typha domingensis* (Elephant grass)
		
Bambusa vulgaris (Golden Bamboo)	Purple sunbird (*Cinnyris asiaticus*) observed near Surabardi lake	Little cormorant (*Microcarbo niger*) observed in the Surabardi lake
		
Thorny vegetation observed in the ML area	*Eucalyptus globulus* (Nilgiri) plantation observed in the study area	Sparse vegetation of *Butea monosperma* in the ML area

PHOTOGRAPHS OF VEGETATION COVER, AGRICULTURE FIELD, FAUNA OBSERVED WITHIN THE STUDY AREA

3.6.11 Agriculture

The details pertaining to agriculture and horticulture crops within the study area are presented in A**nnexure VII (B)**.

3.6.12 Rare and Endangered Flora in the Study Area

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity. Among the enumerated flora in the study area, none of them were assigned any threat category, by RED data book of Indian Plants. (Nayar and Sastry, 1990) and Red list of threatened Vascular plants (IUCN, 2010; BSI, 2003).

3.6.13 Endemic Plants of the Study Area

De Candolle (1855) first used the concept of "Endemic", which is defined as an area of a taxonomic unit, especially species which has a restricted distribution or habitat, isolated from its surrounding region through geographical, ecological or temporal barriers. Among recorded plant species none were assigned the status of endemic plant of this region.

3.6.14 Fauna

The 10 km radius study area was found to be a home to several species of mammals, reptiles, aves and other lower invertebrates. As described earlier, the part of study area covered forest. The big animals like Wild boar, Sambar, Nilgai, Barking deer, Spotted deer as well as small sized fauna like Jackal, Monkey, Fox, etc. were found abundantly in the Bazargaon and Madhogarh Reserve Forest area. Birds were observed throughout the study area mostly near the forest area water bodies and agriculture fields. Reptiles and amphibians were also observed in the study area. Fresh water fishes were found in the Vena river and water reservoir.

The fauna observed through enquiry from local people of the study area are as follows:

For the documentation of the faunal biodiversity of the study area with respect to Mammals, Reptiles, Birds, Butterfly and Fishes species, a biological survey was conducted on 2 times in **Jan' 2022** and **Mar' 2022**. The wild mammals, herpetofauna observed other than domesticated ones from the core zone and the buffer zone of study area is documented. The most commonly spotted bird species of this area were; Indian Roller, Green bee-eater, Jungle babbler, Rose-ringed parakeet, Cattle Egret, Crow pheasant, Red-wattled Lapwing, Red-vented bulbul, Oriental magpie-robin, black-winged kite, etc. Systematic list of the birds in the study area with the status of occurrence is prepared. During survey period butterflies were rarely observed in early morning in study area but enlisted based on consultative approach with villagers. Species of fishes mainly observed in Vena River and Surabardi lake were confirmed through the consultative approach with villagers and documented. All the faunal species are found in the study area are documented in the **Annexure VII (C)**.

Fauna observed in the forest area within study area

Mammals: Wild Boar, Sambar, Nilgai, Barking Deer, Spotted Deer, Jackal, Monkey (*Macaca mulatta & Presbytis entellus)*, *Funambulus pennantii, Cynopterus sphinx, Mus booduga, Rattus rattus, Herpestes edwardsi,*

Reptiles: *Daboia russelii* (Ghonas)*, Bungarus caeruleus* (Manyar)*, Calotes versicolor* (oriental garden lizard)*, Hemidactylus domestica* (common house gecko)*, Hemidactylus flaviviridis* (yellow-belly gecko)*, Ptyas mucosa* (Dhaman) *& Naja naja* (Nag), etc.

Birds: The common birds observed in the study area are *Acrido therestristis* (Common myna), *Ploceus philippinus* (Baya weaver), *Pycnonotus cafer* (Red-vented bulbul), *Vanellus indicus* (Red Wattled Lapwing), *Passer domesticus* (Sparrow), *Bubo bubo* (Owl), *Corvus splendens* (Common crow), *Dicrurus adsimilis* (Drongo), *Centropus sinensis* (Bharadwaj), *Psittacula krameri* (Parakeet) etc.

3.6.15 Rare and Endangered Fauna of the Study Area:

• As Per IUCN RED (2013) List

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong

scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

Among the reported animals, *Rusa unicolor* (Sambar) is categorized as Vulnerable (VU) whereas Bengal monitor lizard (*Varanus bengalensis*) is categorized as Near Threatened (NT) category as per IUCN. Rest of the animals is categorized under Least Concern (LC) category as per IUCN.

• As per Indian Wild Life (Protection) Amendment Act, 2022

Wild Life (Protection) amendment Act, 2022, as amended on 20th December 2022, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Some of the sighted fauna were given protection by the Indian Wild Life (Protection) amendment Act, 2022 by including them in different schedules.

Among mammals; Common Mongoose (*Herpestes edwardsi*), Jackal (*Canis aureus*) Jungle cat (*Felis chaus*), *Rusa unicolor* (Sambar) are protected in schedule – I. While, Hanuman/Common Langur (*Presbytis entellus*), Wild Boars (*Sus scrofa*) and Indian hare (*Lepus nigricollis*) are provided protection by incorporating them in schedule–II whereas Rats Bat and Squirrel species which are found in the study area dose not included in any schedule of the Wild Life (Protection) amendment Act, 2022.

Among the herpetofauna, Bengal Monitor Lizard (*Varanus bengalensis*), Indian Cobra (*Naja naja*), Russell's Viper (*Daboia russelii*) and Common Rat Snake (*Ptyas mucosus*) were provided protection as per Schedule - I of Wild Life (Protection) amendment Act, 2022 and Common Indian Krait (*Bungarus caeruleus*) and Indian Toad (*Duttaphrynus parietalis*) were provided as per Schedule – II of Wild Life (Protection) amendment Act, 2022.

Among the Avifauna in the study area Indian peafowl (*Pavo cristatus*) and Shikra (*Accipiter badius*) are protected in schedule –I. While rest of the birds are included in schedule II as per Wild Life (Protection) amendment Act, 2022.

3.6.16 Observation and Interpretation of Results

Mining lease area of project is 862.0 Ha out of which 87.351 Ha. land belongs to open forest land. Since, it is UG mining project no distruction of forest is involved during mining operation. The ML area is surrounded by agriculture fields and Scrub land. The overall study biological environment revealed that, it is an underground mine project so the impact of the project would be minimum or significantly low and therefore net loss of biodiversity or long-term degradation of the receiving environment not envisaged. The development of greenbelt within premises of the ML area will definitely helpful to develop ecological layout and helpful for local avifauna for perching and breeding ground. Local plant species are suggested for the plantation.

3.7 SOCIO-ECONOMIC ENVIRONMENT

3.7.1 Introduction

The objective of survey is for the assessment of socio-economic environment in the study area. An assessment of socio - economic environment forms an integral part of the EIA-EMP study.

Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield). at - Gondkhari, Tehsil- Kalmeshwar, Dist. – Nagpur State MH. The block is approachable by an all-weather Zilla Parishad tar road starting from NH-6 and is located about 20 Km West from Nagpur city. It lies just North of NH-6. Kalmeshwar township is at a distance of about 8 Km towards North of the block while Nagpur city is about 20 Km on the East. A tar road, which connects NH-6 and Kalmeshwar township is located about 5 Km west of the

block and runs almost parallel to the west boundary of the block. Gondkhari, Waddhamna and Kalambi are the other prominent villages in the vicinity of but outside the block. The Nearest Railway station is Kalmeswar which is at a distance of 10 Kms. The nearest Airport is Nagpur which is at a distance of about 20 km from the block.

3.7.2 .Objectives of the Study

Socio-economic elements play an important role in any development, as it may have positive or beneficial impact. Socio economy study suggests how the life of people in the area gets affected or gets changed due to the project. Following are the main objectives of the study such as

- To know the past and present status of the society.
- To know the culture of the society.
- To get an idea about variation in population living in a particular area based on their origin, education, sex ratio, financial status, health status etc.
- To know about the infrastructure facilities in the area i.e., road facility, communication facility, transportation facility, drinking water facilities, drainage facilities etc.
- The socio- economic survey gives an idea about the source of income of the people living in the area eg. Agriculture, labour work, small or big businesses etc.
- To perform a Need assessment study that will help to plan and propose social development activities as a part of Corporate Environment Responsibility.
- To know whether the people are aware about the project.
- To know the actual problemsin and around study area faced by the people so we can take the intitiative and may do something for there better lifestyle.
- To understand the general trend of the economic sources and education facilities of the people.

To make betterment in the life of people by solving their basic problems on behalf of the information gathered from the survey

3.7.3 Methodology Adopted for the Study

The approach and methodology adopted for conducting socio-economic study is divided in Six parts as mentioned below:

3.7.3.1 Work Plan

Based on the methodology presented above, a work plan for the socioeconomic study was developed. This work plan includes the following tasks and activities'.

Desktop Work:

The desktop works consist of preparation of study area map, literature study of the socio- economic status of the area, Identification of locations with the help of maps and land uses. The major impact zones are identified and locations are selected. After selection of number of locations to be surveyed, the same are marked on maps.

3.7.3.2 Develop Baseline Conditions:

This Sub Caluse can be considered as a preparatory work which includes the following steps.

Primary Survey & Secondary Surveys:

A survey is conducted to know the baseline, midline and end line conditions of the study area and the people in study area. Primary survey consists of reconnaissance surveys, public consultations, Interviews, Focused group discussions etc. Both Qualitative and Quantitative data is collected using structured questionnaires for household level enumeration by qualified enumerators.

Secondary Survey consists of Quantitative and Qualitative data collection and researching based on secondary sources i.e., Census data, Govt. Portals, administrative offices and various departments.

The sociological aspects considered for the study are human settlements, demography and caste composition, infrastructures, education, health, drinking water, power supply, communication, transportation, literacy, sex ratio, people's willingness for industrial activity etc.

3.7.3.3 Data Analysis and Socioeconomic Assessment:

The data collected in primary and secondary survey is compared and interpreted in to understand the socio economy of the study area. All the socio- economic data is compiled and analyzed to prepare a report having qualitative and quantitative interpretation of the socio- economic studies. The report also consists of suggestions, advices and planning to spent CER amount.

Assessment of the probable significant impacts and identification of the mitigation measures to address impacts adequately is done. The information thus gathered has been analyzed and presented in the form of a number of visual formats for easy interpretation and decision making.

3.7.3.4 Data Entry and Verification

Dealing with large amount of data requires a systematic approach for data coding, tabulating and entry. It should be noted that, before data entry, the collected data should be verified. Such verification could be carried out for all collected data or for the random sample of the data. This depends usually on the quality of the procedures of data collection.

3.7.3.5 Data Analysis

Analysis will involve standard statistical analysis of the data and information collected. The analysis should be based upon the criteria developed before.

3.7.3.6 Socioeconomic Impacts Assessment and Identification of Main Areas Of Concern:

One of the main objectives of socioeconomic assessment is to identify various socioeconomic positive and negative impacts. The socioeconomic impacts assessment should highlights possible relationships between assessed socioeconomic variables and the environmental quality in the study site. Such an assessment could guide the following step of the work. Also, the areas of concern (issues and opportunities) of socioeconomic structure of the study site have to be identified.

3.7.3.7 Details of Demographic Details

TABLE 3.7.1**: POPULATION DETAILS IN STUDY AREA**

Zones	Total household	Total Population	Total Male	Total Female	Total 0-6 child	Total SC	Total ST	Population Literate	Population Illiterate
0-2 km	2689	11180	5820	5360	1347	2103	810	8557	2623
2-5km	7562	32420	16806	15614	3772	8575	2881	24922	7498
5-10km	58243	248458	129240	119218	28190	44827	20898	192616	55842
10km	**68494**	**292058**	**151866**	**140192**	**33309**	**55505**	**24589**	**226095**	**65963**
In %	**4.26**		**52.00**	**48.00**	**11.40**	**19.00**	**8.42**	**77.41**	**22.59**

Source: Primary census abstract 2011, State Maharashtra.

Note: Details are presented in **Annexure VIII A.**

3.7.3.8 Details of Sex Ratio in the Study Area

The 'Sex Ratio' of the Study area is a numeric relationship between females and males of the area and bears paramount importance in the present day scenario where the unethnic 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 feticide is not prevalent in the study area.

As per census record 2011 sex ratio is the ratio of female to male in the population (normalize to 1000). The sex ratio in the study area showed unevenly distributed trends. Overall sex ratio is 925 female to thousand male. Child 0-6 sex ratio was 935 female to 1000 male. In SC category 946 female and ST category 943 female to 1000 male Details are presented in **Figure 3.7.1**

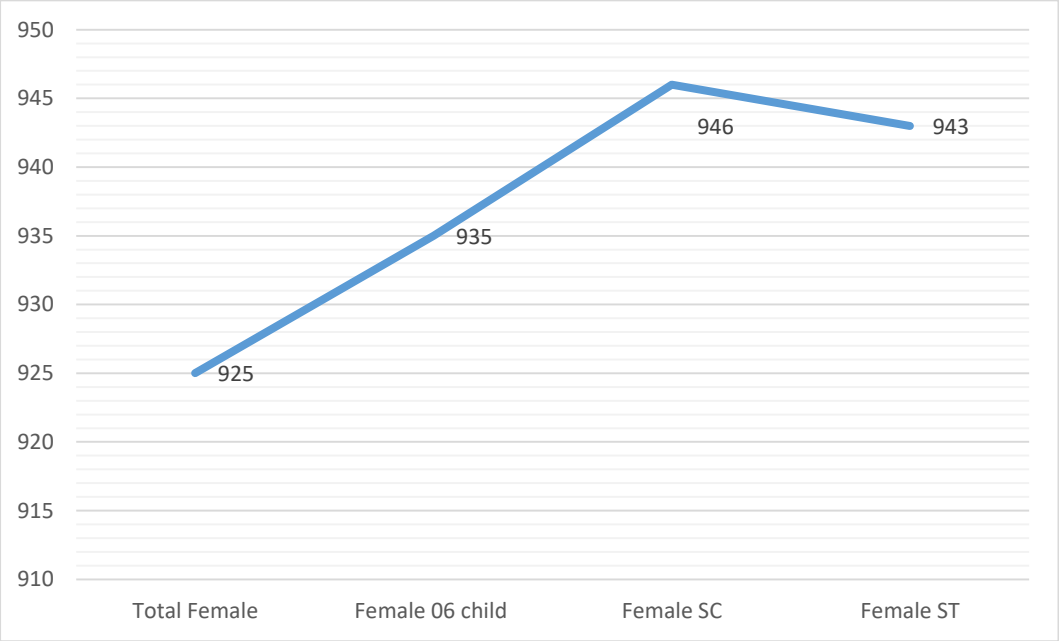


FIGURE 3.7.1: SEX RATIO IN THE STUDY AREA

3.7.3.9 Details of Employment Pattern

The majority of people in rural sector are farmers (cultivators) & agricultural labors which indicates dominant agricultural economy. A small segment of population is engaged as household industry worker. But in urban sector the existing scenario is completely reversed as most of the people there are engaged in non-agricultural activity especially in local hotels/restaurants and as drivers and some people also operates their vans/jeeps/cars as tourist vehicle.

Annual income helps in identifying families below poverty line. During the field surveys, income of a household through all possible sources was recorded. Agriculture and allied activities were reported to be the major source of income followed by non-farm wage labor, business, government service and private service. The other important sources of income include government pension and income from selling of fodder.

The identification of the current economic characteristics of the study area is also an important part of

defining the employment pattern of the study area.

There are different types of employment pattern that may be classified as: Persons who had worked for at least six months or 183 days are classfied as main workers and person's classied as marginal workers who had participated in any economic or productive activity for less than six months or 183 days during the last one year. Non workers are those who had not worked any time in the year.

Employment and main worker employment pattern in the study area is given in **Table 3.7.2**; **Figure 3.7.2 Details are presented in Annexure VIII B**

TABLE 3.7.2**: EMPLOYMENT & MAIN EMPLOYMENT PATTERN IN THE STUDY AREA**

	Breakup of Total Employment		Breakup of total Workers		Breakup of total Main Worker			
Zones	**Total Workers**	**Total Non Workers**	**Total Marginal Workers**	**Total Main Workers**	**Cultivators**	**Agricultural Workers**	**Household Industry Workers**	**Main other Workers**
0-2km	4749	6431	416	4333	710	1843	60	1720
2-5km	13108	19312	1446	11662	1093	2508	203	7858
5-10km	104853	143605	12422	92431	15411	28051	2030	46939
10km	122710	169348	14284	108426	17214	32402	2293	56517
In%	**42.02**	**57.98**	**4.89**	**37.12**	**5.89**	**11.09**	**0.79**	**19.35**

Source: Primary census abstract 2011, State Maharshtra.

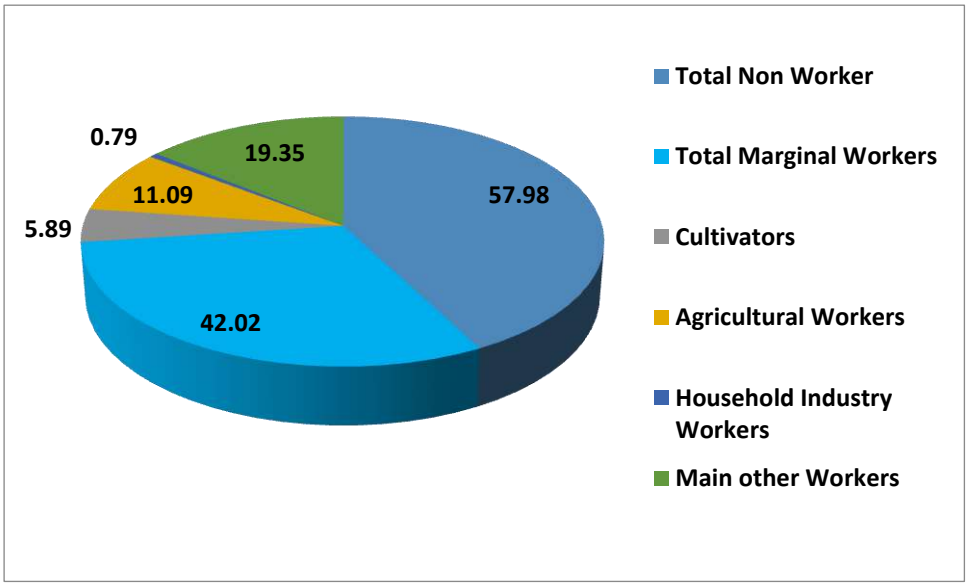


FIGURE 3.7.2 WORKERS CATEGORIZATION IN THE STUDY AREA

Above given statistics indicates that non worker population are more than working population and most of the workers were engaged in other works eg. Private job, labour work, business.

3.7.4 Infrastructures Facilities

TABLE 3.7.3: INFRASTRUCTURE FACILITIES

Infrastructure Facilities	Availability (In percentage) As per year 2011, Census Nagpur
Educational Facilities	95
Drinking water	97
Road	97
Power	95
Communication	94
Transportation	90
Govt. PHC & SC	20
Bank & Society	65
Drainage	73
Recreation	13

Note: Details are presented in **Annexure VII C**

3.7.5 Socio-economic Survey Methodology : The study was conducted into Three parts as under

3.7.5.1 Part One:

Secondary analysis of Socio- economic census data (Secondary Survey) by referring 2011 census data. The exact status of amenities are confirmed by respective village /town panchayat office and also compared with village amenities data from 2011 respective district census hand books for the sample villages/towns coming in the radial distance of 10 km.

3.7.5.2 Part Two:

The project site is within the premises and do not require any additional space for construction, the Social Impact Assessment (Primary Survey) was done by having detailed discussion with the Proponent and villagers in surrounding villages. The villages were selected by using Systematic Random Sampling procedure by population of the villages covering the project area with 15% of sample villages 8) villages with additional project site village) within 10 km radial distance from project site and indicated in **Table 3.7.4**.

3.7.5.3 Part Three:

The Company decided to undertake development programs in phase manners for the villages in the study area. In first phase, the Management of the company decided to undertake surrounding villages in the radial distance of 500m from the project site. In order to know, the Company Management hired external private recognized professional to explore the needs and the demand of the community. The expert has used the format and demand sheets to collect the data through Focus Group Discussions and also using various Participatory Learning & Action (PLA) Techniques.

TABLE 3.7.**4: LIST OF SURVEYED VILLAGES**

• Surabardi	• Gondkhairi	• Ketapar	• Kalambi
• Sahuli	• Alesur	• Nanda	• Drugdhamna
• Khapri	• Pendhari		

3.7.6 Salient observation of the Survey / Study Area

The Socio-economic survey shall be carried out in the villages. For assessment of present socio-economic status and community profile of the project area, the information from both primary and secondary sources is collected and used. The data from primary sources is collected through questionnaire. The village wise information is collected by the investigators from villagers and other sources in each village through a village survey schedule covering different socio-economic parameters including demographic profile, land ownership, operational holdings, cropping pattern, agricultural practices, agriculture input pattern, animal husbandry, poultry, employment, income and expenditure, social infrastructure facilities, public health issues, gender, tourism, migration, education etc.

Like wise, the information at household level is collected through household interview schedule designed with specific questionnaires to facilitate interviewing the villagers in project affected as well project influenced villages, consisting the variables like family composition, education, housing facilities, drinking water, land holdings, irrigation facilities, sanitation, employment, income, occupation, migration, rehabilitation and resettlement options, rehabilitation and resettlement package, location preference, compensation, participation of the people in implementation of the project etc. Household level information shall be used to know the personal profile of the respondents and problems being faced / to be faced by them.

Gondkhari is a Village in Kalmeshwar Taluka in Nagpur District of Maharashtra State, India. block is approachable by an all-weather Zilla Parishad tar road starting from NH-6 and is located about 20 Km West from Nagpur city. It lays just North of NH-6. Kalmeshwar township is at a distance of about 8 Km towards North of the block while Nagpur city is about 20 Km on the East. A tar road, which connects NH-6 and Kalmeshwar township is located about 5 Km west of the block and runs almost parallel to the west boundary of the block. Gondkhari, Waddhamna and Kalambi are the other prominent villages in the vicinity of but outside the block. The Nearest Railway station is Kalmeswar which is at a distance of 10 Kms. The nearest Airport is Nagpur which is at a distance of about 20 km from the block. It belongs to Vidarbh region. It belongs to Nagpur Division. It is located 21 KM towards west from District head quarters Nagpur, 19 KM from Kalmeshwar and 788 KM from State capital Mumbai.

Location and Administration: Gondkhari is about 10 km distance from Sub District Head Quarter Kalameshwar and 20 km from District Head Quarter Nagpur. Nearest Statutory Town is Kalameshwar in 10 km Distance. Gondkhari Total area is 862 hectares, Forest area is 87.351 hectares, Govt. Non-Forest land is 87.301 and Private Land is 687.347 Ha.

Education: Governement Pre Primary, Govt Primary, Private Primary, Govt Middle, Private Middle and Govt Secondary Schools are available in this Village. Nearest Govt Engineering College and Govt Medical College are in Hingna. Nearest Govt Disabled School, Govt Arts and Science Degree College, Govt MBA *College*, Govt Polytechnic College and Govt ITA College are in Nagpur.

- **Health:** 1 Primary Health care centre , 1 Primary Health Sub-Centre , 1 Maternity And Child Welfare centre , 1 TB Clinic , 1 Modern Hospital , 1 Veterinary Hospital , 1 Family Welfare centre , 2 Medical Shops are available in this village.
- **Agriculture:** Pipe Factory is Product Manufactured in this village. Total irrigated area in this village is 639 hectares from Boreholes/Tube wells 236.2 hectares is the Source of irrigation.
- **Drinking-Water and Sanitation:** Tap Water Supply all round the year. Covered Well, Uncovered Well and Hand Pump are other Drinking Water sources.
  Open Drainage System Available in this Village. There is system to collect garbage on street. Drain water is discharged directly into water bodies.

- **Communication:** Post Office is available in this Village. LandLine and Mobile Coverage is also available. Internet Centre available in this village. Private Courier Facility available in this village.
- **Transportation:** Public Bus service available in villages. Private bus service is also available in these villages. There is no Railway Station in less than 10 km. Autos Available in this Village. National Highway passes through this village. No Nearest State Highway in less than 10 km. District Road passes through this village. Pucca road, Kuccha Road, Macadam Road and Foot Path are other Roads and Transportation within the village.
- **Commerce:** Commercial Bank available in villages. Cooperative Bank available in this village. Agricultural Credit Society, Mandis/Regular Market, Weekly Haat/santha and Agricultural Marketing Society are available in this village.
- **Other Amenities:** Villagers get Power supply with 20 hour in summer and 22 hour power supply in winter, Anganwadi centre, ASHA, Birth & Death registration office, Sports facilities, Cinema Theater in village or near by, Public library, Daily News Paper and Polling station are the other amenities in the village.

Socio-Economic Aspects of Project:

The development activities needs to be taken up, based on the requirement of the people in the area. The basic requirement of the community needs to be strengthened by extending health care, educational facilities developed in the township to the community, providing drinking water to the villages affected, building/strengthening of existing roads in the area. The preference will be given to the local population for direct and in-direct employment. The proposed project may create opportunities for indirect employment in the field of vehicle hiring, labours, trading of construction material, carpenters etc. This will help in improving the socio economic status of the region. Many local villagers have been given direct employment as per qualification, experience and need of the project. The company will participate in social development activities in all the villages surrounding the proposed mine area. Social welfare activities will be taken up on a large scale. These activities will have the following focus areas:

- Health Care
- Social well-being;
- Education
- Sustainable Livelihood
- Infrastructure Building
- Rural water supply
- Afforestation

3.7.7 Awareness and Opinion of the Respondents about the Project

A decisive role can be played by communication in promoting human development in today's new climate of social change. To express the individuals and community view about the perticular project it is necessary to conduct awareness cum public discussion practice. Though the thoughts of the individual may different but it is very essential to make them express there views about the project and then to make there doubts and misconception cleare by proper councelling.

- In core zone villages, most of the local people are aware and no detailing is needed as per primary survey findings
- The respondents are already aware of the project pros and cons and also eager to know the other part of the benefits of the project.
- The local leaders are keen to know about the employment, development and social benefits from the project

Main demands of villagers in study area are for medical facility, road and transport development and employment opportunity.

- Internal Village Road Network: For easy movement of people and vehicular traffic it will be suggested to construct wide internal village roads in each of the resettlement sites. These internal village roads would be connected to an access road which connects villages.
- Drainage Network: The main purpose of this drainage network is to clear storm water and domestic waste water from kitchens and bathrooms. It is also proposed that the drainage networks will consist of a lined drain and are covered with RCC slabs. These drains will traverse parallel along internal village roads and finally culminate into a collection tank, before it is screened and filtered and thereafter either stored in an underground storage tank to be utilised for irrigation purposes in the Green Belt areas or discharged for the purpose of ground water recharge.
- Public Transport: For public transportation, it will be proposed to increase Bus Stop

3.7.8 Consulsion

The proposed underground coal mine will have impacts on the local environment however with proper mitigation measures and with the effective implementation of the environment management measures anticipated impacts will be minimized to a great extent. Development of this project has beneficial impact/effects in terms growth in regional economy, social upliftment of local people, increase in Government earnings, revenues and accelerate the pace of industrial development in the region. The proposed project will provide direct employment to a large number of personnel. This project will also generate indirect employment to a considerable number of families, who will render their services for the employees of the project. The project will also encourage ancillary industries in the region, which will not only increase the employment potential but also the economic base of the region will be further strengthened. Thus, in view of considerable benefits from the project, the proposed project is most advantageous to the region as well as to the nation.

CHAPTER- 4
ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 IDENTIFICATION OF IMPACTS

This chapter provides overview of the potential impacts on various environmental components due to the proposed Gondkhari Coal mining project by mechanised Underground mining method.

The Underground mining operations will be done by mechanized Longwall (retreating) method and the same will be adopted as method of Mining with high level of production planned from the mine, the following mechanization has been planned. Six Road headers and Two sets of Longwalls are adopted for development and depillaring. Coal evacuation via lump breader on to a system of conveyer belt. Side Discharge Loaders with compressed air drills and compressed air bolter for roof support. Coal evacuation by chain conveyors on to feeder breaker and belt conveyors for stray area. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts, these operations may cause environmental degradation and ultimately lead to irreversible damage to the ecosystem

4.2 POLLUTION POTENTIAL

Particulars	Assessment	Remarks
Climatic condition	• To study the changes if any in present climatic condition.	To explore Mining related Best Available Technique (BAT).
Air	• Changes in ambient levels and ground level concentrations due to total emissions from line and area sources. • Effects on soils, materials, vegetation, and human health, if any.	Through Aeromod Air Quality Dispersion Modeling studies & Vehicular Traffic Load Study.
Noise	• Changes in ambient levels due to noise generated from equipment and movement of vehicle. • Effect on fauna and human health.	Mathematical Noise Modeling Studies.
Water	• Availability to competing users, • Changes in quality, • Sediment transport.	Avoid surface and ground water contamination.
Land	• Changes in land use and drainage pattern. • Changes in land quality including effects of waste disposal. • Changes in riverbank and their stability. • Land subsidence.	Waste Minimization and scientific disposal. Land subsidence studies needs to be conducted.
Biological	• Study of Possible impact on surrounding vegetation, stress on habitat and Impact on REET species, breeding and nesting grounds, if any.	Prediction of possible impacts.
Socio-Economic	• Impact on the local community including demographic changes. • Impact on economic status. • Impact on human health. • Impact of increased traffic.	Impacts studies through need based assessment.

Various possible environmental impacts are identified due to the mining activities.

4.3 IMPACT AND MITIGATION MEASURES DURING CONSTURUCTION PHASE

This is proposed underground coal mining project. The mine construction stage can be broadly classified into two different period's viz., preconstruction and regular mine operations. Construction activities like establishment of workshop, service buildings etc., increase the noise levels and dust pollution. The various activities involved in the construction stage, which have impact on the environment and the potential environmental impact of the same, are given in **Table No. 4.1.**

The major environmental parameters which affects during construction stage are noise and dust pollution. Continuous water spraying arrangements are made to minimise dust level to a large extent. The effect due to construction stage is however, of temporary nature and will have no permanent impact on environment.

TABLE 4.1: IMPACT DURING CONSTRUCTION STAGE

Construction Stage	Activity	Potential Environmental Impact
a) Pre-construction Activities	i) Soil investigation. ii) Environmental monitoring.	Negligible Negligible
b) Site work / other facilities	i) Cleaning and grading	Negligible
	ii) Temporary facilities, such as, sheds, approach roads, sanitary facilities	Dust emission and change in traffic intensity
	iii) Earth work comprising of excavation, garlanding and tranches	Soil erosion, run off, increase in traffic, Dust emission
	iv) Foundation work, pilling and drainage system or construction of check dams	Dust, visual and noise pollution
	v) Construction of roads	Dust and noise pollution
	vi) Equipment erection and utility systems	Dust, noise and visual impact

The activities in the regular operations stage can be broadly classified into surface coal handling arrangements and transportation of coal. Environmental impacts associated in operations stage include dust, noise, visual, water pollution, etc. The various activities involved in the operations stage, which have impact on the environment and the potential environmental impact of the same, are given in **Table No. 4.2.**

TABLE 4.2: IMPACT DURING REGULAR OPERATIONS STAGE

Regular Operation Stage	Activity	Potential Environmental Impact
Solid waste during shaft sinking, Tunnelling and Coal Extraction	i) Coal Extraction	Dust, waste water generation and noise
	ii) Coal handling arrangements (including crushing, loading & unloading operations)	Dust, noise and visual
	iii) Transportation	Dust, noise and visual

4.4 IMPACT AND MITIGATION MEASURES DURING CONSTRUCTION AND OPERATION PHASE

4.4.1 Land Environment

- **Impact on Topography**

Mining lease of Gondkhari Coal Mine over 862.00 ha area in Village Gondkhari, Tehsil Kalmeshwar, District Nagpur, Maharashtra. This is proposed underground mine will be operated by mechanized

method of mining to produce 2.0 MTPA Coal.

Total forest area within ML area is 87.351 Ha. However, no disturbance in the forest land as well as the legal status of forest land remains unchanged. Topographically the Mine Lease area characterized by a flat topped and terraced features with maximum elevation of 387m MSL and lowest elevation of 329m MSL. Towards northern side of Mining Lease area exhibit higher altitude while the southern part shows low lying area of gentle slope.

Subsidence due to total extraction of coal may cause changes in topography by developing micro basins, subsidence fractures, ridges, pot holes etc.

Care will be taken during mining activity to leave enough pillars in underground as barriers below water body to avoid any damage to surface water bodies.

- **Impact on Land Environment**

Large-scale excavations are the basic causes for impact on land use. However, excavation will be carried out below the ground and no surface area will be disturbed.

The land use plan of the mine lease area is given in **Table 4.3.**

TABLE 4.3: PRESENT & POST OPERATIONAL LAND USE

Mining Activity	Proposed Land Use Area (ha)	Land Use (End of Life) Area	Post Mining Land Use (ha)						
			Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	Total
Excavation Area	-	-	-	-	-	-	-	-	-
Backfilled Area (in Excavation Area)	-	-	-	-	-	-	-	-	-
Excavated Void (in Excavation Area)	-	-	-	-	-	-	-	-	-
Topsoil Dump	-	-	-	-	-	-	-	-	-
External Dump	-	-	-	-	-	-	-	-	-
Safety Zone	-	-	-	-	-	-	-	-	-
Haul Road between quarries	-	-	-	-	-	-	-	-	-
Road diversion	-	-	-	-	-	-	-	-	-
Settling pond	0.08	0.08	0.08	-	-	-	-	-	0.08
Road & Infrastructure area	13.845	13.845	13.845	-	-	-	-	-	13.845
Garland drains				-	-	-	-	-	
Embankment	0.075	0.075	0.075	-	-	-	-	-	0.075
Green Belt	2	2	2	-	-	-	-	-	2.000
Water Reservoir				-	-	-	-	-	
UG entry	2	2	2	-	-	-	-	-	2.000
Total (excluding rights for UG mine) (1)	18	18	18	-	-	-	-	-	18
Undisturbed/UG mining right (2)	844	-	-	-	-	-	-	-	844.00
Grand Total (1+2)	862								862.00

In this proposed Underground Mining only small portion will be excavated on the surface for development of shaft and inclines to facilitate entry to the coal seams. The other excavation will be carried out below the ground and no surface area will be disturbed.

Thus, there will no significant change in land use within 862.00 Ha of ML Area over decades of proposed mining activities. The subsided areas due to caving during mining operation will be filled up and reclaimed for agriculture and plantation purpose. All depillaring will be undertaken with sand stowing. Therefore, there will be no degraded or subsided area appears in ML area.

In order to reduce man-machine interface in the lower seams and improving safety and productivity, mining plan envisages to open lower seams viz seams VIII, V, III and II as well as going for higher level of mechanisation including introducing of coal cutting and putting more LHD machines. The mining operations will be carried upto 169.50 to 394.30 m depth.

Mitigation Measures:

- Various barrier buffers are created as per the criteria for lease boundary, river/nalas, public roads, rail and shafts in consultation with mines as per existing norms.
- The waste generated from the mine development shall be transported and dumped separately to waste dump area within the Mine Lease area.
- The greenbelt will be developed on the non-moving waste dumps, which will improve the stability of the dump and aesthetics of the area.
- The Underground workings of the mine are well ventilated by adequate ventilation arrangements. The requirements and standards specified in this regard by Director General of Mines Safety (DGMS) would be adhered.

After exhaustion of the total workable coal reserves, within the lease area, the changed land forms will be subjected to post mining reclamation activities, for best possible land uses.

4.4.2 Impact on Climate

Since, the underground mining operations are not exposed to the outside environment; there will not be any adverse impacts on the local climatic conditions.

Mitigation Measures:

No likely effect on local climate is anticipated. Rather, some improvement in local climate is expected due to afforestation and rehabilitated plantation scheme in operation.

4.4.3 Impact on Water Environment

Ground water resources depletion in surrounding areas, if site specific mitigation measures will not be implemented in the proposed UG mine.

Impact on Surface and Ground Water:

- **Pumping & Mine Drainage**

Water from water bodies on surface and below ground aquifers, tends to seep through strata and reach mine workings. Stowing water is also a major source of water entering the mine working. These require regular pumping of water out of this mine. In instant case, since all depillaring will be done with hydraulic sand stowing, danger of monsoon precipitation percolating into U/G working, through subsided areas, gets greatly controlled. However, attention is needed for management of surface water streams to prevent its entry into the mine. The stowing water has to be regularly pumped out in addition to seepage

water.

- **Surface Water**

The lease area includes a section of Alesur Lake and Surabardi Lake. Thus, during monsoon season water will get flows surface drains and natural slopes which causes contamination to natural water bodies.

- **Inflow of Water Into Mine Workings**

This is proposed Underground coal project. There are two sources of inflow of water into Mine workings are one is from development of inclines and another one is from fault zones during mining operation.

- **Domestic Sewage**

The total manpower requirement will be 863. The provision of STP of 50 KLD capacity (based on MBBR technology) will be installed at office premises.

- **Workshop Effluents**

Effluent treatment plant of 10 KLD capacity will be installed and it comprises of oil & grease trap facility to cover the oil and treated water is reused back for washing purpose.

- **Impact on Ground Water Regime**

The mining operation will cause groundwater deletion, during proposed underground mine development and depillaring in Seam II, III, V and VIII.

Mine Water Discharge

Coal fines are present in the water pumped from the mine which causes contamination of surrounding water bodies.

Site Specific Mitigation Measures are as under:

Underground seepage water at faces and stowing water are pumped with the help of face & mid-level pumps. Face pumps throw its water to the nearest mid sumps in the seams.

Rainwater harvesting system will be implemented.

Water Pollution Control Activities and Mitigation Measures

- The water withdrawal through pumping during mining operations contains coal fines that need to be settled before discharge in natural water courses or on open land to avoid contamination of natural water bodies. As a result, it needs to be sedimented before being used and released into a natural stream or open space. Thus, settling ponds will be constructed for the settling of coal fines, storage, and sedimentation of mine water before its discharge or usage to comply with the effluent standards as stipulated in the Consent by SPCB. Any surplus mine water, it will released into nearby tanks where the local villagers can use it for agriculture. Additionally, this will also help for recharging of the groundwater regime close to the villages. Further, the water quality will confirm the effluent standards as prescribed by the CPCB and MPCB.
- The mine water will be utilized for underground mining operation and other ancillary activities, excess water if any will be discharged in natural water body after treatment. Some of the water will be used in green belt development within 2 Ha of land area. Further, gradient flow will be maintained, thus, surface run-off will also divert to the ponds to ensure that no waste-water is released untreated.
- Effluent treatment plant having oil & grease trap facility will be provided at workshop area. The

treated water is reused back in workshop. Domestic waste water will be treated in STP and treated domestic water will be used in green belt development as well as dust suppression.

4.4.4 Impact due to Subsidence

This is proposed underground mining project. Surface subsidence occurs due to the removal or displacement of solid or liquid materials below ground and the consequential creation of voids or change in hydrostatic pressure, which result in subsidence of the overlying strata. The effect of subsidence on structure present on the surface needs careful examination. Therefore, multiple cross-sections were taken to cover all important surface features. Based on the results of this scientific study, the subsequent discussion is done. The details are given in **Annexure – IV.**

The various factors responsible for subsidence are:

- Seam thickness
- Presence of multiple seams
- Seam depth
- Dip of the seam
- Nature of the roof and floor strata
- Nature of overburden
- Near surface geology
- Geologic discontinuities
- Fractures and lineaments
- Degree of extraction
- Surface topography
- Groundwater
- Water level elevation and fluctuations
- Mined out area
- Method of working
- Rate of face advance
- Backfilling of the gob
- Structural characteristics
- Withdrawal of geothermal fluid.

The various impacts of subsidence are:

- Increased flood risk
- Damage to buildings, foundations, infrastructure (roads, dikes) and subsurface structures
- Disruption of the water management
- Increased CO_2 emissions due to accelerated oxidation of peat area
- Nutrient leaching; and
- Reduction in biodiversity and ecological value

Mitigation Measures:

- **Karle reservoir:** To avoid damage to the Karle reservoir, no extraction is proposed below it. Additionally, strong fault barriers are provided below the reservoir.
- **Surabardi reservoir:** To avoid damage to the Surabardi reservoir, no extraction is proposed below it. The point of maximum subsidence and horizontal tensile strain is away from the reservoir therefore, it can be said that there will not be any effect of subsidence on the reservoir; however, care should be taken to observe cracks near water bodies due to the progression of mining.
- **Forest Area:** There are multiple small scattered forest patches in the project area. However, mining has been planned below the entire forest land. The largest magnitude of predicted subsidence is 2.158 m corresponding to a tensile strain of 1.160 mm/m. This will be considered as a maximum subsidence and tensile strain induced due to mining activity below the forest area. However, no significant subsidence is envisaged in the forest area.
- **Roads:** There are two important roads passing on the block i.e., the ring Road and NH-6. As per the subsidence analysis report the maximum subsidence along the Ring Road will be considered as

2.158m and the maximum tensile strain will be considered as 1.160 mm/m. The maximum subsidence and horizontal tensile strain along NH-6 will considered as 0.547 m and 0.288 mm/m respectively.

Regular observation and inspection are key ideas for getting a prior indication of any changes that might occur on the surface due to mining. Precautions should be taken regularly to fill the cracks, if any, and restore the land to its original position. The findings of this study suggest that due to the presence of the Basalt layer at the top, the maximum magnitude of subsidence is about 2 m and the magnitude of tensile strain is around 1 mm/m, and the mining in this region can be considered safe.

Impact due to the possible Accidents:

The following are the possible accidents in the project area due to various activities involved in underground mining operations:

- Mine gases
- Mine fires and spontaneous heating
- Explosion in the mine
- Coal bumbs
- Subsidence
- Inundation
- Roof fall
-

Due to the above possible accidents, the environmental impact will be on human beings, air, land and surface structures. All possible accidents are prevented by implementation of provisions of coal Mines Regulations 1957, Mines Act 1952 and the circulars issued by Director General of Mines Safety, Dhanbad.

4.4.5 Impact of Hazardous Wastes and Liquid

There is no mineral processing involved in Gondkhari Coal Mine. Marginal quantity of spent oil and grease generated from mine machinery will be separately collected and stored in leakage proof containers and will be sold to the authorized recycling vendors. No other hazardous wastes will be generated in the Gondkhari Coal Mine.

Solid Waste Generation and Management

The generation solid waste in proposed UG mine is significantly less low than opencast mining project. The details of solid waste are as under:

❖ **Solid Waste Generation and its Disposal**

It is estimated that about 1,27,000 M^3 of solid waste will be generated during construction of incline drivages and shaft sinking in the sub-soil and hard rocks for mine entries and also from drivages of cross-cuts in hard rock. The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation bank head and filling of low lying areas, development of the land for infrastructure and development of greenery.

Municipal Solid Waste Generation and Disposal

The municipal wastes in the form of trash, garbage, food waste, waste papers and card board, etc. expected to be generated is 50 kg/day during construction activities and 170 kg/day during operation phase. Solid wastes generated will be properly collected, segregated and reused / disposed off appropriately as per Solid Waste Management Rules, 2016 as amended.

❖ **Hazardous Waste Generation and Disposal**

Spent oil and lubricants (approx. 5 KL/Year) will be generated and it will be disposed as per Hazardous and other Wastes (Management and Trans-boundary movement) Rules, 2016. It will be given to authorised recyclers. Used batteries and other electronic waste are to be given to authorised reprocessors.

4.5 AIR ENVIRONMENT

4.5.1 Impact on Air Quality

The mining activities are restricted to underground only; there will not be any significant impact on surface ambient air quality. However, the mine exhaust contains insignificant percentage of methane and CO_2, which are easily diffused in the ambient atmosphere. The mine is provided with online sensors for monitoring the concentrations of CO and methane within the mine.

Ventilation and Measures:

Ventilation of underground workings is one of important aspect of mine design and planning as it manages the working environment inside the mine. Various parameters viz. ambient air temperature, gassiness of seams, proneness of coal seam to spontaneous heating, presence of water bearing strata, generation of heat by men and machines etc. govern the quality of environment in underground working areas.

On the basis of CMR 2017 and Circulars, quantity and quality of air required in a particular mine is determined and actual implementation is monitored. To determine the adequacy of air quantity, parameters like gassiness of the mine, production level per day, highest number of persons in any one shift etc. are considered.

Quality of air is affected by presence of combustible, noxious or inert gases, which may reduce the quantity of oxygen below specified level or create poisonous or explosive conditions. Heat and moisture in the air create uncomfortable conditions.

Therefore, ventilation planning involves determination of required air quantity and projection of ventilation route with adequate cross section to carry the air to the areas to be ventilated.

Ventilation Requirement:

As per the production programme, mine is being planned to reach a production level of 2.0 MTPA. It is employing 863 persons on U/G roll including officers, staff & daily rated persons.

The required air volume as per the maximum number of people working underground at the same time is 1967 m^3/min i.e. 33 m^3/s. The required air volume as per the actual mining faces and chambers is 9490 m^3/min i.e. 158 m^3/s. Comparing the above, the air volume required by mine should be select the larger one. Thus the total air volume required by mine is 158m^3/s.

Mitigation Measures:

Air required for each person is 6m^3/head/min. On the basis of the above calculation, the main mechanical ventilation system intends to adopt 2 set counter-rotating ventilators, each have 2 flame proof motors (2 x 450kW, 11kV, 490r/min).

Care is taken to avoid (a) possibility of spontaneous heating in the mine, (b) addition of moisture to air, (c) inclusion of coal dust into mine air due to high velocity of airflow, (d) dilution of methane to the level well below statutory limits to guard against danger.

4.5.2 Impact on Air Quality due to Transportation

The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time (45 Ton dumpers). These movements of trucks are expected to contribute to oxides of nitrogen, carbon monoxide and particulate matter. The predictions of traffic volume incremental concentrations of CO and NO_2 due to additional traffic assumed are estimated based on site specific meteorological conditions and

line source. The emission rates as inputs to the line source model are calculated based on the emission factor in gm/km of Trucks / Trailer / Bus (Source: Central Pollution Control Board). Traffic assessment study enclosed as **Annexure – IX.**

Details of Air Dispersion Model

The mathematical Model AERMOD was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. In 1991, the U.S. Environmental Protection Agency (EPA) in conjunction with the American Meteorological Society (AMS) formed the AERMOD. AERMOD is a steady-state plume model aimed at short-range (up to 50 km) dispersion from stationary industrial-type sources.

The impact of a source or group of sources on air quality is evaluated using mathematical models. The widely accepted interpretation models simulate the relationships between air pollutant emissions and its impact on air quality. For the present study, this model is used for the prediction of maximum ground level concentrations. The inputs used for modeling area given in **Table 4.4.**

TABLE 4.4: PARAMETERS CONSIDERED FOR MODELLING

Sr. No.	Parameter	Description
1	Truck capacity (T)	45
2	Number of trucks	234
3	Emission norms for Heavy Diesel vehicles	
	CO (gm/km-hr)	4.5
	HC (gm/km-hr)	1.1
	NOx (gm/km-hr)	8.0
	PM 10	{K (SL)^0.91x(W)^1.02}
4	Emission Rate (gm/sec)	
	CO	4.68
	HC	1.14
	NOx	8.31
	PM_{10}	0.64

Meteorological Input

The hourly meteorological data recorded at the mine site for one season and used to compute the periodical incremental concentration due to operation of the proposed mining activities Onsite meteorological data collected was used to process the AERMET file. The surface and profile met data were prepared for use in AERMOD using the AERMET meteorological data pre-processor and windrose presented in **Figures 4.1**.

Meteorological inputs required are hourly wind speed and direction, ambient temperature, Pressure, precipitation, Relative Humidity, cloud cover, radiation, stability class and mixing height.

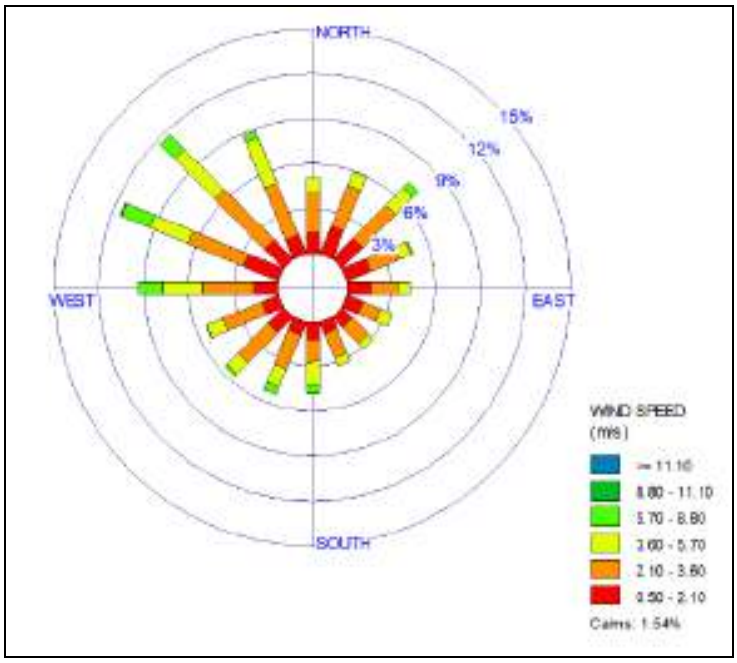


FIGURE 4.1: WIND ROSE (SURFACE DATA)

Terrain Data

AERMOD is designed to calculate air pollutant concentrations in all types of terrain, from flat prairie to complex mountainous situations. AERMOD does not process its own terrain. A preprocessor program called AERMAP, process this terrain data in conjunction with a layout of receptors and sources which are used in AERMOD control files.

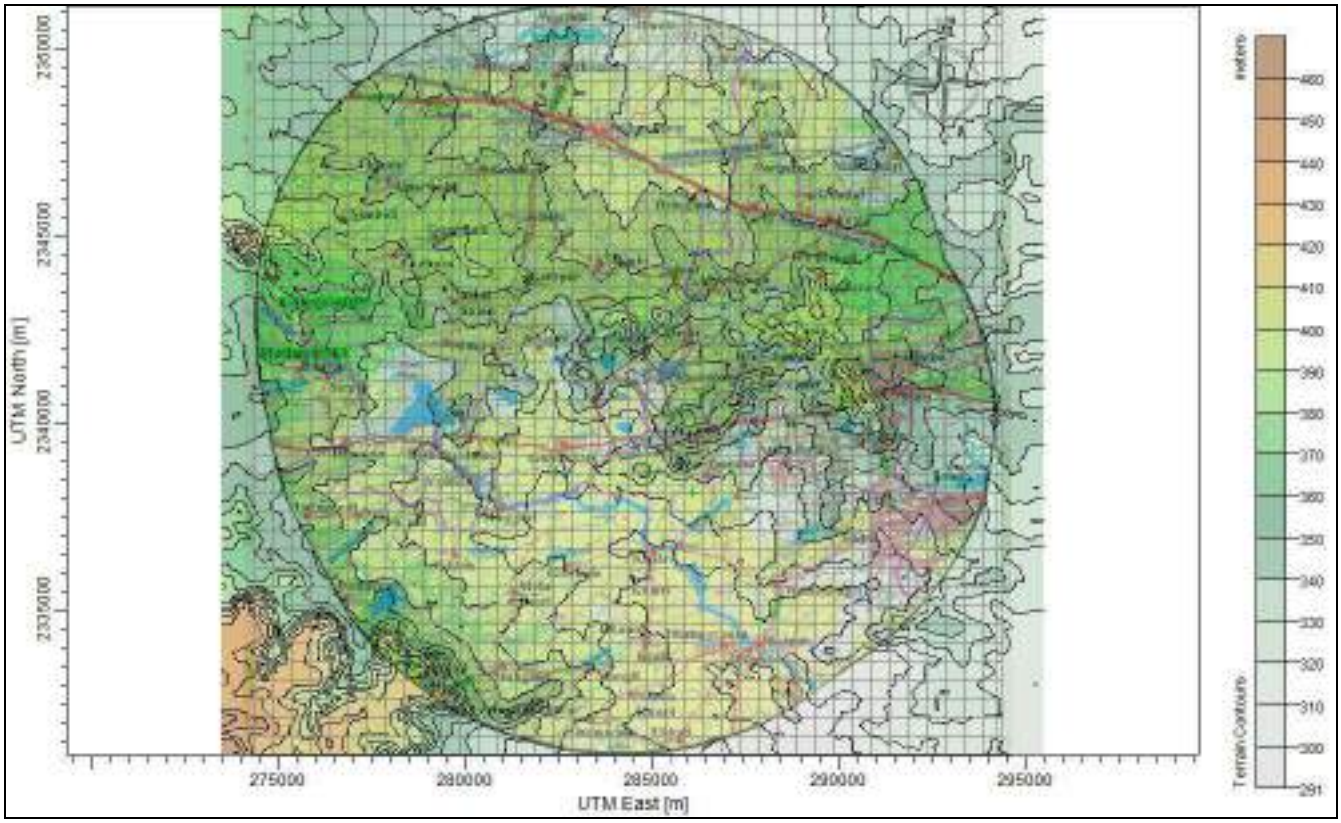


FIGURE 4.2: TERRAIN MAP

Model Prediction

The model simulations are done for the air pollutants mainly CO, HC & NOx emitted directly from vehicles. Impact on the ambient air quality of study area is assessed and predicted results are presented in **Table 4.5**

TABLE 4.5: PREDICTED INCREMENTAL CONCENTRATIONS DUE TO TRAFFIC

Sr. No.	Parameter	Concentration (μg/m^3)
1	Carbon Monoxide	23.50
2	Hydrocarbon	3.03
3	Oxides of Nitrogen	29.10
4	Particulate Matter	1.71

The observation from predictions reveals that the maximum GLC of pollutants presently occur at 20 m from the center of the road.

The isopleths showing the dispersion of Ground level concentrations are given in **Figures 4.3 to 4.6**

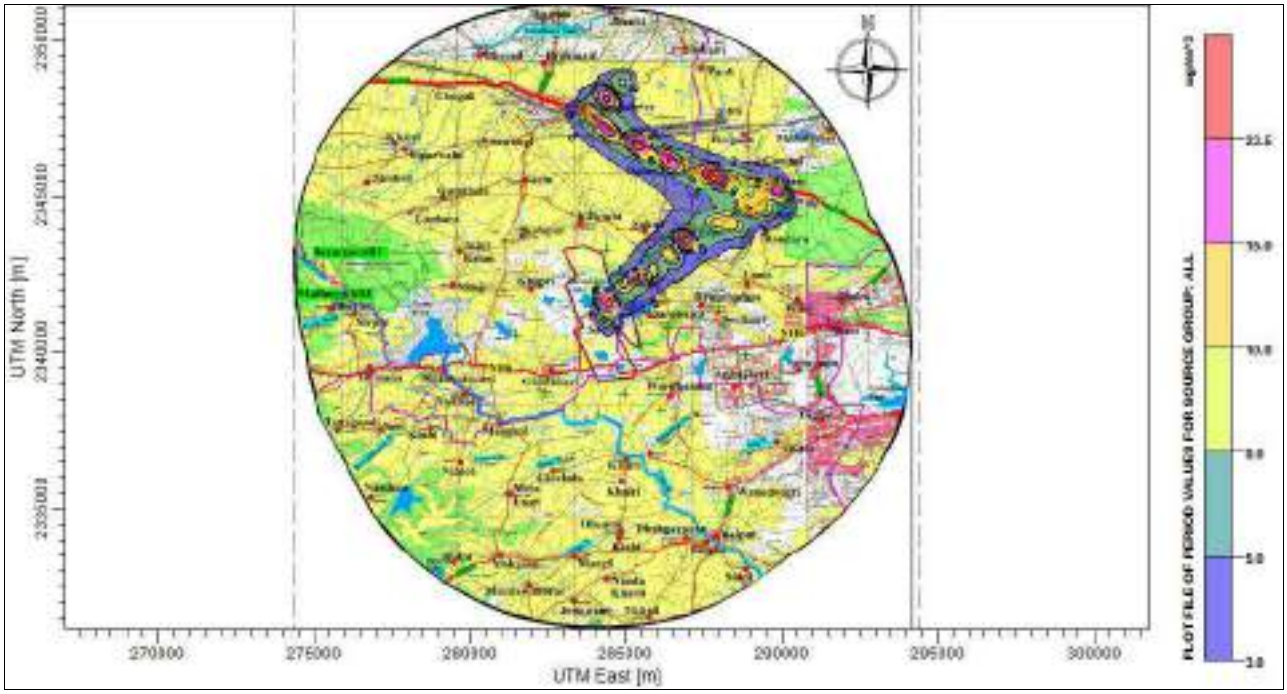


FIGURE 4.3: PREDICTED INCREMENTAL GLC OF CO

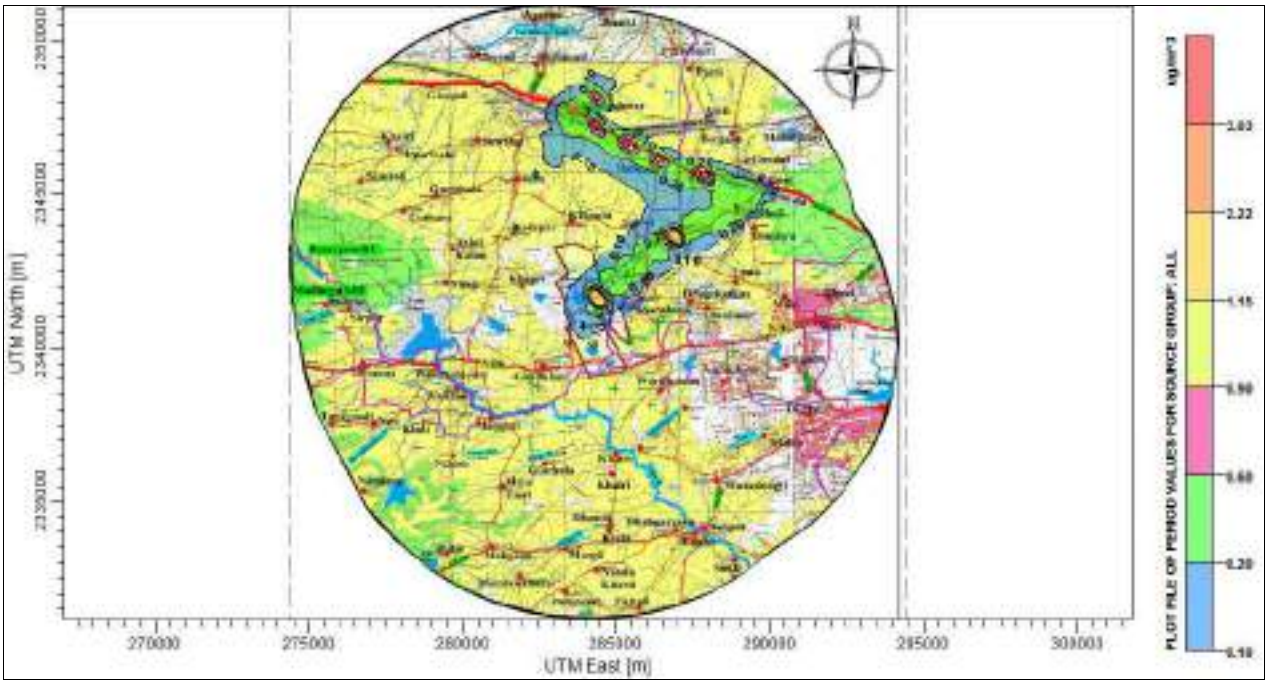


FIGURE 4.4: PREDICTED INCREMENTAL GLC OF HC

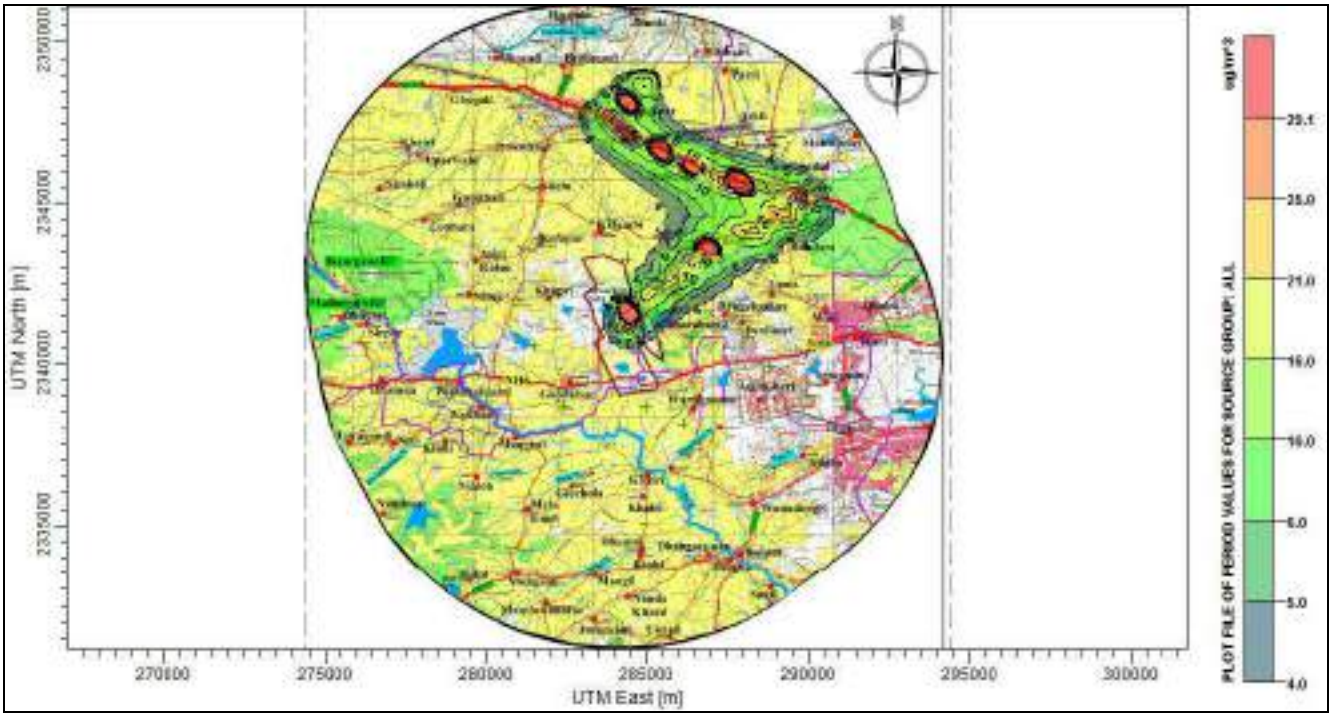


FIGURE 4.5: PREDICTED INCREMENTAL GLC OF NO_X

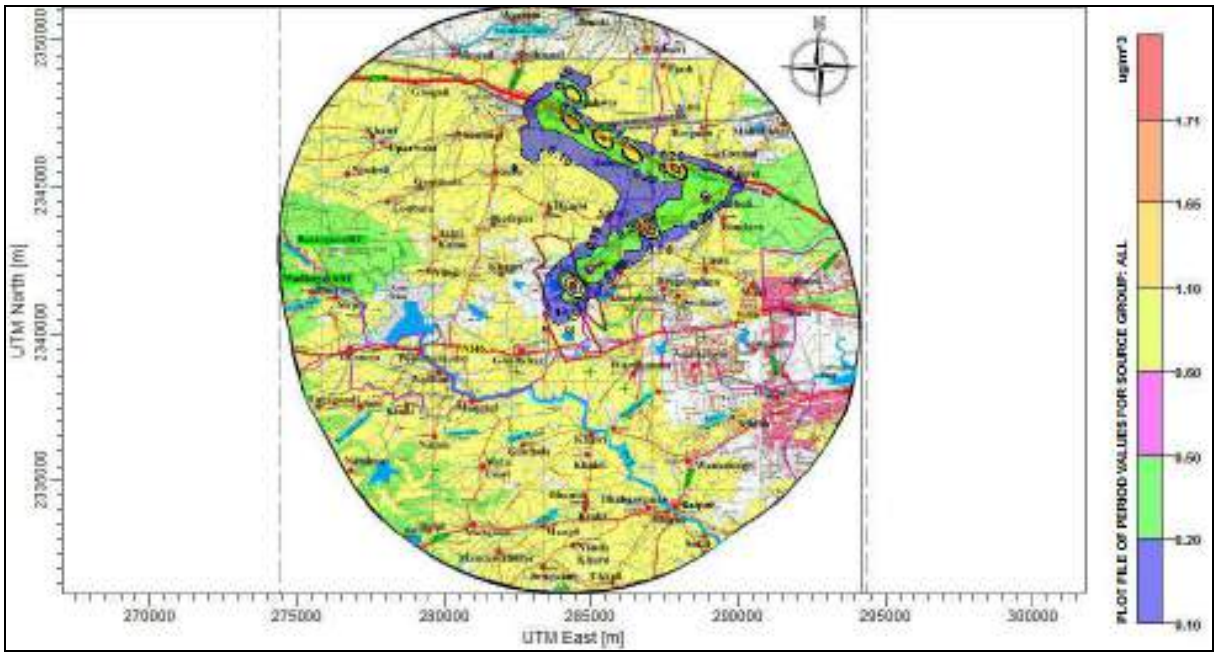


FIGURE 4.6: PREDICTED INCREMENTAL GLC OF PM_{10}

Impact on Habitation

Detailed traffic studies and air quality monitoring studies have been carried out for assessment of background air quality conditions in the proposed transportation route. The existing traffic has been estimated by conducting traffic surveys and proposed additional traffic and its impact on habitation has been determined by air dispersion modelling studies. The impact on habitation due to the transportation of coal through trucks is provided in **Table 4.6.**

TABLE 4.6: PREDICTED INCREMENTAL CONCENTRATIONS DUE TO TRAFFIC

Receptor	PM10 in μg/m³ (Limit 100)			CO in μg/m³ (Limit 2000)			NOx in μg/m³ (Limit 80)		
	Max Baseline	Incremental	Resultant	Max Baseline	Incremental	Resultant	Max Baseline	Incremental	Resultant
Project site-Location at North end	74.3	0.06	74.36	369	1.24	370.24	28.9	2.18	31.08
Project site-Location at South end	67.4	0.02	67.42	286	0.53	286.53	20.3	0.94	21.24
Kalambi	56.6	0.05	56.65	258	0.99	258.99	15.1	1.77	16.87
Waddhamna	77.2	0.01	77.21	421	0.59	421.59	26.6	1.05	27.65
Carmel Academy CBSE	70.2	0.01	70.21	388	0.43	388.43	25.8	0.76	26.56
Ketapar	63.9	0.03	63.93	376	0.52	376.52	19.9	0.92	20.82
Alesar	71.6	0.43	72.03	423	22.25	445.25	23.5	16.75	40.25
Gondkhairi	88.4	0.05	88.45	419	0.39	419.39	31.1	0.70	31.80
Surabardi	76.7	0.03	76.73	387	1.16	388.16	23.1	2.07	25.17
Khapri	60.6	0.03	60.63	319	0.45	319.45	20.3	0.80	21.10
Sahuli	59.8	0.13	59.93	328	3.31	331.31	12.1	5.82	17.92
Drugdhamna	62	0.01	62.01	435	0.86	435.86	17.6	1.52	19.12

4.5.3 Traffic Load Carrying Capacity of the Road

The allocated block is a commercial coal block for sale of coal. Mainly coal traffic is expected to be handled through RCR mode (2 MTPA at its peak of operation) from Gondkhari mines to through road up to the Railway Goods Shed/Public Siding at Kalmeshwar Railway station (19 km), Bhopal–Nagpur section under Nagpur Division of Central Railway.

The extracted Coal will be dispatched for Sale of coal, including sale to Affiliated and related parties, utilization of coal for any purpose including but not limited to captive consumption, coal gasification, coal liquefaction and export of coal. The overall mine life is of 24 Years as per the Mining Plan and from 3rd year to 21st Year the coal production will be at its peak of operation for 2 MTPA. Further the production of coal till 24th Year will decrease gradually to the zero level.

The proposed loading yard shall be utilized for movement of Outward traffic of coal only. As projected by APML, requirement of traffic for movement per annum are as under.

TABLE 4.7: ESTIMATED QUANTITY

Particular	Destination			
	2025 – 2026	2026 – 2027	2027 – 2028 and Onward	Remark
Total Coal (As per production plan) MTPA	0.35	0.90	2.0	Sale of coal, including sale to Affiliated and related parties, utilization of coal for any purpose including but not limited to captive consumption, coal gasification, coal liquefaction and export of coal

The Yearly projection for the proposed outward traffic of APML from Gondkhari Coal Mine to be dealt from the Kalmeshwar Good Shed when converted into number of rakes (60 BOXN) @68T/Wagon on the basis of 330 working days in a year is tabulated as under;

Additional Traffic: The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time (45 Ton dumpers) is 270 which is equivalent to 810 PCU.

The current traffic load on the proposed route was monitored as per procedure outlined in IRC: 9-1972. The emission of CO, HC, NO_X and PM from the trucks has been calculated for the proposed project, based on the emission factor in gm/km of Trucks / Trailer / Bus (Source: Central Pollution Control Board) (Ref. **Tables No. 4.8 (A) & 4.8 (B)**.

TABLE 4.8 (A): EMISSION FACTORS

Mode	CO gm/km-hr	HC gm/km-hr	NOx gm/km-hr	PM gm/kw-hr
Emission norms for Heavy Diesel vehicles; (Trucks / Trailer / Bus/4 wheeler)	4.5	1.1	8.0	0.36

Source: *Central Pollution Control Board*

TABLE NO. 4.8 (B): EMISSION RATE

Parameters	CO gm/km-hr	HC gm/km-hr	NOx gm/km-hr	PM gm/kw-hr
Total Emissions for 270 vehicles/day	1215.00	297.00	2160.00	97.2.00

There will be NO_X emission impact observed 2160 gm/km-hr on the surrounding environment due to 270 trips/day. The impact due to the emission of other pollutants will be insignificant. This quantum spread over the whole day at Maximum production is considered low and shall not make significant impact on the transportation route on the road.

4.5.4 Traffic Impact Assessment on Connected road due to Transportation of Raw Material and Finished Products

Based on the traffic V/C ratio and LoS were calculated at monitoring location. The V/C ratio and LoS at NH-33 for present scenario and traffic density proposed to be increased after implementation of project, the details are provided in **Table No. 4.8(C)** to **Table No. 4.8(E).**

TABLE 4.8 (C): PRESENT TRAFFIC DENSITY AND NUMBER OF VEHICLES PER DAY (NH-33)

Type of Vehicles	No. of Vehicles		Equivalent PCU	PCU/day	
Road	SH 248 Nagpur to Dohegaon	Kalmeshwar City Bypass Road		SH 248 Nagpur to Dohegaon	Kalmeshwar City Bypass Road
Trucks	292	179	3	876	537
Agriculture tractors/LCV	7	11	1.5	10.5	16.5
Bus	222	122	3	666	366
Cars	304	186	1	304	186
3-Wheeler	45	111	1	45	111
2-Wheeler	337	243	0.5	168.5	121.5
Total PCU/day	**1207**	**852**		**2070**	**1338**

(Source: IRC 64:1990)

TABLE NO. 4.8 (D): PROPOSED TRAFFIC CONTRIBUTION DUE TO ACTIVITY OF PROJECT

Sr. No.	Mode of Transportation	Total Trips /Day	Passenger Car Unit (PCU)	PCU
1.	Trucks/ Dumpers/Bus	270	3	810
2.	Car	10	1	10
3.	Two-Wheeler	30	0.5	15
Total				**835**

TABLE NO. 4.8 (E): EXISTING AND CHANGED LEVEL OF SERVICE ON CONNECTED ROAD – NH-33

Road	Increased PCU's- State/National Highway	Volume (V)	Capacity (C)	Modified V/C Ratio	LOS
SH 248 Nagpur to Dohegaon	810 x 100% = 810	2070+810=2880	15000	0.2	A
Kalmeshwar City Bypass Road	810 x 100% = 810	1338+810=2148	15000	0.15	A

Relevant Standard (Capacity as per IRC: 64-1990)

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good

V/C	LOS	Performance
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

Conclusion

Current PCU on SH248 and Kalmeshwar city Bypass Road are 2070 PCU and 1338 PCU as per traffic study done by Vardan Envirolab, Manesar. Total 810 PCU due to transportation of coal from Gondakhari mine are expected to increase in current PCU. Projected traffic on SH248 and Kalmeshwar bypass road will be 2880 PCU and 2148 PCU.

The Level of Service (LOS) will remain same i.e. A (Excellent) after projected traffic volume on SH248 and Kalmeshwar bypass road. (Based on the Indian Roads Congress (IRC) standards sourced from Guidelines for Capacity of Urban Roads in Plain Areas IRC 64-1990)

Mitigation Measures

- All the vehicles used for transportation of coal will be covered with tarpaulin to avoid dust pollution.
- With stringent traffic management system within the coal mine lease area, scope for air pollution due to movement of coal transports will be minimized. The layout of the project has generous area earmarked for greenery development. This will act as effective media for arresting the emissions within the coal mine lease area.
- The vehicular traffic plying in and out of the project site is being one of the significant sources of air pollution. If the site is not properly regulated, it can create disruption in free traffic movement leading to air pollution problems. This difficulty can be tackled to a great extent by properly regulating the traffic and by following strict and disciplined vehicular movement and operation at the project site. By imposing vehicular emission standards, this problem can be further curbed to a large extent.
- BS-6 trucks/dampers will be used for the transportation of coal.
- GPS tracking and speed monitors shall be installed in the Vehicles
- The Trucks which are found to have Pollution Under Control Certificates only will be allowed. Every other vehicle used in the plant even for passenger transport will be checked for Pollution under Control at the prescribed frequency.
- Adequate and planned road network will be set up at the project site for smooth movement of the goods vehicles.
- It would be ensured that all the vehicles plying in the working zone are properly tuned and maintained to keep emissions within the permissible limits. At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will be minimized further.
- All the internal roads within the plant are metaled; hence dust arising from the internal roads will be insignificant. The greenbelt development shall further help in reduction in fugitive emissions.
- This is an underground mining project. Traffic movement regarding transportation of ROM from ML area to Kalmeshwar railway siding will be carried out through Kalmeshwar Bypass Road. Hence, no traffic movement due to mining activities anticipated along the Gondkhari village.
- Mobile water tanker will be provided for water sprinkling along road side.
- BS –VI norms complied vehicles only allowed for transportation.
- Wheel Washing System at entry and exit gate will be implemented.

- GPS tracking and speed monitors shall be installed in the Vehicles.
- During the operation we are adopting several sustainable options likes hydrogen trucks, blended fuel, battery operated trucks etc and targeted to reduce consumption of conventional fuel year wise and thereby reduce emission levels in the surrounding area.

4.6 NOISE ENVIRONMENT

4.6.1 Anticipated Impacts

Prediction of noise level by using mathematical modeling

The most noise-generating equipment underground are the haulage, ventilators main, auxiliary and forcing fans, conveyor transfer points, cutting and drilling machines.

The noise generation from the working of mine will be from various sources, which may originate from various locations. For the purpose of noise dispersion, it is assumed that all the noise generating sources from the mine as one source.

Important noise sources in the project and the maximum noise levels expected from sources are given in **Table 4.9.**

TABLE 4.9: REFERENCE NOISE LEVELS OF EQUIPMENT

Source	Range of Noise level at source dB(A)
Near shearer	90 - 96
Transfer point	95 - 99
Tail & Belt conveyor	85 - 89
Power pack pump	87 - 91

Mathematical Noise Model

A singular consolidated noise source at the project site was first calculated using the equation 1 below. During day and nighttime, a singular consolidated noise source having Leq equal to 101.5 dB (A) is used for calculating noise levels over various distances using equation 2.

$$L_n = 10 \log_{10} (10^{L1/10}+10^{L2/10}+10^{L3/10}+\ldots\ldots\ldots\ldots +10^{Ln/10}) \quad \ldots (1)$$

$$L_2 = L_1 - 20 \log_{10} (R_2/R_1) \quad \ldots (2)$$

Where L_n dB(A) = Resultant noise level of combination of sources

L_1 dB(A) = Noise level at a distance R_1(m)

L_2 dB(A) = Noise level at a distance R_2 (m)

The sound pressure level generated by noise sources decreases with increasing distance from the source due to wave divergence.

Predicted Noise Levels Using Mathematical Model

An attempt has been made to predict the noise levels at the boundary of the proposed mining site. The results of mathematical calculation of predicted noise levels are presented in **Table 4.10**, below. DHWANI model used for prediction of noise level at various receptor and contour presented in **Figure – 4.7.**

TABLE 4.10: PREDICTED NOISE LEVELS WITH DISTANCE

Distance (m)	Source Noise Level (dBA)	Predicted Noise Levels at Distance (dBA)
100	101.5	62.3
200	101.5	56.3
300	101.5	52.8
400	101.5	50.3
500	101.5	48.3
600	101.5	46.8
700	101.5	45.4
800	101.5	44.3
900	101.5	43.2
1000	101.5	42.3

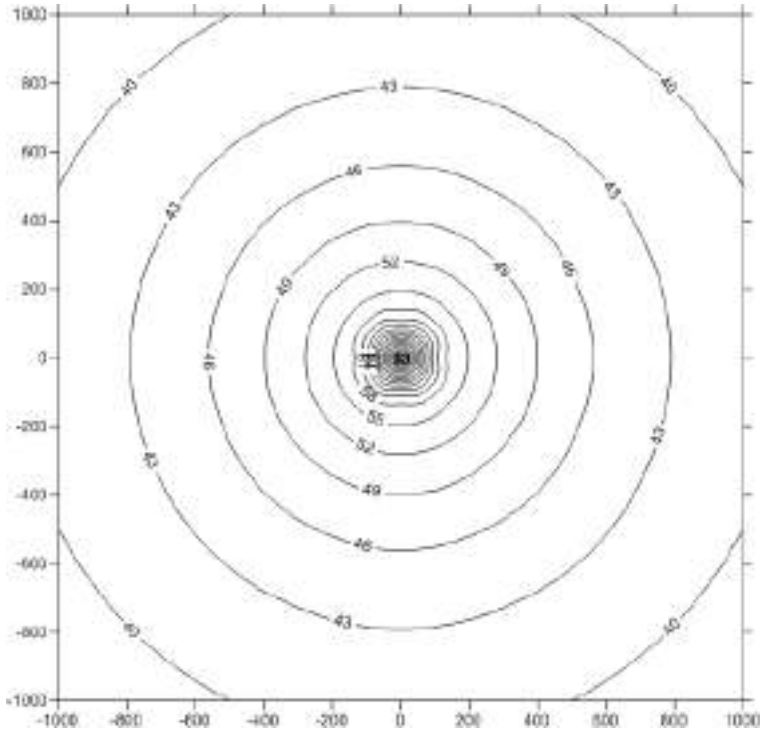


FIGURE 4.7: NOISE CONTOURE

Conclusion of Noise Modeling

As the mining operations will be carried out in underground, there will be no significant impact on the ambient noise levels. The only activity affecting the noise level could be due to surface mine ventilation fan. But due to isolation around the fan house did not envisage any adverse noise level to any extent. Hence, no tangible impact is assessed on the ambient environment near the pits.

Significant noise could be generated from drilling, cutting of coal, screening and its handling. But all these are confined to the specific area, which is enclosed. It does not have much impact on the ambient noise since all these operations are carried out under proper enclosures.

It can be further concluded that in actual conditions due to presence of various topographical features in the path of sound propagation the noise levels will be further attenuated.

Prediction on Impacts Occupational Health

The damage risk criteria as enforced by OSHA (Occupational Safety and Health Administration) to reduce hearing loss, stipulates that noise level up to 90 dB (A) are acceptable for 8 hrs working shift per day. The following measures will be taken to protect the workers from exposure to higher noise levels:

- Provision of protective device like ear muffs/ear plugs;
- Provision of sound insulated chamber for the workers deployed on machines producing higher level of noise like bulldozer, drills etc.; and
- Reducing the exposure time of workers to the higher noise levels.

4.6.2 Ground Vibration due to Mining Operation

Large scale mining operation may cause ground vibration due to use of machinery below ground level such as deployment of mobile equipment, rock bursts and rock bumps. This vibration may cause structural damages, the vibrations by the mechanical effects act on existing rocks and subject them to tensile, compressive and shearing stresses which spoil their mechanical characteristics with an immediate consequence and may cause structural damages.

Mitigation Measures

Noise Control Measures:

1. Designing inherently quiet mining equipment is also included in this technique which aims to control and reduce noise emission. The preferred cost effective system for the underground mining has been the personal protective system ear muffs for the operator of the noise producing units.
2. As the mining operations will be carried out in Underground, there is no significant impact on the surface noise levels. The only activity affecting the noise level could be due to surface mine ventilation fan.
3. The noise generated by equipment can be reduced by proper maintenance. Also low-noise level generation design will be stipulated, as a necessary specification while purchasing equipment.
4. Regular noise monitoring will be carried at project site to check compliance with prevailing rules.
5. Personal Protective Equipment's (PPEs) like ear plugs/ear muffs are provided.

Vibration Control Measures

To control ground vibration while mining the method of mining is chosen based upon the lithological strata of the area duly supported by physical properties of the rock formations. There is no drilling and blasting envisaged while mining. Hence, ground vibration is minimum due to mining operation.

4.7 BIOLOGICAL ENVIRONMENT

4.7.1 Aspect - Impact identification and mitigation measures suggestion

S. No.	Project Aspects / Activities	Impacts	Mitigation Measures Suggested
1	**Site Preparation:** Construction Phase Activity: development of shaft and inclined/underground entry, infrastructure within 18 ha of non-forest land Aspect: Removal of	**Impact:** Loss of vegetation in the form of shrubs (780 Nos./Ha.) and seasonal herbs (940 Nos./Ha.) No significant trees observed (Trees appears stunted and crooked manner due to anthropogenic activities having density 45 Nos./Ha.)	**Construction Phase:** The overall biological environment study revealed that, it is an underground mine project so the impact of the project would be minimum or significantly low and therefore net loss of biodiversity or long-term degradation of the receiving environment not envisaged. The Ecosystem Services report has been

S. No.	Project Aspects / Activities	Impacts	Mitigation Measures Suggested
	vegetation		prepared and mitigation measures will be implemented accordingly. Greenbelt will be developed within 2 ha.
2	Transportation and mining activities	**Operation Phase:** No protected area was observed within the core or buffer zone. Impact studies due to transportation and mining activities on forest land 87.351 ha within core area.	**Operation Phase:** The total UG ML area is 862 ha. Out of 87.351 ha is forest land having multiple small, scattered forest patches. However, mining has been planned below the entire forest land. There will be no disturbance in the forest land as well as the legal status of forest land remains unchanged. Traffic management plan based on traffic studies will be implemented.
3	Land subsidence	Impact of mining activities on forest land due to land subsidence	Land subsidence study conducted by IIT, Kharagpur, mining has been planned below the entire forest land. The largest magnitude of predicted subsidence is 2.158 m corresponding to a tensile strain induced due to mining activity below the forest area. However, no significant subsidence is envisaged in the forest area.
4	Air emission	Impacts of mining activities on nearby vegetation and cropland is anticipated	Some air emission causes disease in plants, the effects of air emissions on nearby vegetation and crop lands are not likely to be injurious and noticeable as the pollutant's concentrations are expected to be well below the prescribed standards.
5	Ecological Changes	Impacts on movement of faunal species in the core and buffer zone of proposed underground mining.	No REET species observed with Core area. Further, the mining operation is underground, thus insignificant impact on local fauna is anticipated.
6	Conservation Measures to maintained local bird diversity within mining areas.	Scarcity of food and water for local birds during summer season anticipated.	It is recommended artificial nesting boxes, bird feeders and hanging earthen pot/dishes to fill water during summer season.

Biological Conservation plan for Schedule I Species provided in **Annexure VII(F)**. Considering magnitude of impact, management practices by scientific mining method with proper Environmental Management Plan will not cause any adverse impact on the surrounding animals.

4.8 SOCIO-ECONOMIC ENVIRONMENT

Socio-economic Impacts

4.8.1 Need Assessment of the Study Area

To study the community sociological needs, a sociological survey was conducted using formats, questionnaires, interviews and discussions.

The Socio-economic study was conducted in the nearby of mining areas in order to study the existing resources of the area, social-economic structure of the community, employment patterns, income generation activities, dependency on forests, mining, impacts of mining, impact of mining closure on

livelihood, preference of land use of mined out areas and species preferred for restoration by the local people along with information on other related environmental and socioeconomic aspects etc. Most of the local populace were illiterate and had poor awareness regarding the mining rules and policies, their rights and regulations and forestry programmes for development. Major population was wage-labourers and agriculture as a source of occupation had lost its significance because of land acquisition mainly for mining. Major population was landless or marginal and depends on mining for their livelihoods. The mining is the major source of revenue for Government. Family structure was also affected by mining activities mainly of nuclear type. Majority of the respondents accepted the negative impact of mining.

4.8.2 Aspects of the Proposed Project

An environmental aspect is defined as an element of an organization's activities, products or services that may impact, or does impact, the environment. An environmental impact is a result of an environmental aspect.

In industrial process various activities may imparts normal as well as adverse effect over the surrounding environment. The effect of these may be controllable and may be uncontrollable. After studying the aspects, one can determine whether the impacts are long time or short time duration and according to the condition the mitigation measure is to be decided. It is necessary to identify the extent of these impacts for further planning of control measures leading to mitigation of the adverse impact.

Following are the aspects which are essential to take in consideration while formulating the impacts of the proposed project and deciding the mitigation measures

4.8.3 Impacts

- Change in population density and diversity through the immigrants may cause certain adverse social changes in the region. Also, social security problems may increase in the community due to influx of population.
- Reduction in groundwater availability for domestic or local business purposes, irrigation purposes.
- Community annoyance from coal dust deposition.
- There will be an increase in number of vehicles for transportation of the existing road network due to the proposed project. Thus chance of traffic congestion or chance of accident cannot be ruled out among the vehicles and also with the boundary wall of factory premises.

4.8.4 Mitigation Measures

In order to mitigate the adverse impact likely to arise in social, cultural and economic aspects in the surrounding region due to the proposed project and improvement in quality-of-life following mitigation measures should be adopted:

- Total 863 persons will be benefited in terms of direct employment due to the proposed project. During regular operations indirect unskilled employment will also be generated as helpers for maintenance.
- Preference for direct/contractual employment will be given to the locals based on their skills and aptitude. Social development program will be conducted as the part of CER.
- Traffic management plan will be implemented to avoid road accident.
- Equipment will be regularly maintained to ensure that it is in good working order.
- Priority should be given to safety aspects such as use of PPE's, safe working conditions, observance of traffic rules etc. to avoid accidents.

During socio economic survey following observations are noted within 10 KM study area. Focused area wise details are presented as under:

SL.	Focused Area	Observations
1	Agricultural	As per local needs farmers training is proposed in consultation with local Agricultural centre
2.	Health and Medical Facility	Health infrastructure in study areas is still quite inadequate. As per census 2011, the total of 63 villages in the study area were covered with only 03 Primary Health Centre's (PHCs) and 11 Sub-Centre's. This shows that, on average, 5.72 villages have one sub-centre and only one PHC exists for as many as 63 villages. Added to this, many health centres are also run without doctors (or absentee doctors) and in some cases treatment is done by unskilled healthcare workers. Absence of connectivity to the villages and inadequate number of health centres and skilled health workers still endangers the life of rural population.
3.	Infrastructure	The villages have infrastructural needs such as installation of streetlights. There is no street light installed by the Panchayat in most of the village. Incidences of thefts have also been reported by the participants and the absence of street lights are working in favor of thieves and Around 60 percent of damaged roads have not been repaired.
4	Skill & Economic Development activities	Livelihood is one of the most important areas to establish the sustainability in a family. As the data from the villages indicates, there are a high percentage of individuals who are currently not engaged in any kind of activity i.e. education or income generation. Also, the low level of education and dropout cases from formal education, the youth of all these villages find themselves without direction and skills to capture any job leads to unemployment. It is also analyses that most of the male students dropout from formal education to support their families financially and in case of girls, it is households chores. The current education is non-responsive to the skill demands of existing and future industries, underlining the importance of specialized training.
5.	Drainage	There are no dumpsters installed in the villages due to which the villagers dump garbage on the streets. Thus, the solid waste is indiscriminately dumped on roadsides or in drainage lines thus augmenting the issue. Dust bin will be provided in the villages under clean area.
6.	Transportation Facility	Lack of access for transportation, irregular bus/auto facilities were seen in the villages. School/college going students facing problem to attend schools/colleges which were at long distance.
7.	Drinking Water	People use Main source of drinking as well as for irrigation as the villagers are totally dependent on hand pumps, tube wells, bore wells which fetch available ground water., however water scarcity in summer season reported by villagers, mainly Village Surabardi and Gondkheri

4.9 OCCUPATIONAL HEALTH & SAFETY

4.9.1 Identification of Work-Related Health Hazards

Details of the principle environmental and occupational risks that are likely to be occurred are given in **Table 4.11.**

TABLE 4.11: WORK RELATED HEALTH HAZARDS

Sl.	Hazardous Activities	Type of Hazards	Severity of Injury
1.	Loading	Struck by rolling big boulders	Serious injury, and equipment damage
		Struck by fall of boulders	Serious Physical injury
2.	Transportation	Accidental runaway of vehicle	Serious injury, and equipment damage
		Fall of vehicle from height while reversing	
		Exposure to high level noise	Hearing impairment
		Fire in engine due to over heating	Serious Physical injury
3.	Storage of oil, lubricant	Leaks and spills	Fire & vigorous chemical reaction
4.	Use/repair of hydraulic jacks & pumps during rainy season only	High pressure operation	Physical injury
		Oil spillage	
		Rupture of hydraulic hoses	

The mine management will take full responsibility for the protection of the workers against sickness, disease and injury arising out of their employment and have adopted certain principles with regard to occupational health services, like establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work.

The following occupational health measures will also be adopted**:**

- Identification and assessment of the risks from health hazards in the workplace;
- Surveillance of the factors in the working environment and working practices which may affect workers health, including sanitary installations and canteens; and
- Planning and organization of work, including the design of workplaces, choice, maintenance and condition of machinery and other equipment and substances used in work.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

4.9.2 Medical Surveillance and Examinations

In order to evaluate the impacts from proposed Gondkhari Coal mining project activities on health of workers, baseline health studies will be conducted on every worker before joining their duties.

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline status for determining changes in health
- Evaluating the effect of dust and noise on workers

- Enabling corrective action to be taken when necessary
- providing health education and awareness

The medical surveillance program will consist of the following:

- Pre-employment medical examinations
- Periodic medical examinations
- Health & Safety awareness and training
- Record keeping

History: The initial medical and occupational history cover previous exposure to dust, personal habits (e.g., smoking, etc.) and history of present or past respiratory disorders (particularly tuberculosis).

Occupational Health Monitoring

All the employees in the mine will be subjected to pre-employment & periodic medical examination to assess the occupational health impacts. The tests will be conducted as per Form O as given in the Mines Rules, 1955 for the following parameters:

1. Height & weight	2. Eyes	3. Ears	4. Respiratory Systems
5. Circulatory Systems	6. Abdomen	7. Nervous systems	8. Locomotory systems
9. Skin	10. Hydrocele	11. Hernia	12. Any other abnormality
13. Urine tests	14. Skiagram of chest	15. Complete Blood picture	16. Any other test considered by the Committee Doctor

Based on the medical findings, the worker will be placed for appropriate jobs and necessary safety training will be provided.

Awareness and Training Program

All workers will be subjected to pre-employment and periodic awareness program on health and safety issues of Coal mining and related activities. They would also be imparted with proper training and would be made to understand the health impacts of inhaling high concentration of dust laden air. All the workers will also be provided training in first aid.

- Holders of first aid certificate will be given refresher training once in two years.
- Rescue trained person will acquire highest standards of proficiency in first aid.
- Ambulance van will be provided fully equipped with lifesaving drugs, medicines and appliances needed in emergency.

Record keeping

A Registered Medical Practitioner (Doctor) will be outsourcing as per requirement for examining the workers. All the health records of the workers will be maintained in separate file in site office and the records will be regularly updated.

Implementation of OH&S

For implementation of Occupational Health & Safety in the Coal mine project, a safety committee will be formed. The hierarchy of the committee and responsibilities of individual members will be as follows:

TABLE 4.12: OH&S COMMITTEE & ITS RESPONSIBILITIES

Sr. No.	Designation	Responsibility

1.	Mines Manager	Overall responsibility of Occupational Health & Safety in the Mines
2.	Mining Engineer / Foreman	Adherence to OH&S guidelines and provision of training and conducting awareness programs and environmental compliance
3.	Doctor(outsourced as per requirement)	Pre-employment and periodic examination / health checkup and updating the records, provision of first aid training.

4.10 OVERALL ASSESSMENT OF SIGNIFICANCE AND EVALUATION OF IMPACTS THROUGH MATRIX METHOD

Impacts Evaluation

The impacts evaluation has been made for the proposed project on the environment, in terms of quality and quantity. Impact matrix facilitates to identify components and phases of mining activities for determination of likely impacts. Matrix identifies the interaction between mining activities and environmental components using a grid like table. Entries are made in the cell which highlights impact severity in the form of symbols or numbers or descriptive comments. For calculating the potential of impacts on the environmental components due to various project activities is given in **Table 4.13 below**. The scores are valued based on the severity of the impact by any activity.

TABLE 4.13 - IMPACT SCORE BASED ON SEVERITY OF IMPACTS

Description	Value
No/Zero Impact	0
Minor/ Negligible negative impacts	-1
Minor/ Negligible positive impacts	1
Significant negative impacts	-2
Significant positive impacts	2
High negative impacts	-3
High positive impacts	3

TABLE 4.14 - OCCURRENCE FREQUENCY SCORE

Description	Occurrence Frequency	Occurrence Frequency Score (OFS)
Regular	Definite/ Constant/ Continuous event/ daily	5
Frequent	Happen several times each year (Monthly)	4
Periodic	May happen a few times each year (Quarterly/ half yearly)	3
Occasional	May happen few times during the project life cycle (Yearly)	2
Rare	One time activity/ rare event during the project cycle or accidental/unintentional	1

The impacts of different project activities on various environmental components have been summarized in a form of a matrix along with Evaluation Marking Criteria in **Table 4.13** and the occurrence frequency scores are presented in **Table 4.14**.

TABLE 4.15: POTENTIAL OF IMPACTS ON THE ENVIRONMENTAL COMPONENT

Project Activity / Environmental Components	Construction Phase				Operational Phase					Decommissioning	Total
	A.	B.	C.	D.	E.	G.	H.	I.	J.	K.	
	Planning & Lease deed	Land Preparation and Construction activities.	Transportation of equipment and construction materials - inside and outside the mine lease area	Greenbelt development.	Coal Extraction, Coal handling arrangements (including crushing, loading & unloading operations)	Implementation of Pollution Control Measures	Vehicular movement for transportation of extracted coal from mine to the railway siding	Waste-Water generation & treatment plant Operation - STP	Implementation of Social Infrastructure Development Activities	Progressive mine closure activities: Planning for Decommissioning, Dismantling the Equipment, Waste generation and Segregation, Loading of Material, Operation of Machineries, Transportation of Waste Solid and Other waste generated, Clearing of Land, dismantling of infrastructure etc.	
Air Environment	0	-2	-2	3	-3	2	-2	0	0	-2	
Water Environment- Quality & Recourses (Natural Reserves)	0	-3	-1	2	-2	0	0	2	0	-1	
Noise and vibration	0	-1	-2	2	-3	1	-1	0	0	-1	
Land Environment (Change in Land Use Pattern & Land Subsidence)	0	-1	0	2	0	0	0	0	1	0	
Solid waste	0	-2	0	0	-1	0	0	-1	0	-2	
Forest & Vegetation/ Agriculture loss	0	-1	-1	3	-1	2	0	0	0	0	
Health and Safety	0	-1	-1	1	-2	0	-1	0	1	-1	
Socio–economics	-2	1	1	2	3	2	1	1	3	-2	
1) Total Impact Score	**-2**	**-11**	**-6**	**15**	**-9**	**7**	**-3**	**2**	**5**	**-9**	
2) Occurrence Frequency Score	**1**	**1**	**2**	**2**	**5**	**5**	**5**	**5**	**4**	**1**	
3) Total quantified Impact (1 x 2)	**-2**	**-10**	**-12**	**30**	**-45**	**35**	**-15**	**10**	**20**	**-9**	**20**

CONCLUSION OF IMPACT MATRIX ASSESSMENT

The impacts are categorized in four levels from insignificant to high. Each level of impact needs different action to manage/control/supervise it in proper way.

TABLE 4.16: CONCLUSION OF IMPACT MATRIX ASSESSMENT

Score	Impact Type	Action Plan
>50	High	The activity/ project should not be carried out without strong environment management plan.
30-50	Moderate	The activity/ project should be carried out in line with necessary mitigative action
10-30	Less	The activity/ project subject to periodic monitoring/ surveillance/ observation.
<10	Insignificant	No immediate action required.

From the above table the impact of the proposed project is anticipated to be 20 which is less negative impact. Appropriate Environmental Management Plan (EMP) is needed to mitigate this impact.

CHAPTER-5

ANALYSIS OF ALTERNATIVES TECHNOLOGY AND SITE

5.0 ANALYSIS OF ALTERNATIVES (SITE AND TECHNOLOGY)

A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmental friendly and cost-effective options. Alternative analysis depends on technical feasibility, economic viability, and environmental acceptability of the identified alternatives.

5.1 SITE ALTERNATIVES UNDER CONSIDERATION

Gondkhari Coal Mine is proposed underground mine in a virgin seam. The Mine Lease area is located at village Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna Tehsil Kalmeshwar, District Nagpur, Maharashtra & falls under Survey of India Toposheet no. 55 K/16 and lies between Latitude 21° 07’ 57" N to 21° 10' 56" N & Longitude 78° 54' 45" E to 78° 56' 26"E.

The mining project is site-specific, thus no alternate sites were considered. The proposed UG mining project lies within ML area of 862.00 ha.

5.2 ANALYSIS OF ALTERNATIVES TECHNOLOGY

Underground Mining:

In selection of mining method several variables come into play and each varying factor has a certain weight. In addition to the various external factors, such as the supply of labor and the financial status of the operating company, the principal items that influence the method of mining to be adopted are:

- The size and shape of the deposit.
- Character of the ore, whether high or low in grade.
- Whether the values are regularly or irregularly distributed.
- Physical character, whether hard or soft, tough or brittle.
- Character of the country rock.
- Immediate and future demands for ore.
- Amount of development work done or that may be necessary.
- Amount of water to be handled.
- Cost of power and supplies.
- Ventilation.
- Method of drilling.

Based on the above variables, specific technology needs to be selected. It is important to note that no other mining system is ideal for all situations and comprises of best suited technology and method for the specific site. Various Method of Mining technologies are discussed below:

5.3 METHOD OF MINING

Underground coal mining methods can be classified into four distinct categories as Room-and-Pillar, Longwall, Short wall, and Thick-seam.

➢ **Longwall Mining**

In the longwall mining method, mine development is carried out in such a manner that large block of coal, usually 100 to 300 metres wide and 1,000 to 3,000 metres long, are available for complete

extraction. In modern mechanized longwall operations, the coal is cut and loaded onto a face conveyor by continuous longwall miners called shearers or plows. The roof is supported by mechanized; self-advancing supports called longwall shields, which form a protective steel canopy under which the face conveyor, workers, and shearer operate. In combination with shields and conveyors, longwall shearers or plows create a truly continuous mining system with a huge production capacity.

- **Room-and-Pillar Mining**

In this method, a number of parallel entries are driven into the coal seam. The entries are connected at intervals by wider entries, called Rooms, that are cut through the seam at right angles to the entries. The resulting grid formation creates thick pillars of coal that support the overhead strata of rock. There are two main room-and-pillar systems, the conventional and the continuous. In the conventional system, the unit operations of undercutting, drilling, blasting, and loading are performed by separate machines and work crews. In a continuous operation, one machine the continuous miner rips coal from the face and loads it directly into a hauling unit. In both methods, the exposed roof is supported after loading, usually by rock bolts.

At depths greater than 400 to 500 metres, room-and-pillar methods become very difficult to practice, owing to excessive roof pressure and the larger pillar sizes that are required.

- **Shortwall Mining**

In the shortwall mining method, the layout is similar to the longwall method except that the block of coal is not more than 100 metres wide. Furthermore, the slices are as much as three metres thick and are taken by a continuous miner. The mined coal is dumped onto a face conveyor or other face haulage equipment. The roof is supported by specially designed shields, which operate in the same manner as longwall shields. Although a great future was envisioned for shortwall mining, it has not lived up to expectations.

- **Thick-Seam Mining**

Coal seams as much as five metres thick can be mined in a single “lift” by the longwall method, and seams up to seven metres thick have been extracted by conventional mining systems in one pass. However, when a seam exceeds these thicknesses, its extraction usually involves dividing the seam into a number of slices and mining each slice with longwall, continuous, or conventional mining methods.

Thick coal seams containing soft coal or friable bands and overlain by a medium-to-strong roof that parts easily from the coal can be fragmented by a high-pressure water jet. For successful operation, the floor must not deteriorate through contact with water, and the seam gradient must be steep enough to allow the water to flush the broken coal from the mined areas. Under favourable conditions, hydraulic mining of coal is productive, safe, and economical.

5.4 SELECTION OF MINING TECHNOLOGY FOR PROPOSED PROJECT

The proposed method to work; the excavation will be done by mechanized Longwall (retreating) method and the same is being adopted as method of Mining. This mining technology is proven, cost effective, reliable, and workable in the planned environment. The details are as under:

Exploitation of coal would be carried out basically by underground mining. Mining Plan has been approved by the ministry of coal for the proposed 862.00 ha of ML area vide Letter no MHMR019/APP00226/2022 dated 09.01.2023. Coal is extractable by UG methods, if the seam and disposition is feasible to do so.

The minimum depth of occurrence of coal seam is 135m while the maximum is beyond 400m. These conditions rule out open cast mining as the minimum depth of the coal seam is beyond 135. The other alternative is underground mining only. The coal block of proposed project having more than 1000m wide and 5000m length; which cause Longwall mining method is proposed for excavation.

The output is considered technically feasible due to mining by Longwall method because of the following conditions:-

- Gradient of 9^0 to 22^0 of the coal seams.
- Multiple coal seams (4 of UG).
- Strike Length.
- Thin coal seams (due to splitting).
- Variable thickness of OB/partings (High Strip Ratio).
- The minimum working height considered for LW operations is 1.20m and the barrier between 2 panels is 45m.
- The face length of the LW panel is considered as 120m.
- The gallery Dimensions for drivage is 4.5m width and height as depending upon the thickness of the seam up to maximum 3.50m.

The Longwall shearer cuts coal in both directions, with a depth of 0.8m. Three shifts for production, one for of maintenance, 4 cuts will be performed in each shift annual working days per year is 305, and the rate of regular cyclic group is 90%. The annual advancement progress is 0.8 x 12 x 305 x 90% = 2635 m. The annual production of the south wing LW face is 0.84 Mt, the same of the north wig LW face is 1.00 Mt, and the development production is 0.16Mt so the annual production of the mine is 2.00 Mt, which meets the design capacity of the mine.

CHAPTER-6
ENVIRONMENTAL MONITORING PROGRAMME

6.0 ENVIRONMENTAL MONITORING PROGRAMME

Regular monitoring in a systematic and standardized 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 and further required to be applied. The monitoring plan also ensures compliance with the environmental legislation and consent. The objectives of the monitoring plan are:

To verify the results of the impact assessment study.

- To study the trend of concentration values of the parameters, which have been identified as critical and planning the mitigative measures.
- To check and assess the efficacy of pollution control equipment.
- To ensure that any additional parameters, other than those identified in the impact, do not become critical after the commissioning of proposed UG mine.
- Environment Management Department with suitably qualified and experienced staff and environmental laboratory to cater the routine monitoring requirement will be implemented in the mine. Following monitoring plan are categorically suggested to verify the safeguards and pollution mitigation measures.
- Monitoring of Stack emissions for Temperature, Velocity, PM, SO_2, NO_X and CO.
- Monitoring of Ambient Air Quality at mine lease and fugitive emissions for PM_{10}, $PM_{2.5}$, SO2, NO_2, CO, O_3, NH_3, VOCs and Heavy metals in PM_{10} dust.
- Work Zone Air Quality should be monitored near Crusher, workplace area of every unit and loading & unloading points, etc.
- Monitoring of ground water quality of site, dump yard, surrounding area of dump yard for pH, conductivity, total solids, suspended solids, oil and grease, metals.
- Waste water quality and quantity from various units for pH, TSS, TDS, COD, Metals, Oil and Grease.
- Ambient Noise and work place noise level monitoring near the mining activities, D.G sets, ML boundary, Main gate, Loading and Unloading points, etc.
- Monitoring of solid wastes quantity and quality as per CPCB Guidelines.
- Green belt plantation, maintenance, development within the ML area.

6.1 MONITORING METHODOLOGIS

Environmental monitoring shall be done as per the guidelines provided by CPCB/MPCB. The methods conducted or applied shall be approved or accepted by the any recognized body or authority i.e. MoEF/CPCB/MPCB. The list of suggested methodologies for environmental monitoring is provided in attached **Annexure-V** environmental monitoring. The monitoring shall be done to ensure that Environmental management practices/ technologies are adequate to meet the requirement of the prescribed norms as prescribed by state pollution control board.

6.1.1 Monitoring Equipment, Parameters and Measurement Methodologies

Monitoring equipment will be installed in the Mine Lease area at the designated locations for collection of samples for air, noise, soil and water. The collected samples will be analyzed for project specific

parameters to find out the concentration levels.

The equipment will be as follows:

Environment	Equipment	Parameters	Methodologies
Air Environment	RDS and FPS	PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, O_3, NH_3, Pb, As, Ni, Benzene and BaP.	Requirement as per NAAQS – 2009 & Test Method IS 5182 and as per CPCB Guideline.
Noise Environment	Sound level meter	Noise level: Day and Night	Requirement as per CPCB Guideline and Test Method IS 9989:1981 (R2001)
Water Environment	pH meter, conductivity meter, Turbidity meter, flame photometer, spectrophotometer, hot plate, DO meter, microscope, incubator, balance, AAS etc.	Physico – chemical and bacteriological Parameters as per project requirement specific parameters (as per IS-10500 and wastewater quality parameters (pH, TSS, TDS, COD, BOD, Oil & Grease & heavy metals)	Requirement as per IS 10 500: 2012 and Applicable Test Method IS 3025 and APHA Chemical Testing Biological Testing IS 15185 & IS 1622
Land Environment	Auger, spade	Physico-chemical, available NPK, CEC, Organic carbon, organic matter, water holding capacity, density PH,EC, porosity, particle size analysis, heavy metals.	Method Manual, Soil Testing in India, Dept. of agriculture and corporation, Govt. of India.

6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures suggested in **Chapter - 4** will be implemented through appropriate schedule in order to reduce the impact on environment due to the construction and operations of the proposed underground coal mine project. In order to facilitate easy implementation of mitigation measures, the schedule are provided in **Table 6.1**

TABLE 6.1: IMPLEMENTATION SCHEDULE FOR MITIGATION MEASURES

Sr. No.	Mitigation Measures	Implementation time	Schedule
1	Air pollution control measures	Along with commencement of construction phase operations till life of the Project.	From start of construction followed by mining development stage
2	Water pollution control measures		
3	Noise control measures		
4	Ecological conservation and upgradation		From start of site preparation, Plantation will be carried out within three years and casual replacement of species (in line with survival rate) in subsequent year.
5.	Socio-economic welfare measures		From start of construction followed by mining development stage

6.3 ENVIRONMENTAL MONITORING

The environmental monitoring is important to assess performance of pollution control equipment installed at the project site. The sampling and analysis of environmental attribute along with monitoring locations which will be as per the guidelines of the Central Pollution Control Board.

The environmental attributes, which require regular monitoring, are specified as follows:

- Air quality
- Water and wastewater quality
- Afforestation; as greenbelt development
- Noise levels
- Soil Conservation
- Socio-economic aspects and community development

6.3.1 Proposed Environmental Monitoring Programme

The objectives of environmental monitoring are:

To verify the results of the impact assessment study in particular with regard to new developments

- To check the current status of pollution within the mine lease and in the vicinity of mining area.
- To establish a database for future impact assessment studies.
- To follow the trend of parameters, which have been identified as critical
- To check or assess the efficacy of the pollution control measures.
- To assess near perfect environmental impacts with the help of above.

Air Environment and Meteorological Aspects

Both ambient air quality and meteorology will be monitored. The ambient air will be monitored twice in a week in line with the guidelines of Central Pollution Control Board and MPCB. Meteorological parameters like wind velocity, wind direction, temperature, relative humidity and rainfall will be recorded continuously at mine lease area.

Noise Environment

Noise levels in the core zone and in surrounding villages will be monitored regularly. The ground vibration will be recorded at the time of blasting. The frequency of noise monitoring will be once in a month in the working zone. The ambient noise levels in the surrounding villages will be monitored once in six months.

Water and Wastewater Quality

The storm water will be analyzed in the rainy season. The ground and surface water quality will be sampled once in every season at selected locations. The water depths will be monitored in the wells of surrounding villages in every season.

Soil Quality

Soil samples will be tested bore plantation/vegetation of the area. The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies.

Green belt Development and Afforestation

Quarterly monitoring will be done to assess the survival rate of the planted saplings. Based on the findings, gap plantation programme will be implemented in consultation with local forest department.

Solid & Hazardous Waste Monitoring

Empty drums, garbage and STP solid waste etc. are to be disposed as per solid waste management rules 2016 (management and handling) rules. Spent oil and lubricants generated from various process equipment, machines, vehicles, instruments, oil storage tanks are categorized as Hazardous Wastes under the Notification of Hazardous and other waste (management and trans boundary movement)

Rules, 2016. It is to be auctioned to authorized re-processors. Used batteries, also categories as hazardous wastes, to be given back under buy back arrangement. Electronic wastes to be given to authorized re-processors.

Flora and Fauna Monitoring

Component	Location	Parameter	Monitoring & Analysis Method	Monitoring Frequency
Flora and Fauna	Surrounding forests	Health of flora and fauna	Visual checks by the qualified ecologist and frequent interaction with the forest officials.	Once in 5 years

Workers Health and Safety Monitoring

Component	Location	Parameter	Monitoring & Analysis Method	Monitoring Frequency
Work Environment	At all places where there is presence of workers all the time	Respirable dust & inhaled Dust, Free Silica and (dust to be further analyzed for free silica)	DGMS approved Personal Dust Sampler – CPCB method	Quarterly
Occupational Health	Workers	Silicosis, heart disease, diabetes, reproductive and child health, ENT problems, etc.	By engaging occupational health specialist in the health Centre	Yearly

Community Health Monitoring

Component	Location	Parameter	Monitoring & Analysis Method	Monitoring Frequency
Health of community	Surrounding villagers	Respirable disorders heart diseases diabetes reproductive health child health ENT problems.	Organizing health camps in surrounding villages with qualified doctors and supporting staff. Inviting surrounding people for health check-up. CPCB protocol to be followed during the health camps.	Once in a years

The environmental monitoring schedule to be implemented is given in **Table - 6.2.**

TABLE 6.2: PROPOSED ENVIRONMENTAL MONITORING SCHEDULE

Sr. No.	Environmental Attributes	Locations	Parameters for monitoring	Schedule/ frequency of Monitoring
1.	Meteorological data to be monitored at the mine site (On line weather monitoring station)	Mine Lease area	Temperature, Relative Humidity, rainfall, wind direction & wind velocity.	Continuous monitoring
2.	Online Ambient Air Quality Monitoring System	One Online AAQMS i.e. in downwind direction.	PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO.	Six monthly (After Six month of Operation)
3.	Ambient Air Quality	2 in core zone mine lease area	PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO.	Monthly Monitoring with 24 hours sampling
		4 Nearby villages (1 in upwind, 1 crosswind and 2 in downwind direction)	PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, O_3, NH_3, Pb, As, Ni, Benzene and BaP.	Quarterly Monitoring with 24 hours sampling

Sr. No.	Environmental Attributes	Locations	Parameters for monitoring	Schedule/ frequency of Monitoring
4.	Fugitive Emission	One Location at Coal stacks yard and other at truck entry gate.	PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO.	Twice in a month with 8 hours sampling
5.	Water table depth	Water level studies in well or bore wells or piezometers in mine leases and surrounding areas	Depth of water level	Once each in Apr/May, Oct/Nov and Jan/Feb month every year
6.	Drinking Water Quality	1 Nos. from Mine office	As per IS:10500 2012 standards	Once in a month
7	Ground Water and Surface water quality	7 (4 GW at Kalambi & Alesur, Gondkhairi and Surabardi villages & 3 SW from Alesur Lake, Suraburdi Lake and Vena Canal.	As per IS: 10500:2012 standards and CPCB Guidelines.	Grab sampling, once during each season
8.	Mine Seepage Water	UG Mining Area	As per IS: 9996:1992 standards (Category A) as per CPCB	Qualitative analysis once in a season and Quantitative on continuous basis
9.	Effluent Treatment Plant	Workshop effluents	As per CPCB Guidelines	Once in a month
10.	Domestic Waste Water	STP outlet	As per CPCB Guidelines	Once in a month
11.	Online Effluent Quality Monitoring Station	STP and ETP outlet	pH, BOD,TSS, O & G	Continuous
12.	Ambient Noise Levels	3 in core zone mine lease area and 4 Nearby villages (1 in upwind, crosswind and 2 in downwind direction	Noise levels in dB(A)	Hourly noise level for 24 hours, once in each season
13.	Soil Quality	4 Locations (One with project site and 3 nearby villages i.e. Kalambi, Gondkhairi and Surabardi villages)	Physical and chemical parameters with organic content.	Once in a six month, preferably during May/June and November/December month.
14.	Mineralogical composition	3 Nos. in mine lease area	Respirable dust, Aluminium oxide, Ferric oxide and Free Silica	Quarterly
15.	Occupational Health monitoring of employees	All Employees	Hemoglobin, Silicosis, Pneumoconiosis, Heme Oxygenase-1 and ENT Problems, etc.	Once in a year
16.	CSR activities	Nearby villages	Implementation status and need based assessment	Quarterly
17.	Greenbelt Development/ Plantation	Earmarked Plantation area	Growth & Survival Rate	Continuous

6.4 MONITORING METHODS AND DATA ANALYSIS

All the parameters pertaining to the above environmental components will be analyzed as per the prescribed Indian Standards procedure. EMC shall ensure all parameters should be within prescribed limits and standards.

6.4.1 Reporting Schedule

M/s. APML will ensure reporting of environmental monitored data in following manner:

- Online Continuous Emission Monitoring System to MPCB/CPCB on continuous basis.
- Submission of Post project monitoring analysis data viz. Air, Noise, Water and Soil to MPCB and CPCB on monthly/quarterly basis.
- Online submission of Environmental Statement Form – V for financial year and annual return of Haz. Waste Form - IV.
- Whereas, after implementation of mine project, submission of analysis report to Regional Officer, MoEFCC on six monthly basis as a part of EC compliance report.

6.4.2 Emergency Procedure

M/s. APML will ensure the functioning of the Air pollution control system, in case of failure of APCD, if any to comply with the norms, thus Environment Management Cell shall inform to Production Unit Head to stop the production immediately. The project operation will resume after ensuring compliance with the prescribed standards.

6.4.3 Detailed Budget for Environmental Monitoring Program

M/s. APML will invest capex of about **Rs 2.0 crores** and recurring cost of **Rs. 0.2 crores** annually. Post Project Monitoring will be conducted through NABL/MoEFCC accredited lab (Third party) will be engaged to monitor all the environmental components as per CPCB/MPCB norms. The budgetary allocation towards Environmental Management and Monitoring Plan are provided in **Chapter 10**.

CHAPTER-7
ADDITIONAL STUDIES

7.0 ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

The EIA-EMP report of M/s.Adani Power Maharashtra Limited is prepared in line with approved ToR letter No. IA-J-11015/46/2022-IA. II(M) dated on 13.02.2023 by EAC (Coal Mining Projects), MoEFCC, New Delhi and the EIA report (EIA reports, Executive summery in English and Marathi – 40 copies each) is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

The environmental public hearing for proposed project of M/s. Adani Power Maharashtra Ltd. (APML) was conducted on dated 13.07.2023 at 11.00 AM at the Khasra no. 9/5, near Karli lake, Village Karli, Taluka Kalmeshwar, Dist. – Nagpur, Maharashtra by Maharashtra Pollution Control Board, Sub Regional office Nagpur 01. (Complete Public Hearing Proceedings are enclosed in **Annexure – XIII**.

The details of Public Hearing are as under:

Sr. No.	Name	Position
1.	Mr. Subhas Chaudhri Additional District Magistrate, Nagpur	Chairperson
2..	Mrs. Hema Deshpande (Regional Officer) Maharashtra Pollution Control Board, Nagpur	Member
3.	Mr. U Patil SRO, MPCB, Nagpur – 1	Convener
3.	Other officials of MPCB; Police & Revenue Department Govt. of Maharashtra	As support officials staff

OTHER MEMBERS

Sr. No.	Name	Position
1.	Mr. Sudhakar Lola Mr. Pawan Kumar Somani Mr. Pramod Kumar Mr. Ankush Sarang & Others	VP and others M/s. Adani Power Maharashtra Ltd.
2.	Mr. Gyanchand Bohra Mr. Naresh Nishad Mr. Shrikant B. Vyawhare	Environmental Consultant Anacon Laboratories Pvt. Ltd., Nagpur

The announcement notice of public consultation/hearing scheduled date and agenda was made public through print media advertisement and reflected in Two Newspapers (National and local)

- Dainik Lokmat (Marathi)
  Dated 10.06.2023
- Times of India (English)
  Dated 10.06.2023

The minutes of the Public Hearing has been forwarded by MS, MPCB, Mumbai to the Ministry of Environment and Forest and Climate Change vide Letter No MPCB/JD(WPC)/ENV/PH/B- 230912-FTS-0060 dated 12.09.2023 with a copy to the project proponents. The point wise compliance of queries/objections suggestion during public hearing is provided in **Table 7.1**. Whereas, point wise compliance of written representation of public are provided in **Table 7.2**.

PLATE 7.1 PUBLIC HEARING PHOTOGRAPHS





















TABLE 7.1
QUERIES RAISED DURING PUBLIC HEARING AND RESPONSE BY M/S APML

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
1.	Shri. Sunil Kedar, MLA Saoner suggested to stop the presentation & asked to explain the procedure of public hearing.	Accordingly Chairman of the Environment Public Hearing Panel suggested that the presentation be stopped temporarily. As per request the convenor explained the procedure as per EIA Notification 14 Sept, 2006 as amended and thereby instructed project proponent to restart presentation of proposed project.	No Action required
2.	Mr. Paliwal, resident-Nagpur objected that the draft Environmental Impact Assessment (EIA) is not in Marathi. He said that the draft Environmental Impact Assessment (EIA) report was not made available to the general public in Marathi. Further Shri. Sunil Kedar, MLA warned that, Marathi is official language in Maharashtra. He further told that the country is democratic. Common people in rural areas do not understand English. The information has not reached up to them. If you have Marathi EIA copy show it. The EIA report should be made available to the general public in Marathi language, we are not against the project. The nation needs coal. Shri. Sunil Kedar MLA objected that the first EIA report should be made available in Marathi.	As per EIA Notification 2006, as amended. Hard and Soft Copies of EIA-EMP report along with Executive Summary in English and Marathi being vernacular language was made available and circulated in 34 Grampanchayat within 10 KM study area. (Pls. refer PH proceedings Pg. 2 & 3) prior Public Hearing. The presentation during public hearing was made in Marathi Language only. All statutory compliance is followed during for Public Hearing.	No Action required
3.	The participants objected that MPCB had sent the English	The chairman already opined earlier that since the presentation is in	No Action required

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	copies to the village gram panchayat offices. However, the public hearing process cannot be continued unless we get the Marathi EIA copy.	Marathi people can understand it. Further to note that as per EIA Notification 2006, as amended. Hard and Soft Copies of EIA-EMP report along with Executive Summary in English and Marathi being vernacular language was made available and circulated in 34 Grampanchayat within 10 KM study area. (Pls. refer PH proceedings Pg. 2 & 3) prior Public Hearing. All statutory compliance is followed during for Public Hearing.	
4.	Mr. Korde, Nagpur said that this report is bogus. Because the study, survey done for this is wrong. Baseline, hydrogeology survey not conducted. When there are two big lakes, if the water goes down in the underground mine, the lake water will be depleting, The water level in the wells here is 500 feet deep.	Anacon Laboratories Pvt. Ltd., Nagpur is recognized by **Ministry of Environment & Forests, New Delhi for carrying out environmental Studies** & accredited by Quality Council of India (**QCI - NABET**) for conducting Environmental studies in Sector 1 Category A. Anacon Lab division is accredited by **National Accreditation Board for Testing & Calibration Laboratories (NABL**, **Govt. of India) for Chemical, Biological & Mechanical Testing.** It is also certified by **ISO 9001:2015, 14001:2015 and ISO 45001:2018**. The environmental studies were conducted by the consultant based on EIA Notification, 2006 and ToR granted by EAC (Coal Mining Project), New Delhi dtd. 13th Feb, 2023. The Land Subsidence 3D modeling studies conducted by CIMFR. Based on study conducted there is no land subsidence. The copy of report is enclosed as Annexure IV also submitted with EIA set	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
		circulated. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla. two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface. All recommendations given in the report will be followed by the company. Hydrogeological and lake rejuvenation studies done by Srhushti Seva Pvt. Ltd. Nagpur. As per the findings of the report there will not be any adverse impacts on the existing lakes (2 Nos.) because the lithology of the area below the lakes is impervious formation i.e. basalt and the workable coal seams are very deep (169 M BGL). More over as per the CIMFER, Dhanbad subsidence studies there is no impact on the surface features of the study area. As per mine plan there will not be any mining work below the water bodies and existing roads. Thus, from the above it is evident that the existing water bodies will remain intact. Based on study report it is observed that, The Kamptee Coalfield is followed by thick Deccan trap formation. The mining depth ranges from 169 M to 394 M maximum. As a part of compliance of statutory requirement PP have obtained	Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
		CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023. Study of CGWA reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump. The pumping test had been conducted on discharge rate of 518 m3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m2/day, Storativity is 6.0 x 10 and Hydraulic conductivity is 2.88 m/day.	
5.	A local person objected that are all documents in English & Environmental Public Hearing Panel constituted by Government agency seems favouring project proponent instead of common people.	All documents and EIA/EMP report has been submitted as per the EIA notification. (Please refer reply no. 2)	No Action required
6.	Shri. Sunil Kedar, MLA Mr. told the Chairman that they would not allowed to continue public hearing unless EIA report is given in Marathi, which is official language of our State. Many times, Collector of various districts have suspended the environment public hearing.	All statutory requirements as per EIA notification are followed in the public hearing process. (Please ref. reply no. 2.) Further to note that, as per MoEFCC letter dtd. 22nd June 2016 (F. No. 22-57/2016-IA-III). The EIA Notification, 2006 does not mandate preparation of full EIA report in official language of the State/local language.	No Action required
7.	One of the attendees asked the Environmental Public Hearing Panel whether the said EIA has been made available to the affected Gram Panchayats. As Marathi EIA report is not available, which is completely against the law. Hence public hearing process cannot continue here.	All statutory requirements as per EIA notification are followed in the public hearing process. This query is already replied (Please ref. reply no. 2.)	No Action required

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
8.	A farmer stated here that the notice of this public hearing was published in one local newspaper in Marathi and one in English newspaper national level. But not publish the notice of public hearing in Sandhya daily news paper. As far as I know all information is available in Gram Panchayat office in English only. Similarly, our ancestral land will be taken at very meagre amount. The environment here is going to deteriorate	All statutory requirements as per EIA notification are followed in the public hearing process. This query is already replied (Please ref. reply no. 2.)	No Action required
9.	The participants further objected that if the English document was made available in a notified government office, it is believed that this report is given in English because the local people will not understand it. Chairman has full authority to adjourn this public hearing. However, we will not allow this public hearing. The first EIA report should be made available to the affected villages in Marathi language and taking note of this, All the present villagers were announcing that the chairman should suspend this public hearing.	All statutory requirements as per EIA notification are followed in the public hearing process. This query is already replied (Please ref. reply no. 2.)	No Action required
10.	Mr. Korde, Resident Nagpur objected that the presentation is also completely wrong. Also, those who are sitting here do not know English. Similarly, many English words are used in this presentation. Air, Water, Soils, Hydro Geology is far beyond the understanding of the common man. Kindly make the presentation in Marathi, else change the Environmental Advisor. We don't want this blacklisted consultant.	The chairman already opined earlier that since the presentation is in Marathi people can very well understand it.	No Action required

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
11.	Local Women present in the meeting objected that Environmental Impact Assessment Documents Were not available to some Gram Panchayats. Local farmers here cannot understand English. It is necessary to make the Marathi EIA report available before conducting this public hearing. However, all the women present here wish that this public hearing process should not be continued.	As per EIA Notification 2006, as amended. Hard and Soft Copies of EIA-EMP report along with Executive Summary in English and Marathi being vernacular language was made available and circulated in 34 Gram-panchayat within 10 KM study area. (Pls. refer PH proceedings Pg. 2 & 3) prior Public Hearing. The presentation during public hearing was made in Marathi Language only. All statutory compliances are followed during for Public Hearing.	No Action required
12.	Group of women demanded that Gram Panchayat Members, Sarpanch are present. They should know what is written in the report. What are contends in the English report should be in Marathi, so that we people can understand it. The women in groups started shouting the slogans of Stop the Meeting.	Coordinator, Environmental Public Hearing Panel informed & humbly requested to all participants that if the EIA report is not made available in Marathi in this regards it is noticed that, The public hearing notice was published in Marathi and English daily newspapers 30 days prior in daily News Paper Marathi Dainik Lokmat & Daily English News Paper The Times of India in which the objections/suggestions/opinion/comments were called regarding the said proposed project in written/orally/through e-mail. However, no objection has been received in this regard in our office.	No Action required
13.	Local farmers, Dahegaon Gram Panchayat, Taluka-Kalameshwar, District-Nagpur and Director, Agricultural Produce Market Committee, Kalameswar, District-Nagpur said that they have signed attendance sheet Under Protest.	The Regional Officer, M.P.C. Board & Member, Environmental Public Hearing Panel, said that this public hearing is as per EIA notifications are conducted for the public.	No Action required
14.	The women group collectively demanded that the EIA should	As per EIA Notification 2006, as amended. Hard and Soft Copies of	No Action required

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	be made available in Marathi, some period/time should be given to people for study and then this public hearing should be held. All present asked to stop the public hearing.	EIA-EMP report along with Executive Summary in English and Marathi being vernacular language was made available and circulated in 34 Grampanchayat within 10 KM study area. (Pls. refer PH proceedings Pg. 2 & 3) prior Public Hearing. The presentation during public hearing was made in Marathi Language only. All statutory compliance are followed during for Public Hearing.	
15.	The womans present objected that the quality of life of the people will be affected by the mining. The mine will increase the frequency of earthquakes here and may damage agriculture and water. Vena Dam is near the project site. All attendees started opposing the proposed project.	Proposed Gondkhari Coal Mine is underground coal mining project. Being it is U/G project no significant impact on agriculture is envisaged. Seismically the area falls under Zone-II which is seismically stable zone. The Land Subsidence 3D modeling studies were conducted by CIMFR. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface, remain unaffected. Details are already clarified in point No. 4 above.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr.

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
16.	Some women asked that underground coal mining will take place in 2100 acres which included Amravati Highway, Ordnance Factory, water ponds, sanctuaries, but false information is give in the report. In the report, only two lakh population is stated, which is totally wrong.	The detailed information environmental sensitive receptors in details are provided in EIA-EMP report (Ch. 1, Table 1.1). The information regarding population within study area is based on Primary Abstract Census, 2011. The method of mining is underground and it will be will be carried out in allotted 862.00 ha area only.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
17.	All men and women repeatedly demanded to announce the cancellation of public hearings. They demanded that	Chairman, Environment Public Hearing Panel said that no decision can be taken regarding the meeting as long as the participants	No Action required

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	Chairman, Environment Public Hearing announce the cancellation of the public hearing.	desire to speak. Participants said that they will not go until the hearing is cancelled. Chairman opined that as long as the people present here are expressing their views and opinions, the proceedings of the public hearing cannot be stopped.	
18.	Chairman of the Environment Public Hearing Panel asked the gathering if anyone wanted to speak.	There was huge shout "NO" from the people.	No Action required
19.	Shri Sunil Kedar, MLA remarked that first make available the EIA report Marathi, then only proceed for public hearing.	This query already clarified as per Reply no. 2.	No Action required
20.	MLA Shri Anil Deshmukh stated that I informed the Authorities that there are Marathi speaking people in all areas. However, all information about the project should be made available in Marathi only. I have objections regarding the said project and read out memorandum submitted to the Panel.	This query already clarified as per Reply no. 2.	No Action required

TABLE 7.2
WRITTEN OBJECTION/SUGGETIONS/QUERIES SUBMITTED BY PUBLIC AND RESPONSE BY M/S APML
(THE MPCB, RO OFFICE HAS RECEIVED WRITTEN REPRESENTATION WHICH ARE PONINTWISE REPLIED BY M/S APML)

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
1.	**Name:** Deepak Dikshit (Director), Prakruti Foundation (Chandrapur)		
	The foundation has requested to Sub-Regional Officer MPCB Nagpur for video recording of Public Hearing Proceeding.	The video recording done for entire PH proceedings and it is made available at MPCB, Nagpur office.	No action required.
2	**Name:** Anil Deshmukh, Former Home Minister Govt. of Maharashtra.		
	1. As the area in the said mine falls within the metro region and NMRDA is planned for implementation of the same within the next 100 years.	1. This is underground mining project having an area of 862.00 Ha. **out of which only 18 Ha. land will be utilized for surface activities** and rest of 844 Ha. land will be underground mining operation. Hence, no significant impact envisaged on Govt. long term planning.	All recommendations in Land Subsidence studies given by CIMFR will be implemented. The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	2. There is vena reservoir in the mining area and the water of the reservoir is used for drinking purposed in and around the mining lease area as well as Ordinance factory (Central Defense Department).	2. Vena reservoir falls outside the ML area at distance of 4.2 Km west direction from ML boundary. The Land Subsidence 3D modeling studies conducted by CIMFR. Based on study conducted there is no land subsidence envisaged. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla. two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface.	
	3. Also, a large amount of land will be acquired for this mine and the villages and houses will be rehabilitated due to which people will have to suffer. Due to this, the citizens of this area are strongly opposed to this	3. This is proposed UG mining project in which no R&R are involved and hence no displacement of people are envisaged.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	underground coal mine.		
3	**Name :**Sunil Kedar MLA Saoner, Nagpur		
	1. The villagers have expressed their displeasure with the proposed quarry and they are demanding that the proposed mine should not be located at Village Gondkheri. The above area is close to Nagpur city and the main occupation of villagers is farming. The area is designated as protected forest area.	1. This is UG mining project hence no impact on farming is envisaged. No forest area will be disturbed due to mining activities.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. Greenbelt Development including biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	2. Mining at the proposed site could have adverse effects on forest corridors and forest areas, destroying forest habitats and trees, thus negatively impacting their populations and their ability to move through the landscape.	2. As per CIMFER studies maximum tensile strain at the surface of 2.95 mm/m which is very less would not affect the forest area.	
	3. Coal mine activities such as blasting, mining and transportation can cause pollution and contamination and harm their operations.	3. There will not be any ground vibrations due to blasting as Long Wall operations will be carried out with cutting technology only and no blasting envisaged.	
	4. On 03 July 2023, the buffer area of Bor Tiger Reserve has come under the unified control of the Tiger Reserve and the total area of Bor Tiger Reserve is 816 sq. km has been done. The possibility of wildlife leaving the forest due to blasting, land alteration and noise cannot be ruled out.	4. This is underground mining project. No forest area will be disturbed due to mining activities. The total mining area is 862.00 Ha. out of which only 18 Ha. land will be utilized for surface activities and rest of 844 Ha. land will be underground mining operation. Hence, no significant impact envisaged on wildlife.	
	5. It may deplete the ground water level thus depriving the farmers and villagers of the area of water.	5. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report regarding ground water depletion. CHR report is prepared for obtaining CGWA permission. There will not be any impact on the surface water bodies of the area.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	6. Air and water Pollution is a major issues of coal mine.	7. This is underground mining project no significant Air and Water Pollution issues are envisaged in project activities. Impacts due to fugitive emission and transport activities are identified and EMP is proposed to minimise the air impacts. ETP 10 KLD is proposed to treat mining workshop water. Whereas 50 KLD STP is proposed to treat domestic wastewater. The treated water will be used in plantation. Thus there will not be adverse impacts due to project on water regime of the area.	
4	Sunil Gayakwad, Farmer Vyahad, Nagpur		
	1. He has an agriculture area within the mine lease and his family is fully depended on this. Due to proposed mining activities there will an effect on Water quality.	1. This is underground mining project. There will not be adverse impacts due to project on water quality of the area. Daily quantity of dewatering from UG mine will be 452 KLD which will be utilised for mining and ancillary activities within project area. No water will be discharged outside. There will not be any adverse impact in water quality outside project area.	
5	Prakruti Foundation Shop no. 5 Kannamvar Bhajat Bhawan Chandrapur		
	1. The impacts on air quality would be huge. Even the emissions released from the stack during the operation will cause severe air pollution and would hugely impact the air quality. The fugitive dust emissions from raw materials handling areas would be extremely high.	1. This is underground mining project, hence issues of fugitive emission are minimum. No stack is proposed in the project. Regular water sprinkling will be carried out within operational area.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring
	2. The Water quality/Water level/Water quantity will be impacted due to mining activities. No monitoring shall be done by PP after commencement of the project.	2. Periodic monitoring of water will be carried out by M/s APML after commencement of the project. Details of monitoring are provided in Ch. 6 of EIA report.	
	3. Due to blasting the water in the lakes would be depleted because of vibration of blasting.	3. No blasting envisaged in the project.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	4. The proposed project would be sourced water from various rivers like Saptdhara, Vena canal, Devadkasa Nala, Ghordyo and Surabardi ect. And it will directly impact on the availability of water which is being used by villagers.	4. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report regarding ground water depletion.	Cost Rs. 0.05 Cr. Greenbelt Development including biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	5. These water bodies are already hugely polluted at present.	5. No water will be contaminated due to proposed mining activities.	
	6. Major noise arising out of electric motors, Loading section etc would cause severe noise pollution.	6. As the mining operations will be carried out in underground, there will be no significant impact on the ambient noise levels.	
	7. The project would also be cause of concern for even the land environment. Exiting Quality of soil is already beyond the prescribed limit.	7. Being UG mine, no impact on soil quality envisaged due to project activities.	
	8. The fugitive emissions and transportation activity would impact the terrestrial flora. Solid waste management and mitigations measures are not properly described in the EIA.	8. Water sprinkling will be carried at surface operation area within ML area. Traffic management plan will be implemented, no significant impact on terrestrial flora is anticipated.	
	9. There is no progressive afforestation plan proposed to be implemented by PP along with road and infrastructure as well as the embankment land.	9. Plantation will be carried out within 2 Ha. of land area.	
	10. Industries in MIDC area near Gondkhari, there are sever environmental problems, particularly issue related to air, water as well as noise pollution and they are of immediate concern.	10. No significant impact on surrounding environment is anticipated.	
	11. The environment management plan and the post project monitoring submitted by proponent is just with a view to obtain the environmental clearance at the cost of lives of citizens.	11. The EMP will be implemented as given in EIA report.	
	12. The objector submits that no environmental clearance	12. 12. The EIA-EMP report is prepared in line with	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	and CTO can be granted on the strength of a proposal which is totally undeserving and unworthy. The PP has made vague and irresponsible statements in the proposal summary with a view to prejudice this Hon'ble Authority as well as GOI and MoEF&CC. The said opportunity of hearing deserves to be granted to the objector in view of specific provision of hearing envisage them EIA notification.	EIA notification, 2006 as amended and ToR granted by EAC (Coal Mining Project), MoEFCC, New Delhi. All statutory requirement will be fulfilled before commencement of mining activities.	
6	1.Vanit Bai Galmale. 2. Mr. Manoj Subhekar 3. Mr. J. Vi. Chimote Sarpanch, Up Sarpanch And Gram Vikas officers Gram Panchayat Nildoh, Block HIngna District Nagpur		
	1. Pollution will increase to a large extent due to the said project.	1. This is underground mining project. Site specific EMP will be implemented to curb the pollution wrt various environmental components	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. Greenbelt Development including biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	2. Employment should be given to local villagers and nearby area.	2. The total employment requirement for the project is 863 Nos. Priority for employment will be given to local people.	
	3. It is not clear whether the project will lead to rehabilitation or not.	3. No R & R plan involved in the project	
	4. There is no record of how many areas will be affected by the project and in which areas and whether the local people will get compensation or not.	4. No livelihood of the local people will be affected due to proposed project activities. In fact employment will be generated in the surrounding areas.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
8.	Laxmikant Devidas Kirpane Plot no. 505/A, Ner Sakkardara, Nagpur		
	1. How is my field survey affected by this coal mines industrial project?	1. This is underground coal mining project, surface activities will be carried out only in 18 ha. Surface rights will be acquired by APML from existing land owners for 18 Hec area, as per prevailing norms.	
	2. A color map of the entire area affected [and] [edited] of this industrial project should be furnished to me with complete information and I am ready to pay the cost as per Government rates for the information furnished.	2. The detailed layout plan of 18 Ha. are already provided in EIA report.	
	3. Due to this coal mining industry, the water table in the ground is going to be very deep in the ground level and the farm land is not suitable for agriculture.	3. Proposed Gondkhari Coal Mine is underground coal mining project. Being it is U/G project no significant impact on agriculture is envisaged.	
	4. As coal dust will spoil the texture of agricultural land, you are requested to avoid allowing the above coal mines to be built in this area.	4. The mining operation will be underground and ROM will be transferred to nearest railway siding through covered truck, periodic water sprinkling will be carried out, thus negligible impact will be anticipated.	
9	Mangla Yogeshwar Ragit Sarpanch, Village Drugdhamna Nagpur,		
	1. If coal manganese is not found within the limits of the village Dugdhamana should be excluded from this project without causing unnecessary problems to the people of the village.	1. This is UG mining project, thus mining will be underground and carried out in designated area as per plan.	
10.	Indrayanitai Suresh Kalbande, Sarpanch, Digdoh, Nagpur		
	1. Pollution will increase to a large extent due to the said	Already replied in query no. 7	The EMP Cost

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	project. 2. Employment should be given to local villagers and near by area. 3. It is not clear whether the project will lead to rehabilitation or not. 4. There is no record of how many areas will be affected by the project and in which areas and whether the local people will get compensation or not.		Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. Greenbelt Development including biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
11	Mamta Suresh Dhopte. Member District Panchayat, Ramkrishna Sabhagrah Javad, Wadi Nagpur		
	1. Nagpur is included in the list of villages but actually the notice does not clarify that this village is actually a mine affected village. 2. The people have a solid foundation in this place, people have solid houses in this place and also the water supply to this village is coming from Vena Reservoir in Godil area.. 3. There is a possibility that the Vena Reservoir will be	1. The lease over an area of 862.00 Ha is located in Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna, Tehsil – Kalmeshwar, District - Nagpur, Maharashtra. 2. No impact on solid structure as per land subsidence studies. 3. This is underground mining project no significant Air and Water Pollution issues are envisaged in project	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Waste Water Management, Sedimentation Tank including Wheel Washing System Capital Cost Rs. 0.75 Cr. & Recurring Cost Rs. 0.5 Cr Air Quality Management, (Dry fog Dust suppression system)

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	polluted by the proposed mine at Goad. 4. The health of the residents of Dalamiti will be threatened and also the underground coal mine at Goud will hollow out the Mouja Davalamati Babil underground mine. 5. There is a big possibility that even a large population will be affected directly and indirectly and their lives will be threatened. However, the people of Davlameti village and I are against this mine. It is a request that permission should not be given to the said mine.	activities. ETP 10 KLD is proposed to treat mining workshop water. Whereas 50 KLD STP is proposed to treat domestic wastewater. The treated water will be used in plantation. 4. No impact will be anticipated in the surrounding villages due to mining activities as per land subsidence studies conducted by CIMFER 5. Preference will be given for locals for employment .	Capital Cost Rs. 1.6 Cr. & Recurring Cost Rs. 0.3 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
12	**Name:** Rekha Narendra Varthi, Member Panchayat Samiti Nagpur, H.Np. 34, Dugdhamna Post Davlameti District Nagpur		
	Mauje Drugdhamana is an entire rural area and agricultural industry for the livelihood of common citizens. Earns a living by working in an ordnance factory. The citizens of Drugadhamna village will not benefit from this mine. The question of his livelihood will arise. Due to this mining, pollution will be created, and rainfall will be affected, soil will become hollow in future, farmers will not be able to do farming in future. The possibility of water scarcity cannot be ruled out.	This is underground mining project. Site specific EMP will be implemented to curb the pollution wrt various environmental components. The total employment requirement for the project is 863 Nos. Priority for employment will be given to local people	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
13	**Name:** Shailesh Narayan Thorane, Member Vadi Sheher Congress party, Maroti Nagar Vadi Nagpur		
	In most of these areas, the area is being used with proper permission. Also, when permission was sought in the	All statutory requirement will be fulfilled before commencement of mining activities.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	relevant department for the relevant area, the said Gondkhairi underground coal mine has not been mentioned anywhere. However, we request you to provide a copy of the map and related documents of any village located in Gondkhairi underground coal mine		
14	**Name:** Mrs. Pranita Kadu, Member of District Panchayat, Davlameti Circle District Nagpur		
	1. The said underground mine will be in 832 hectares and since the area of said mine is in the metro region, the next 100 years N. M. R.D.A. is planned.	1. This is underground mining project having an area of 862.00 Ha. out of which only 18 Ha. land will be utilized for surface activities and rest of 844 Ha. land will be underground mining operation. Hence, no significant impact envisaged on Govt. long term planning.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	2. There is Vena Reservoir in the mining area and the water of this reservoir is used for drinking in all the villages on Amravati Road and all the villages coming in the mining area. There is an ordnance factory in this area and it is related to the conservation department of the center and the water of this reservoir is also used in this ordnance factory and all parts of the mine area are semi-urban and densely populated.	2. There is no Vena reservoir within ML area. The Land Subsidence 3D modeling studies conducted by CIMFR. Based on study conducted there is no land subsidence envisaged. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla. two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	3. A large amount of land will be acquired for this mine and the villages and houses will be rehabilitated due to which people will have to suffer. We are against this underground coal mine.	3. This is underground mining project. No forest area will be disturbed due to mining activities. The total mining area is 862.00 Ha. out of which only 18 Ha. land will be utilized for surface activities and rest of 844 Ha. land will be underground mining operation. Hence, no significant impact envisaged on wildlife.	
15.	**Name:** Mrs Sulochna Sidharth Dhoke, Member Panchayat, Plot no 164 Butle Lay Out, Hiltop Colony Davalameti Nagpur		
	Village Mauja Davlameti under my Panchayat Samiti circle. Dist. Nagpur is included in the list of villages. But actually the notice does not explain that this village has been broken down into a direct and indirect mining affected village. The population of Davlameti village is thirty to thirty-five (30-35) thousand and there is a solid settlement of people in this place. People have solid houses in this place and water supply to this village is from Vena Reservoir in Gondkhari area. Also, Davlamite and other secondary minerals have been produced in Davlamati area for some years. The proposed sinkhole at Gondkhari is likely to pollute the Vena Reservoir and endanger the health of the residents and also the underground coal mine at Gondkhari will hollow out the underground area at Mauja Dawlameti. Dolomite and other secondary minerals have been mined in this area and there is an ordnance factory in this area and there is also a gunpowder storage project in the middle of Davlameti and Gondkhari village.. However, due to the said mine there is a great possibility that such a large population will be directly and indirectly	No R& R plan involved in the project	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	affected and their lives will be threatened. However, the citizens of Davlameti village and myself. There is opposition to this mine. It is a request that wages should not be given to the said mine.		
16.	**Name:** Shri Vipul Jadhav, Deputy CEO Zila Parishad , Civil Line Nagpur		
	Forwarding letter from Dy. CEO Zila Parishad Nagpur to VDO of panchayat samittee Nagpur/ Kalameshwar/Hingna regarding the availability of Executive summary (English and Marathi), EIA, EMP report, copy of newspaper advertisement and CD from the project owner to register their suggestions, thoughts, criticisms, comments, objections in oral or written from local stakeholders.	Noted	
17	**Name:** Smt. Vanita Narayan Thorane Maroti Nagar Wadi, Nagpur		
	Uparwahi village falls under Gondkhari underground coal mine but how much area of village is under mining not mentioned, the entire agriculture area will be destroyed due to mining.	This is underground mining project, no R& R plan involved in the project activities	
18	**Name:** Shri Avinash Dhanraj Parthi Dy. Chairmen panchayat Samittee Dhamna, Ling		
	As the area in the said mine falls within the metro region and NMRDA (Nagpur Metropolitan Region Development Authority) is planned for implementation of the same within the next 100 years. There is vena reservoir in the mining area and the water of the reservoir is used for drinking purposed in and around the mining lease area as well as Ordinance factory (Central Defense Department). there is no proposal for improvement of villagers, farmers and agriculture.	Queries already covered in Reply no.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
19	**Name:** Smt. Vandnatai M. Thuderkar Sarpanch Gram Panchayat Dhamna Dhamna, Linga		
	As per the proceeding of Grampanchayt Dhamna, Linga that mining should not be done in this area has been approved.	- Noted	
20.	**Name:** Shri S.M. Chopane Green Planet, Nagpur		
	1. We should promote Solar energy or other renewal energy resources and quickly stop coal energy. The coal is responsible for climate change and extreme weather events which has huge impact on GDP and economic loss.	1. The Mining block is allotted by MoC, Govt. of India, as on date Coal is the most important and abundant fossil fuel in India. It accounts for 56.42% of the country's energy need.	
	2. Vibration is a major issues in Manual and mechanical digging for coal. Need to do a detailed study on the "Effects of vibration on the ground and underground wildlife such as reptiles, birds and animals. Air and water Pollution is a major issues of coal mine.	2. This is underground mining project. The mining working depth ranges from 169m bgl to 394m bgl activities. No blasting involved in the project. hence, no significant impact anticipated on wildlife.	
	3. Though the Coal mine is underground pollution from transportation is high. Trampoline covered trucks make more noise and dust pollution Coal mines have many social and environment problems. So I request govt and chairperson not to give Environment and forest clearance and all the permissions to start the mine	3. Traffic management plan will be implemented. The transportation of ROM will be carried out through covered truck upto nearest railway side located at Kalmeshwar.	
21	**Name:** SMT Mangla Yogeshwar Ragit Sarpanch , Dugdhamna, Nagpur		
	1. Air Pollution:- Due to air pollution, people's health is in danger: People fall victim to various diseases.	1. This is underground mining project, hence issues of fugitive emission are minimum. No stack is proposed in the project. Regular water sprinkling will be carried out within operational area.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Greenbelt Development including biological conservation plan
	2. Water Quality:- Decreasing water level on ground water and the quality of water deteriorates and people suffer	2. Periodic monitoring of water will be carried out by M/s APML after commencement of the project. Details of	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	from various diseases happen	monitoring are provided in Ch. 6 of EIA report. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report regarding ground water depletion and no water will be contaminated due to proposed mining activities.	Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr Waste Water Management, Sedimentation Tank including Wheel Washing System Capital Cost Rs. 0.75 Cr. & Recurring Cost Rs. 0.5 Cr Air Quality Management, (Dry fog Dust suppression system) Capital Cost Rs. 1.6 Cr. & Recurring Cost Rs. 0.3 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	3. Biological system will be disturbed	4. No surface area will be disturbed due to proposed mining except only 18.0 ha area for mine entry and infrastructure development. Plantation will be carried out within 2 Ha. of land area which enhance the biodiversity of the surrounding area, hence no significant impact on biodiversity is anticipated.	
	3. The population is about 3500 and if the land, houses and land of the people of the village are acquired, the compensation should be huge. Household members should get jobs or not.	5. There is no R&R involved in proposed mining and total 863 nos. man power will be required during the mining activity and preference will be given to local villages.	
22	Umesh Ambedkar Sarpanch, Gujri Chock		
	The problem of crop damage to the neighboring farmers, the possibility of many rare diseases to the citizens and the possibility of earthquakes cannot be ruled out.	Periodic health check will be done under the CSR programme in and around the mining lease area. The Land Subsidence 3D modeling studies conducted by CIMFR. Based on study conducted there is no land subsidence envisaged. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the surrounding.	
23	**Name:** V. Sunanda Reddy , Dharithri Paryavarana Parirakshana Samstha (President) Shivaji Nagar Nalgonda District, Telangana State		
	Supported the Project 1. I, V. Sunanda Reddy, age of 66 years. one of the healthiest senior most Industries support environmentalist in India. My best wishes and support to the Management. I am the first environmentalist in India to support sustainable Industrial development.	Noted with thanks	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	2. In my opinion unemployment is the major pollution to society. Environmentalists and NGO's are blaming industries for degrading public health. Only 15% of Indian population lives in the surroundings of Industries activity areas. It is not correct to blame the industries alone for causing health hazards. Remaining 85% population is also facing so many health problems without industrial pollution effects. 3. It is the time to address the need for industrial development along with protecting ecological balance.		
24	**Name:** Devanand Daulatrao Kolhe (Member District Council), Daulart Rao Kolhe, Gondhairi Circle Nagpur		
	Under my Zilla Parishad, Circle Gondkhairi, 14 villages each fall under Badhi mining area. It includes 7 irrigation ponds. Nimji reserve forest, warehouses, small scale industries, two national highways, roads of Mukhyamantri Yojana, as well as village roads of Zilla Parishad. These are part of Metro Citizen, government has spent crores of rupees on development work. Due to this mine, aquatic life, water, animals and birds will be damaged to a large extent. The amount of pollution in the environment will increase. This will make it difficult for humans to survive in the future.	This is underground mining project no significant on Air and Water Pollution and forest issues are envisaged in project activities. Periodic monitoring of air, water, soil, noise, health will be carried out by M/s APML after commencement of the project. Details of monitoring are provided in Ch. 6 of EIA report. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
25.	**Name:** Vijay Santoshrao Nimbalkar and Mayavati Deshpande, Sarpanch, Dahegaon, Nagpur		
	There will be huge damage to people's houses and agriculture. The noise and air pollution will be huge. The drinking water will be contaminated and there will be shortage of water. There are a lot of wild animals and trees in this area and people of all the villages are very angry for	1. The Land Subsidence 3D modeling studies conducted by CIMFR. Based on study conducted there is no land subsidence envisaged. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the surrounding.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	this.	2. This is underground mining project no significant Air and Water Pollution issues are envisaged in project activities.	
26	**Name:** Anand Rao Charantash Shende, Sarpanch Saholi, Saholi Kalmeshwar Nagpur		
	Due to this, the people of the village will have to look at their houses whose houses are made of slap. Also noise pollution and air pollution will be on a large scale. Also the drinking water will be contaminated. All houses will be damaged. There are wild animals and trees in this area and people of all the villages are against of projects	1. There will not be any ground vibrations due to blasting as underground Long Wall operations will be carried out with cutting technology only and no blasting envisaged. 2. This is underground mining project no significant Air and Water Pollution issues are envisaged in project activities. 3. No water will be contaminated due to proposed mining activities. 4. As the mining operations will be carried out in underground, there will be no significant impact on the ambient noise levels.	
27	**Name:** Sudhir Paliwal Vidarbha Environmental Action Group Nagpur Convener, Lokmat Square, Dhantoli Nagpur		
	1. The (CEA) has updated projections on India's energy mix for the power sector in 2030. India generated 73% of its power from coal in 2022-23. The CEA expects this to go down to 55% by 2030. As per Paris Agreement of 2015 India has committed to meet 50 percent of its energy requirements from renewable energy by 2030 in order to achieve global warming reduction. 2. There are several water bodies in the vicinity and these water bodies are main source of water for irrigation and drinking. Ambajhari Ordnance factory and Hingna MIDC are supplied water from Vena Dam. The same will destroy after commencement of the project	1. The Mining block is allotted by MoC, Govt. of India, as on date Coal is the most important and abundant fossil fuel in India. It accounts for 56.42% of the country's energy need. 2. Vena reservoir falls outside the ML area at distance of 4.2 Km west direction from ML boundary. The Land Subsidence 3D modeling studies conducted by CIMFR. Based on study conducted there is no land subsidence envisaged. The predicted maximum tensile strain at the	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. Greenbelt Development including

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
		surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla. Vena dam along with two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface.	biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr Waste Water Management, Sedimentation Tank including Wheel Washing System Capital Cost Rs. 0.75 Cr. & Recurring Cost Rs. 0.5 Cr Air Quality Management, (Dry fog Dust suppression system) Capital Cost Rs. 1.6 Cr. & Recurring Cost Rs. 0.3 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	3. The agriculture in surrounding villages will be destroyed due to pollution caused by coal mining as the coal will be transported by road. The ore burden will also destroy fertile agricultural land..	3. This is underground mining project, site specific EMP will be implemented, hence insignificant impact on surrounding impact will be anticipated	
	4. The proposed project will give employment to only 863 persons whereas thousands of farmers will lose their livelihood.	4. This is underground project	
	5. The workers' health will be harmed from exposure to coal through the breathing of coal and silica dusts.	5. This is underground coal mining project, surface activities will be carried out only in 18 ha. Surface rights will be acquired by APML from existing land owners for 18 Hec area as per prevailing norms.	
	6. Studies on pollution from coal mines have revealed elevated levels of potentially toxic elements in surface waters.	6. Wastewater from mining workshop will be treated in ETP (Cap. 10 KLD). Whereas domestic wastewater will be treated in STP (Cap. 50 KLD). The treated water will be used in plantation. No wastewater discharge in surrounding water bodies	
	7. Thousands of people will be forced to flee due to buildings collapsing, ground subsidence, mine fires or other accidents.	7. No impact will be anticipated in the surrounding villages due to mining activities as per land subsidence studies conducted by CNIMFER	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	8. There is no R&R policy given in the EIA report 9. The report prepared as per Census 2011 report, in which Nagpur and Kalmeshwar cities were not highly populated. 10. The project proponent has not obtained NOC from Nagpur Metro Region Development authority.	8. No R& R plan involved in the project 9. Census 2011 data only available in public domain accordingly population data are given in the report. 10. All statutory clearances will be taken before commencement of mining activities.	
28	**Name:** Mrs Hiratai Sahare, Sarpanch Nagalvadi Hingna Nagpur, Nagalvadi Hingna Nagpur		
29	**Name:** C.P. Mulge, Secretary Gram Panchayat Nagalvadi, Nagalvadi Hingna Nagpur		
	Health issue envisaged due to environmental pollution/conditions so opposed the project.	Site specific EMP will be implemented. Hence, insignificant impact will be anticipated on surrounding environment.	
	Due to mining activities there will be adverse impact on health of nearby villagers and it also will impact on environment conditions.	Periodic health check will be done under the CSR programme in and around the mining lease area Periodic monitoring of air, water, soil, noise will be carried out by M/s APML after commencement of the project. Details of monitoring are provided in Ch. 6 of EIA report. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report.	
30	**Name:** Mrs Bharti Anil Patil, Former Chairman, Education and Finance Committee and G.P. Member Sonegaon (Nipani) Circle, Distt. Nagpur Sonegaon (Nipani) Circle, Distt. Nagpur		
	In the next upcoming 100 years there is planned for NMRDA. The water of exiting water body is being used for	1. This is underground mining project having an area of 862.00 Ha. **out of which only 18 Ha. land will be**	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	domestic and drinking purposes in all the villages coming in the mining area. The water of this reservoir is also being used in this ordnance factory. We are opposed to this underground coal mine as it will result in the rehabilitation of villages and houses and the people will have to suffer.	**utilized for surface activities** and rest of 844 Ha. land will be underground mining operation. Hence, no significant impact envisaged on Govt. long term planning. All statutory clearances will be taken before commencement of mining operation	
31	**Name:** Mr. Ishwar Ganwir, Sarpanch Surabardi, Surabardi Nagpur		
	1. Air pollution:- Due to air pollution, people's health is threatened and people fall victim to various diseases. Water quality:- Water level on the ground water level decreases. Depletion of natural resources. Unconventional Mission Training under Gram Panchayat Surabardi The center is coming and the jawans are being trained there. The International Gondwa Museum is being built at Surabardi and it cannot be denied that it will be damaged due to this quarry.	In order to evaluate the impacts from proposed Gondkhari Coal mining project activities on health of workers, baseline health studies will be conducted on every worker before joining their duties. Besides this site specific EMP will be implemented	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
32	**Name:** Shashikal Na. Invnaataiy, Sarpanch Wardhamna, Village- Wardhamna, Nagpur		
	1. Employment should be given to the local citizens in the said project. 2. There is no clarity about whether the project will lead to rehabilitation or not. 3. Due to the said project, the pollution will increase to a large extent condition. 4. How many areas will be affected by the project and which areas will be affected It is not recorded in the EIA.	1. The total employment requirement for the project is 863 Nos. Priority for employment will be given to local people 2. No R&R plan involved in the project activities 3. This is underground mining project, site specific EMP will be implemented before commencement of the project 4. Anticipated impact and mitigation measures are provided in Ch. 4 of EIA-EMP report	
33	**Name:** Smt Tejashwani M Dhurve, Sarpanch, Gram Panchayat Sonegaon Nagpur		

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	1. Air pollution:- Due to air pollution, people's health is threatened and people fall victim to various diseases. 2. Water quality:- Water level on the ground water level decreases. 3. Depletion of natural resources. There is vena reservoir in the mining area and the water of the reservoir is used for drinking purposed in and around the mining lease area as well as Ordinance factory (Central Defense Department).	1. This is underground project. Site specific Air pollution related EMP will be implemented 2. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report regarding ground water depletion. CHR report is prepared for obtaining CGWA permission. There will not be any impact on the surface water bodies of the area. 3. Hydrogeological and lake rejuvenation studies done by Srhushti Seva Pvt. Ltd. Nagpur. As per the findings of the report there will not be any adverse impacts on the existing lakes (2 Nos.) because the lithology of the area below the lakes is impervious formation i.e. basalt and the workable coal seams are very deep (169 M BGL). More over as per the CIMFER, Dhanbad subsidence studies there is no impact on the surface features of the study area. As per mine plan there will not be any mining work below the water bodies and existing roads. Thus from the above it is evident that the existing water bodies will remain intact.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Waste Water Management, Sedimentation Tank including Wheel Washing System Capital Cost Rs. 0.75 Cr. & Recurring Cost Rs. 0.5 Cr Air Quality Management, (Dry fog Dust suppression system) Capital Cost Rs. 1.6 Cr. & Recurring Cost Rs. 0.3 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
34	**Name:** P.M. Bhoyar, Sarpanch Gram Panchayat Peth (Kaldongri), Gram Panchayat Peth (Kaldongri) Nagpur		
	1. Depletion in the water table due to mining, No water will remained for other purposes. 2. No production of crops due to pollution.	1. The Kamptee Coalfield is followed by thick Deccan trap formation. The mining depth ranges from 169 M to 394 M maximum. 2. As a part of compliance of statutory requirement PP have obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	3. Water of Vena Reservoir will also be polluted and the same water goes to Wadi for drinking, that water will not be potable 4. Contaminated water will endanger health. Due to mining the warehouse could be closed and the wages will be stopped. The labor of warehouse will face Starvations.	Study of CGWA reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump. The pumping test had been conducted on discharge rate of 518 m3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m^2/day, Storativity is 6.0 x 10 and Hydraulic conductivity is 2.88 m/day. 3. Please refer reply no. 33. 4. No water contamination anticipated due to UG mining project.	
35	**Name:** Umeshsingh Rameshsing Rajput, Vice Chairman , Hinga Panchayat Society, Hingna Nagpur		
	1. In present while drilling borewells, water is available up to 500 to 600 feet. If coal mining takes place, the citizens of this area will have to be deprived of water.	1. 1.The Kamptee Coalfield is followed by thick Deccan trap formation. The mining depth ranges from 169 M to 394 M maximum. As a part of compliance of statutory requirement PP have obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023. Study of CGWA reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
		exploited in the study area, mostly by dug well and hand pump. The pumping test had been conducted on discharge rate of 518 m3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m2/day, Storativity is 6.0 x 10 and Hydraulic conductivity is 2.88 m/day.	
	2. The mining project will pose a threat to the lives of the citizens due to the pollution in the future.	2. This is underground mining project no significant Air and Water Pollution issues are envisaged in project activities. Impacts due to fugitive emission and transport activities are identified and EMP is proposed to minimise the air impacts.	
	3. Metro work is in under progress near the mining site	3. All statutory requirement will be fulfilled before commencement of mining activities.	
36	**Name:** Sanjay Ramkrishna Ji Jagpaat, Council District Nildoh, Wardhamana District Council		
	1. In present while drilling borewells, water is available up to 500 to 600 feet. If coal mining takes place, the citizens of this area will have to be deprived of water.	1. Pls. refer reply no. 35 (1)	
	2. The mining project will pose a threat to the lives of the citizens due to the pollution in the future.	2. Pls. refer reply no. 35 (2)	
	3. Metro work is in under progress near the mining site	3. Pls. refer reply no. 35 (3)	
37	Rashmitai Dhanraj Ji Kotgule, Council District, Plot no 74 Lokmanyanagar Hingna road Nagpur.		
	1. In present while drilling borewells, water is available up to 500 to 600 feet. If coal mining takes place, the citizens	1. Pls. refer reply no. 35 (1)	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	of this area will have to be deprived of water. 2. The mining project will pose a threat to the lives of the citizens due to the pollution in the future. 3. Metro work is in under progress near the mining site	2. Pls. refer reply no. 35 (2) 3. Pls. refer reply no. 35 (3)	
38	**Name:** Baba Ashtnakar, Former Politician, At post Raipur Hingna Nagpur		
	Along with the above taluka, Sadar Gaon Metro Region (N.M.R.D.A.) is coming down and development works are going on by spending a large amount of funds under the Peri Urban Yojana. The coal that will be burned below the coal mine will be stored in the open space and that coal will also be exposed due to sunlight and rain. As well as the wind, the very fine particles of the said coal will be absorbed into the atmosphere in the above area and will help spread major diseases.	No coal burning envisaged below the coal mine. This is proposed underground long wall coal mining method. The coal extracted from mine will be mainly load to the truck through the hopper. Periodic sprinkling of water will be carried out. Coal will be transported through covered truck only	
39	**Name:** Aam Adami Party, 8 clinar Green ParkTagor Road Civil Line Ngapur		
	1. The Union Power Ministry's Central Electricity Authority (CEA) has updated projections on India's energy mix for the power sector in 2030. In 2022-23, India plans to generate 73% of electricity from coal. The CEA expects this to drop to 55% by 2030. This clearly means that coal-fired thermal power plants will eventually shut down. 2. There are many water bodies in the area like Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake in the proposed mining area, Mordham Dam and Reservoir Suraburdi Lake adjacent, Vena Dam, Jilpi Lake.	1. The Mining block is allotted by MoC, Govt. of India as per there plan. 2. Hydrogeological and lake rejuvenation studies done by Srhushti Seva Pvt. Ltd. Based on study report it is observed that, The Kamptee Coalfield is followed by thick Deccan trap formation. The mining depth ranges	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. Greenbelt Development including

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
		from 169 M to 394 M maximum. Study of CGWB reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump. The pumping test had been conducted on discharge rate of 518 m3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m2/day, Storativity is 6.0 x 10 and Hydraulic conductivity is 2.88 m/day. All recommendations given in the EIA report will be implemented	biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr Waste Water Management, Sedimentation Tank including Wheel Washing System Capital Cost Rs. 0.75 Cr. & Recurring Cost Rs. 0.5 Cr Air Quality Management, (Dry fog Dust suppression system) Capital Cost Rs. 1.6 Cr. & Recurring Cost Rs. 0.3 Cr CER Budget: Rs. 6.50 Cr. Timeframe – 3 Years
	3. Aquifers are the main sources of water for irrigation and drinking. Ambazari Ordnance Factory and Hingana MIDC are supplied with water from Vena Dam. There are 87.351 hectares of prime forest and this forest area has many wild animals like tiger, leopard, chital, sloth bear, wild dog, nilgai etc. which visit the watershed regularly.	3. This is UG mining method, no destruction of forest involved in the project activities.	
	4. If the project gets environmental clearance, the waterways, which are lifelines not only for villagers but also for wildlife, will be destroyed forever.	4. APML herewith assured that no waterways as well as wildlife will be destroyed due to project activities due to implementation of strong mitigation measures.	
	5. The pollution caused by coal mining will destroy the agriculture of the surrounding villagers as the coal will be transported by road. Mineral burden will also destroy fertile agricultural land.	5. Traffic management plan is prepared and shall be implemented before commencement of mining activities.	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	6. The proposed project will provide employment to only 863 people while thousands of farmers will lose their livelihood.	6. This is underground coal mining project, surface activities will be carried out only in 18 ha. Surface rights will be acquired by APML from existing land owners for 18 Hec area, as per prevailing norms. employment requirement for the project is 863 Nos. Priority for employment will be given to local people	
	7. If mining is allowed, workers' health will be harmed from exposure to coal through inhalation of coal and silica dust.	7. The mine management will takes full responsibility for the protection of the workers against sickness, disease and injury arising out of their employment and have adopted certain principles with regard to occupational health services, like establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work.	
	8. Mining will cause significant pollution of water, sediments and soil which will threaten the health of thousands of people living in the region.	8. This is underground mining project no significant Air and Water Pollution issues are envisaged in project activities. Impacts due to fugitive emission and transport activities are identified and EMP is proposed to minimise the air impacts. ETP 10 KLD is proposed to treat mining workshop water. Whereas 50 KLD STP is proposed to treat domestic wastewater. The treated water will be used in plantation. Thus there will not be adverse impacts due to project on water regime of the area.	
	9. The proposed mine is located in Nagpur metro region which is already polluted due to coal based power plants and coal mines.	9. Site specific environmental management plan will be implemented as given in EIA report in order to mitigate	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	10. Tremors from heavy machinery and explosives will damage houses in nearby villages	adverse impact on the environment. 10. This is underground long wall coal mining method in which no blasting is proposed.	
40	**Name:** Chandrashekhar KrishnaRao Ji Pise, Sarpanch Khairi Pannase, Khairi Pannase Hingna Nagpur		
	The submitted EIA should be in Marathi Language.	All statutory compliance as per EIA Notification, 2006 are followed.	
41	**Name:** Arun Utwal and Mayatai Chaure, Nagpur		
	Due to underground mining activities there will be chance of subsidence. While mining Toxic gases can be released. There will be several environmental impact due to mining activities like (Loss of forest, habitat and biodiversity, Soil erosion, GW contamination). There may be chance of fire in the area. Excessive mining close to infrastructure projects loosens the foundation.	The Land Subsidence 3D modeling studies conducted by CIMFR. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla. two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface. It is underground	
42	**Name:** Vinay Bhupendra nath Nagpure, Plot no 206/12, Civil Line, GPO Chowk, Nagpur		
	How much area of my farm (farm survey number 16, 17, 18 Moja Khapari) affected by this coal mines industrial project. A color map of the entire affected and developed area of this industrial project along with complete information should be provided to me. Due to mining activities the ground water table is supposed to go much deeper than the ground level.	This is underground mining project, no farming activities will be affected due to mining activities. The private land having 18 Ha will be only acquired for surface activities.	
43	**Name:** B.K Agrawal, Chartered Accountant, 51 New colony Byramji Town Nagpur		
	The mine is proposed in developed wellbeing, religious, Residential, commercial, sports, and agricultural land. Surabardi Meadows and club is one of them which spread over 30 hectares of land and having 10,000 square meter	Gondkhari Coal Mine is proposed underground coal mining project. Being it is U/G project no significant impact on agriculture is envisaged. Seismically the area falls under Zone-II which is seismically the site is a stable zone. The	

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	civil construction. No record of nearby existing infrastructures is mentioned in the submitted EIA report There will be huge fugitive emissions through staking of coal and coal loading in vehicle and same resulting the environment polluted. The Surabardi lake is source of drinking and irrigation uses for near by villagers. It is proposed in the EIA/EMP report that the water for mining operation uses will be drawn from Surabardi Lake. The ground vibration caused due to blasting operation and may damage, Heritage, Reserve forest, Archeological Places, Museums, Memorials, Wildlife and Safari lands , lakes and water level etc. The subsidence report is prepared for only forest land.	Land Subsidence 3D modeling studies conducted by CIMFR. The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla. two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface.	
44.	**Name:** Chetan Babria, Chandak House, Kh. No. 134, Mauja Suraburdi Nagpur		
	The proposed project located in ECO sensitive area. In the submitted draft EIA report the project is declared non eco sensitive zone. The abstraction of water from lake for Mining operation will diminish the said water source. The villagers are depended on the exiting lake for their domestic and irrigation requirement. The seepage will be huge. The mining activities will affect on surface water body and there will cause water depletion in surface body and exiting abstraction structures. In the core zone and buffer zone, Bazargaon Reserve Forest, Madhogarh Reserve Forest, Gorewada Jungle Safari, Ambajhari Biodiversity are existing. Fauna found in this forest will migrate due to blasting, vehicle movement and other biotic and abiotic interference occur due to mining. he Leopard is sighted here which is listed as vulnerable on the International Union for Conservation of Nature (ICUN) Red list but same is not	There is no eco sensitive area comprises in core or buffer zone of study area. M/s. APML will ensure all precautionary measures to be taken as per recommendations given in report regarding ground water depletion. There will not be any ground vibrations due to blasting as Long Wall operations will be carried out with cutting technology only and no blasting envisaged. This is underground mining project hence, no significant impact on flora and fauna envisaged due to mining activities in surrounding area.	The EMP Cost Capital Cost Rs. 17.50 Cr. & Recurring Cost Rs.1.62 Cr. Out of which budget for Soil Conservation Plan and Pond Rejuvenation Activities is Capital Cost Rs. 0.15 Cr. & Recurring Cost Rs. 0.05 Cr. Water Bodies Conservation Plan Capital Cost Rs. 0.20 Cr. & Recurring Cost Rs. 0.05 Cr. Greenbelt Development including biological conservation plan Capital Cost Rs. 0.2 Cr. & Recurring Cost Rs. 0.18 Cr CER Budget: Rs. 6.50 Cr.

Sl.	Issues/ Queries/Comment/Suggestion	Response/Commitment from Project Proponent	Action plan with time frame and budget
	mentioned in the Draft EIA Report. Ground vibrations are caused by blasting operations, subsidence due to mining operations, deployment of mobile equipment, rock bursts and rock bumps. it will have significant effect on UOTC Centre of Maharashtra Police, which is situated just on the adjoining hilllok adjoining to proposed Incline. Air and Water pollution will there due to mining activities. Please re-submit the EIA covering all the above mentioned issues.		Timeframe – 3 Years

7.2 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

7.2.1 Introduction

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions) that exist in the proposed underground coal mine. Industrial process and activities causes hazards. There may be possible hazards to human beings, flora-fauna and the environment. Extreme care is essential in handling all of them in various stages of processing, transport etc. On the other hand, risk analysis deals with the identification and quantification of risks occurring due to the mine activities, movement of machineries and personnel exposed, due to accident resulting from the hazards in the coal mine.

The main objective of the risk assessment study is to determine damage due to major hazards having damage potential to life and property and provide a scientific basis to assess safety level of the facility. The secondary objective is to identify major risk in mining process, movement of machineries and provide control through assessment and also to prepare on-site, off site plans to control hazards.

Risk for a particular facility is based on the following variables:

- Multiple accident outcomes
- Site specific meteorological data
- Population distribution

Risk analysis is a tool which helps to translate hindsight (accidents) into foresight (planning) showing ways and means (improved engineering, procedure and supervision) to prevent the calculated accident from happening".

7.2.2 Objective of the Study

The main objective of risk assessment study is to determine the potential risks and their likelihood for the proposed activities of the mining and accordingly suggesting the mitigation measures.

This is achieved by the following:

- Identification of probable failure scenarios.
- Identification of specific mine areas which could initiate toxic hazard scenarios during mining activities.
- Identification of worst case scenarios taking into account the safety features to be incorporated in the plant design.
- To asses, the potential risks associated with identification hazards to which the mine, people and outside community may be subjected to.
- Consequence analysis of various hazards to determine the susceptible zones for each probable accident scenario.

7.2.3 Methodology

For carrying out the quantitative risk assessment, following methodology was adopted.

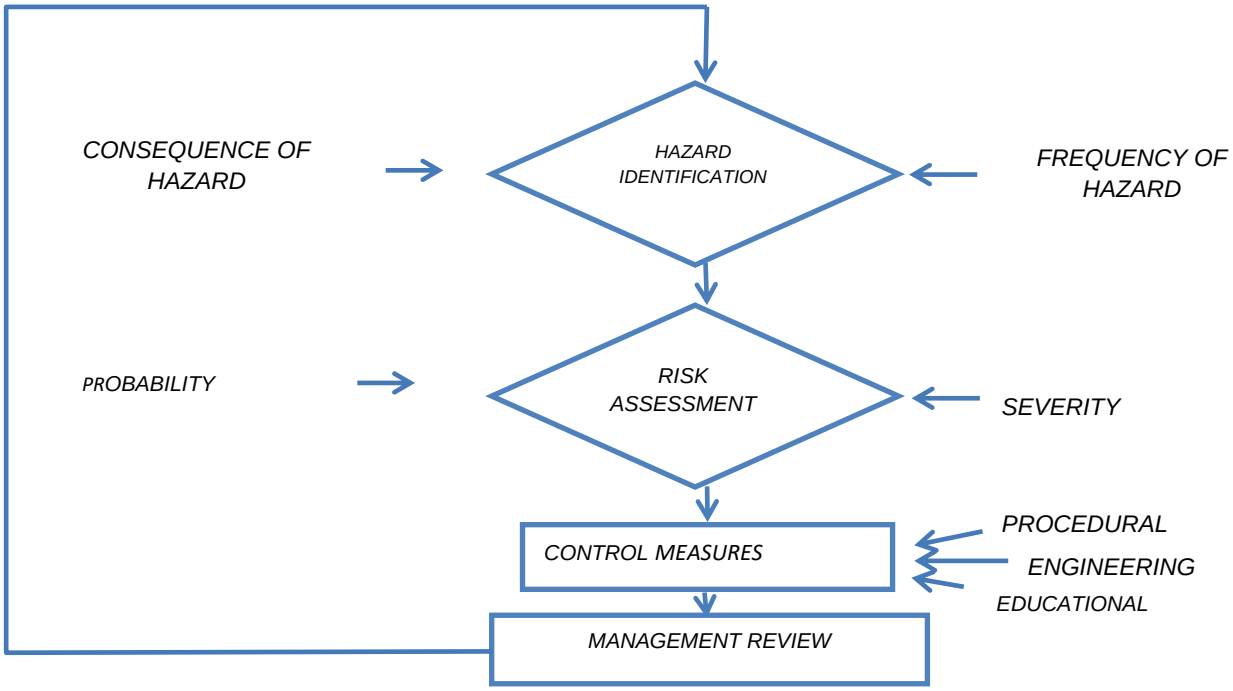


FIGURE 7.1: RISK ASSESMENT AND HAZARD ANALYSIS OF PROPOSED COAL MINE

The proposed underground coal mine will be of following facility:

Sr. No.	Features	Details
1	Capacity	Rated Production Capacity - 2.0 MTPA Peak Rated Capacity - 3.0 MTPA
2	Type of Process	Underground mining: Long wall retreating method with caving by deploying DERDS and Road Headers for tunneling.

The detailed process description of proposed underground coal mine is provided in **Chapter 2, Section 2.7.**

7.3 HAZARD IDENTIFICATION AND RISK ASSESSMENT (HIRA)

It is defined as the process of assessing the risks associated with each of the hazards identified so that appropriate control measures can be implemented based on the probability, i.e. likelihood that harm, injury or ill health may occur and how severe the consequences of exposure might be.

Identification of hazards is an essential step in risk assessment because it results in the generation of accidental scenarios. Once a hazard has been identified, it is important to evaluate the hazard in terms of the risk it causes to the employees and the neighbouring community. In principle, both possibility and consequences should be considered, but there are events where it either the possibility or the consequence can shown to be sufficiently low or sufficiently high, decisions are often made on only one factor.

In underground coal mines, possibilities of hazards like fires, explosion, machinery failures, land sagging, inundation, spontaneous heating, mine gases, Subsidence, etc. needs to be examined and

implementation of their mitigation measures.

7.3.1 Disaster due to Accidental Fire

In underground coal mine, fires can be caused by spontaneous heating of fire or open fires or due to accident. Spontaneous heating is caused as coal absorbs atmospheric oxygen and gets heated if exposed for period longer than the incubation period. Accidental or open fires caused when fuel reacts with atmospheric oxygen. Due to varying thickness of coal seam, there are chances that coal will be left in floor/roof and also seams having thickness of less than 0.9 m. which are not extracted will be left in the mine/goaf, will be a measure source of spontaneous heating. Seam No. IX & X which will be left unworked may get damaged while working lower seams, may cause spontaneous heating in the goaf. The extraction of pillars would commence from the proposed limit of the mine or from natural barrier created by faults. Adequate provision for continuous environment monitoring system with properly trained manpower have been envisaged in this respect.

Fire extinguishers will be installed at selected locations. Sufficient number of water hydrants with sufficient hose pipes will be provided in the surface for fire protection. The appropriate measures for management of fire at coal faces in the mine and coal stockyard would be adopted in the mining phase.

7.3.2 Inundation

Inundation is the most commonly occurring disaster in mines. It may be caused by direct rainfall, seepage from the backfilled areas or flooding of neighbouring drainage systems. It may cause drowning of machineries, collapsing of mine benches, contamination of exposed coals, damage to roads and ramps, etc. However, in proposed mine there is no danger from any river, nalla etc. The RL of incline mouth is +338 m which is sufficiently above the MSL and there is no risk of surface run-offs of nearby area to inclines, especially during rainy season. The prospecting boreholes can be a source of danger because later on these may be connected with u/g workings.

7.3.3 Subsidence

Subsidence is an important aspect of underground coal mining activities. Underground mining operations can give rise to undesirable effect, such as:

- Damage to surface installations, like buildings, railways, roads, water supply pipelines, power line, etc.,
- Cause fractures, on the surface, which may in turn cause flooding of the underground working by drawing water from the sources on the surface.
- Cause damage to other mining installations as well as affect roots of the vegetation.
- Subsidence will occur in the area where full pillar extraction is done and allowed the roof to cave in.

The project is part of Gondkhari coal mine situated in Kamptee Coalfields, Maharashtra. In this block, nine numbers of coal seam are present viz. seam X, IX, VIII, VII, VI, V, IV, III, II, and I. Out of these coal seams, the seam VIII, V, III, and II are workable. Seam VIII is the topmost seam situated at a depth of cover 133-320.27m. The seams V, III, and II are situated at a depth cover ranging from 129.4 - 361.75m, 152.5 - 394.3m, and 169.5 - 414.4m respectively. The workable seams in the Gondkhari underground mining project are proposed to be extracted by Longwall technology of mining with caving.

The subsidence prediction due to the extraction of seams VIII, V, III, and II in the Gondkhari underground mining project is performed by the finite element modeling (FEM) technique. The subsidence analysis is performed for 6 strategic sections. The maximum predicted subsidence along Section 1 is at the end of 20 years (0.366 m) which corresponds to a tensile strain of 0.197 mm/m. Thereafter both subsidence and horizontal tensile strain remain constant. Along section 2, the maximum predicted subsidence is again observed at the end of 20 years (0.547 m) which corresponds to a horizontal tensile strain of 0.288 mm/m. Along section 3, maximum subsidence is predicted to be 2.025 m at the end of 20 years and the corresponding maximum horizontal tensile strain is 0.868 mm/m. Along Section 4, the maximum predicted subsidence is 2.158 m and the maximum predicted tensile strain is 1.160 mm/m at the end of 24 years. For section 5, the maximum predicted subsidence is 1.104 m and the maximum predicted horizontal tensile strain is 0.656 mm/m. Finally, the maximum predicted subsidence along Section 6 is 0.413 m at the end of 20 years. The corresponding maximum horizontal tensile strain is 0.298 mm/m.

The detailed subsidence study was conducted by Indian Institute of Technology Kharagpur (IIT Kharagpur), subsidence study report attached as **Annexure III.** During study it was found that neither the magnitude of subsidence nor the tensile strain anywhere due to the proposed mining plan was found to be hazardous in regard to subsidence on the surface.

7.3.4 Hazard due to mine gases:

The following gases are found in underground coal mines:

Carbon monoxide (CO); Carbon-dioxide (CO_2); Methane (CH_4); Hydrogen Sulphide (H_2S); Sulphur dioxide (SO_2);

The production of these noxious and inflammable gases beyond tolerable limits in Underground mines creates environmental hazards. The factors, which are responsible for the production of these noxious and inflammable gases, are as follows:

- Exhalation by man,
- Underground fire,
- Spontaneous combustion,
- Coal dust explosion,
- Decay of timber,
- Bacterial action,
- Slow oxidation of coal, and
- Distillation of coal.

7.3.5 Mine Explosion

An explosion is a sudden process of combustion of great intensity accompanied by spontaneous release of large amount of heat energy and in which the original gas or solid substance like coal dust is instantaneously converted into gaseous products. An explosion is invariably accompanied by violence

on a large scale. Explosions in coalmines are due to Firedamp and/or Coal dust. Fire damp has been the main cause of explosion in coal mines when mixed with air in explosible limit.

The following precautions are taken to prevent a firedamp explosion. Possible causes of explosion can be attributed to the following factors:

A. Flames naked lights, damaged flame safety lamps and contrabands.

B. Heated surface – overheated lamp gauges, electrically heated wires, heated rock surface, incandescent coal, overheated broken blocks, un-lubricated haulage rollers, rope friction, conveyor troughs rubbing against its support,

C. Sparks – Electric sparks and arcs, static sparks from compressed air pipes, friction sparks from iron pyrites, friction spark from light metal alloys, and

D. Explosives – Resulting into flame and hot gases, compressive wage set up by explosives, especially in a break adjacent to the shot hole, incandescent particles ejecting from the shot hole, incompletely detonated explosives, etc.

7.3.6 Roof fall & sides fall / Mine Collapse

Roof fall or side fall / Mine collapse is caused by improper testing and dressing of roof and sides, induced seismicity, use of explosives, explosion, pillar failure, improper gallery widths, water seepage from roof and sides, improper and inadequate supporting, improper strata monitoring etc.

7.4 RISK MITIGATION MEASURES

7.4.1 Measures to Avoid Fires in the Underground Mine

- Preparatory stoppings shall be kept ready in the primary development headings at the out-bye end of the sub-panel so that in case of outbreak of any underground fire, the sub panel can be abandoned and sealed off by constructing fire stoppings in the minimum possible time.
- Preparatory isolation stoppings must be completed in the primary development headings needed for ventilation and transport before starting depillaring. Arrangement should be made ready for quick sealing of panel if such emergency occurs and after the extraction is completed in any panel, it should be sealed off immediately.
- The environment inside goaf, especially near isolation stoppings and working areas will be monitored with the help of continuous environmental monitoring system. This will help to keep track of temperature, CO, CO2 ratio etc. so that appropriate steps to control irruption of fire is taken.
- Adequate provision for continuous environment monitoring system with properly trained manpower have been envisaged in this respect.
- Check the workers, before the proceed underground, for matchbox, lighters and other contrabands;
- Do not allow burning of fire inside the mine and also within 15m of an incline/pit;
- Avoid welding of headgear pulley or the headgear frame unless adequate timely precautions are taken;
- Restrict the storage of inflammable and combustible material like oil, grease, timber etc.

- Remove all woodcuttings and also oily and greasy cotton wastes out of the mine.
- Install the electrical cables and equipment with due care and maintain them properly with regular inspections.
- Use only approved safety lamps, which should be taken underground in locked condition.

7.4.2 Measures to Prevent Inundation

- It is of paramount importance that boreholes be located at the surface as far as possible and plugged, so that water from the surface does not find its way through these boreholes.
- Before rainy season, danger from inundation or water entering through incline etc. shall be assessed and precaution against such danger shall be clearly laid down and implemented.
- Whenever work will be done in lower seam under settled goaf of upper seam or waterlogged upper seam workings, all useful.

7.4.3 Measures Against Subsidence

- Regular observation and inspection are key ideas for getting a prior indication of any changes that might occur on the surface due to mining.
- Precaution should be taken regularly to fill the cracks, if any, and restore the land to its original position.
- Due to the presence of the Basalt layer at the top, the maximum magnitude of subsidence is about 2 m and the magnitude of tensile strain is around 1 mm/m, and the mining in this region can be considered safe.
- Leaving sufficient safety barrier against all the surface features to be protected as prescribed in the Subsidence prediction study done by IIT Kharagpur and CIMFR.

7.4.4 Measures to Avoid Accidents Due to Mine Gases

- The proposed Mine is Degree-I gassiness as per the basis of the study conducted by CIMFR . As per statute the regular gas survey shall be carried out.
- Adequate provision for self-rescuers has been made to enable everybody to carry it belowground if required.
- Stone dust barriers shall be provided as per statute if required.
- Regular monitoring of underground mine environment shall be done with methanometers and other appliances related with mine environment.
- Development is planned by using auxiliary fan for providing adequate quantity of air up to the face as per the statue.
- All precaution shall be observed while working near fault etc. so that accumulation of inflammable gas does not take place in the working face.
- A geological plan shall be maintained from the initial stage of Mine Development showing all the faults and other geological disturbances likely to be met during the course of development and

updated on regular basis.

- Gas survey shall be conducted immediately after encountering of faults and emission of methane gas shall be monitored regularly to take precautions against accumulation of inflammable gas in the working face.
- As per regulation 214 of CMR 2017 Methane monitors will be installed on all cutting machines, Longwalls, loading machines and other mechanized equipment used to extract or load coal.

7.4.5 Measures against Explosion

- The most effective method to control explosion is dust suppression in u/g is to suppress the dust at the source of generation before the dust becomes airborne.
- As per regulation no 214 (4) of CMR 2017 Longwall shall be equipped with air-scrubber system to remove as much dust as possible after cutting and to ensure that the cutting face is properly ventilated.
- Workings away from the active areas should be stone dusted as per statute.
- For monitoring the level of dustiness and quality of dust, regular sampling and analysis of mine dust shall be done as per statute.
- Also the main mechanical ventilator FBCDZ-12-No35 type has been proposed in the return shaft.

7.4.6 Measures to Prevent Roof Fall & Sides Fall/Mine Collapse

- The dimensions of pillars and galleries and the shape of pillars, formed in any seam or section shall comply with the Regulation no 111 of CMR 2017 to ensure stability during the formation and extraction of pillars.
- From the lithology it is observed that there is presence of Deccan trap/Basalt above the Kamptee & Barakar in thickness varying from 62 to 107 m. This may pose problem of caving.
- Setting of additional support in the form of steel pipes, bars, w-strap even wooden support will be dictated by prevailing geo-mining condition. This support will be in addition to the roof bolting, which is the main constituent of roof support system in primary and secondary development headings and split galleries.
- Monitoring of roof movement to be carried out regularly and based on the analysis of roof movement data, the roof bolting pattern would change.

7.5 OCCUPATIONAL, HEALTH AND SAFETY HAZARDS AND PREVENTIVE MEASURES

It is defined as the process of assessing the risks associated with each of the hazards identified so that appropriate control measures can be implemented based on the probability, i.e. likelihood that harm, injury or ill health may occur and how severe the consequences of exposure might be.

Occupational Health

Occupational health needs attention during operation, maintenance and mine decommissioning phases. However, the problem varies with magnitude and variety in the operation and maintenance phases.

Use of PPEs/Safety Equipment

The problem of occupational health is of noise hearing losses due high noise level, dust generation. Appropriate personnel protective equipment will be provided to employees. The working personnel will be given the following appropriate protective equipment's:

- Industrial safety helmet
- Face shield with replacement acrylic vision
- Zero power goggles with cut type filters on both sides and blue color glasses
- Industrial safety shoes with steel toe
- Ear muffs
- Canister Gas mask
- Welders equipment for eye and face protection
- Cylindrical type earplug
- Self-contained breathing apparatus
- Safety mask
- Safety belt
- Crash helmet
- Leather/rubberized hand gloves
- Electrical resistance hand gloves
- Electrical safety shoes without steel toe & gumboots.

First Aid Boxes

First aid boxes with adequate medical equipment will be provided at vulnerable points. Requisite numbers of employees are trained about First Aid. Two of ambulances will station 24X7 at the mine site to deal with any emergency.

Transport

- Speed of the vehicles within the mine area will be restricted.
- Only PUC certified vehicles will be allowed.
- Warning placard will be installed at the entry point of the haul road that no pedestrians should enter the haul road.
- Dumpers and HEMM vehicles will be fitted with audio visible alarm, fatigue detectors and proximity sensors for preventing road accident.
- Riding on hand trolley is strictly prohibited.
- Double riding on cycles is strictly prohibited.
- Sitting on the side flaps or standing in a truck while in motion is strictly prohibited.

Training

All employees will be regularly exposed to statutory and behavioral training. Special training will be provided for the persons include in emergency response team. Following types of training is suggested to be imparted to employees: -

- Basic training to new entrants;
- Refresher training to old employees; and
- First aid training.

Safety Education & Awareness:

To create safety awareness and impart education on safe practices, the following steps will be taken:

- Holding annual safety fortnight celebration;
- Daily safety pep – talks during the beginning of the shift;
- Monthly safety awareness drive and awarding the safety champions and
- Imparting basic and refresher training to new and old employees respectively.

7.6 DISASTER MANAGEMENT PLAN

A disaster is a catastrophic situation; in which, suddenly people are plunged into helplessness and suffering; and as a result, need protection, clothing, shelter, medical & social care and other necessities of life. The Disaster Management Plan (DMP) is aimed to ensure safety of life, protection of environment, protection of installation in this same order of priorities. For effective implementation of DMP, it should be widely circulated and a personnel training is to be provided through rehearsals/drills. To tackle the consequences of a major emergency in the mine, a DMP is to be formulated.

An emergency in the premises has the potential to cause serious injury or loss of lives or extensive damage to the property and/or environment and serious disruption both inside and outside the mine. In such cases, sometimes outside agencies are required to call for help in handling the situation. The causative factors like equipment failure, human error, earth quake, sabotage etc. will normally manifest in various forms viz. Fire, Explosion, structure collapse etc. This DMP lays down the code of conduct of all personnel in the mine and the procedures to be adopted by them in the event of any “Emergency”. These procedures have been prepared taking into account the minimum strength of manpower available at all times in the mining operation. The individuals under the direction of the respective Team Leaders shall carry out the responsibilities assigned.

Objectives

The overall objectives of DMP are:

- To control the situation and if possible eliminate as quickly as possible.
- To minimize the loss of property as well as to neighborhood.
- To alert the neighborhood.
- Treatment of the injured.
- To prevent any causes of emergencies.
- To avoid confusion/panic and to attend the emergency with clear-cut line of action.
- To safe guard the non-affected areas.
- To arrange head count and rescue operations.
- To safeguard others by timely evacuation.

7.6.1 On Site Emergency Plan

An onsite emergency in the underground coal mining is one situation that has potential to cause serious injury or loss of life. It may cause extensive damage to machineries and serious disruption in the work area and usually, the effects are confined the mine premise.

A quick and effective response at during an emergency can have tremendous significance on whether the situation is controlled with little loss or it runs into a major emergency purpose an emergency plan is to provide basic guidance to the personnel inside the mine premises for effectively combating such situations to minimize loss of life, damage to property and loss of property.

7.6.1.1 Duties During Emergency

1. **Duty of first responder:** Any person who notices any accident or emergency situation as mentioned in above part shall immediately communicate to area supervisor or any mine official (Shift In-charge) and to mine office through telephones or best available means of communication about the emergency situation and take immediate step to control or aid with whatever appliance available at the site to contain emergency situation to the extent possible.
2. **Duty of area Supervisor:** Area Supervisor or any mine official on observing or receiving information about the emergency situation, to access the information and initiate an appropriate and immediate response to control the problem including fencing of area. If the supervisor determines that the appropriate response requires additional personnel, resources or services, he shall inform Control room to mobilize these additional resources. Notification, to other persons who are to be kept in safe place to be made and their withdrawal/evacuation initiated. Area supervisor also immediately informs to shift in charge and mine office.
3. **Duties of Shift In-charge:** Shift in charge on receiving the information about emergency situation shall supervise the emergency response and respond to contain the emergency situation, ensure safety of other persons employed and evacuation as needed. Shift in-charge will inform Safety Officer and Mine Manager. He will communicate with Manager for any other instructions.
4. **Duty of the Time Keeper/Attendance clerk/Control Room:** On receiving any information of any emergency or any accident related in the mine from any source, Time Keeper shall inform immediately to the senior most mine official present in the mine over walkie-talkie/mobile or by a special messenger. He shall also record the messages, received from time to time in a message register kept for the purpose. Time keeper shall ensure that entry to the mine and exit from the mine is recorded for all persons in prescribed format.
5. **Duty of Manager:** On getting information about emergency, he shall immediately rush to the incident place. He shall keep contact with the time office, shift officer/shift in-charge, safety officer, engineer and other authorities and co-ordinate rescue and recovery works. Manager shall be the emergency coordinator and authorize all rescue and recovery operations. He shall immediately inform to Head of Project of M/s APML. In absence of Manager, Principal Official will work on behalf of Manager.
6. **Duties of Engineer (Including Electrical & Mechanical Head):**

- Report to the control room.
- Ensure availability of materials from stores.
- Arrange men and materials for withdrawal of machines, when required.
- Ensure there is no danger from electrical installation to persons affected and deployed for rescue.

7. **Duty of Medical Officer:** After getting information of any emergency in the mine, he shall report to the control room and arrange the medical assistance and other medical aids including the ambulance facilities. At the same time he shall co-ordinate with the nearest hospitals and government health authorities.

8. **Duty of store in-charge:** On getting information of an emergency situation, he shall arrange the emergency materials as per the requirement given by the Manager/Principal Official, Project Head, Mining Head and the control room.
9. **Duty of security in-charge:** On getting information of an emergency situation, he shall report to the control room and will maintain liaison with the local police station, maintain Law and order and prevent unauthorized entry into mines.
10. **Duty of Welfare Officer and HR Manager:** On getting information of an emergency in the mine, he shall report to the control room and he shall intimate his HQ, keep liaison with police and security personnel to maintain Law and order. He will arrange tea, snacks, food items etc. from time to time for personnel involved in rescue and recovery works, accommodation and transport facilities for the persons coming from outside for rescue and recovery works.

7.6.1.2 Communication System

- Alarm raising for emergency by following the sirens installed.
- The siren will be used for raising the emergency alarm and also for all clear signals.
- Emergency siren: the wailing alarm will be sounded intermittently at fixed interval of 30 seconds for a period of two minutes in case of emergency, such alarm will signify the employees that an emergency has occurred and that the emergency services should be put into operation.
- Manager after assessing the situation will declare that emergency is over. Till the manager issues the declaration, all the leaders will adhere to the task and be present at the prescribed location.
- All clear signal will be sounded for continuous 1 minute. Even after the emergency is over a selection staff of the rescue/Evacuation Team will be available at the site of emergency for at least 30 minutes to ensure that the situation is absolutely free from danger.
- After the emergency is over, all the team leaders will meet at the emergency control center and each team leader will submit a report to the manager about team performance and other details observed.
- In addition to the above systems, internal telephones, P. A. system, Mobile telephones, etc. will be used for communication.
- If situation is beyond the control, the external agencies will be informed accordingly and asked for the help.

7.6.1.3 Assembly Point

In case of emergency, some locations are considered as assembly points. Depending on the wind direction and location of emergency, assembly point will be declared. The employees should run across the wind direction and not against the wind direction. Depending upon the location of the emergency the site manager will fix the assembly point and officer will announce the location of the assembly point. Employee's attendance, visitors and contractors workmen register will be made available at the assembly point for head count.

7.6.1.4 Emergency Control Center

Mine Manager Office will declare as an emergency control center. Emergency control center will have facilities like:

- Address and Telephone numbers of the factory inspectorate, Maharashtra Pollution Control Board, Police, Fire Brigade, Hospitals and DMP Team members.
- Mine layout, layout of fire Hydrants/extinguishers, entrances/exits; roads etc.
- Portable Public Address System, Manual siren, Flood lights, Torches, Pickaxe, Saw Nylon Ropes.
- Sand buckets/Fire Blankets/Fire Proximity suit, Breathing Apparatus, First Aid Box etc.
- List of employees with address, telephone number, blood group etc.
- Material safety data sheets of all chemicals handled.

7.6.1.5 Mock Drill

Mock drills will be carried out regularly to familiarize the staff with their roles, fire protection equipment/system provided at mine and use of PPE's. Senior officials will monitor this and shortcoming will be thoroughly studied and necessary corrective measures will be taken.

Procedures for Mock Drills

- Inform to all the employees about mock drills and the signal to be given.
- The date and location of the emergency for mock drills.
- Mock drills will be monitored by observers.
- Raise of the siren for emergency.
- After hearing the siren, the emergency response team will actuate the "Disaster Management Plan".

7.6.2 Off-site Emergency Plan

Effective response & co-ordination is equally important with the members of the community residing near by the premises and the people that are not part of the organization but may get affected in a disaster/accident viz. contractors, outside small shops, suppliers, truck drivers, etc. all these must have the basic information about the process in mine and the safety precautions to be taken. Offsite emergency plan is made for this purpose.

- **Emergency Transport**

Emergency ambulance would be stained at the mine Office and around the clock-driver would be made available for emergency transportation of injured etc. However, the other vehicles will also be available for emergency services.

- **Emergency Communication**

There are two kinds of communications system provided.

a. Regular P&T phones with intercom facility b. Mobile phone

Offsite Emergency Telephone Numbers:

Police Control Room, Nagpur	0712-2567040, 9823577299

Kamptee Sub Division	07109-288245
Hospitals:	
Mure Memorials Hospital Maharajbagh Road, Sitabuildi, Nagpur	0712-2522370
Wockhardt Hospital Shankar Nagar, Nagpur	0712-6624444
Saxena Orthopedic Civil Lines, Nagpur	0712-2436729
Fire:	
Nagpur Municipal Corporation Fire and Emergency Services	0712-2567777, 0712-2567029, 101
Gupta House, Civil Lines, Nagpur	0712-2557861
Civil lines, Nagpur.	0712-2567777
Station Headquarter(GRC), Kamptee	7350015921
Fire Control Room , NMC	0712-2567777
Department Officer, Flood Control Center, Nagpur	0712-2542518,

- **Warning / Alarm/Communication of Emergency**

The emergency would be communicated by operating electrical siren for continuously five minutes with high and low pitch mode.

- **Mutual aid**

While necessary facilities are available and are updated from time to time, sometimes, it may be necessary to seek external assistance; it may be from the neighboring factories or from the State Government at the case may be.

- **Emergency Action Plan**

Every member in a safety committee is given specific responsibility in this plan. That needs to be highlighted & communicated from time to time.

In case of emergency following emergency organization chart will be followed:

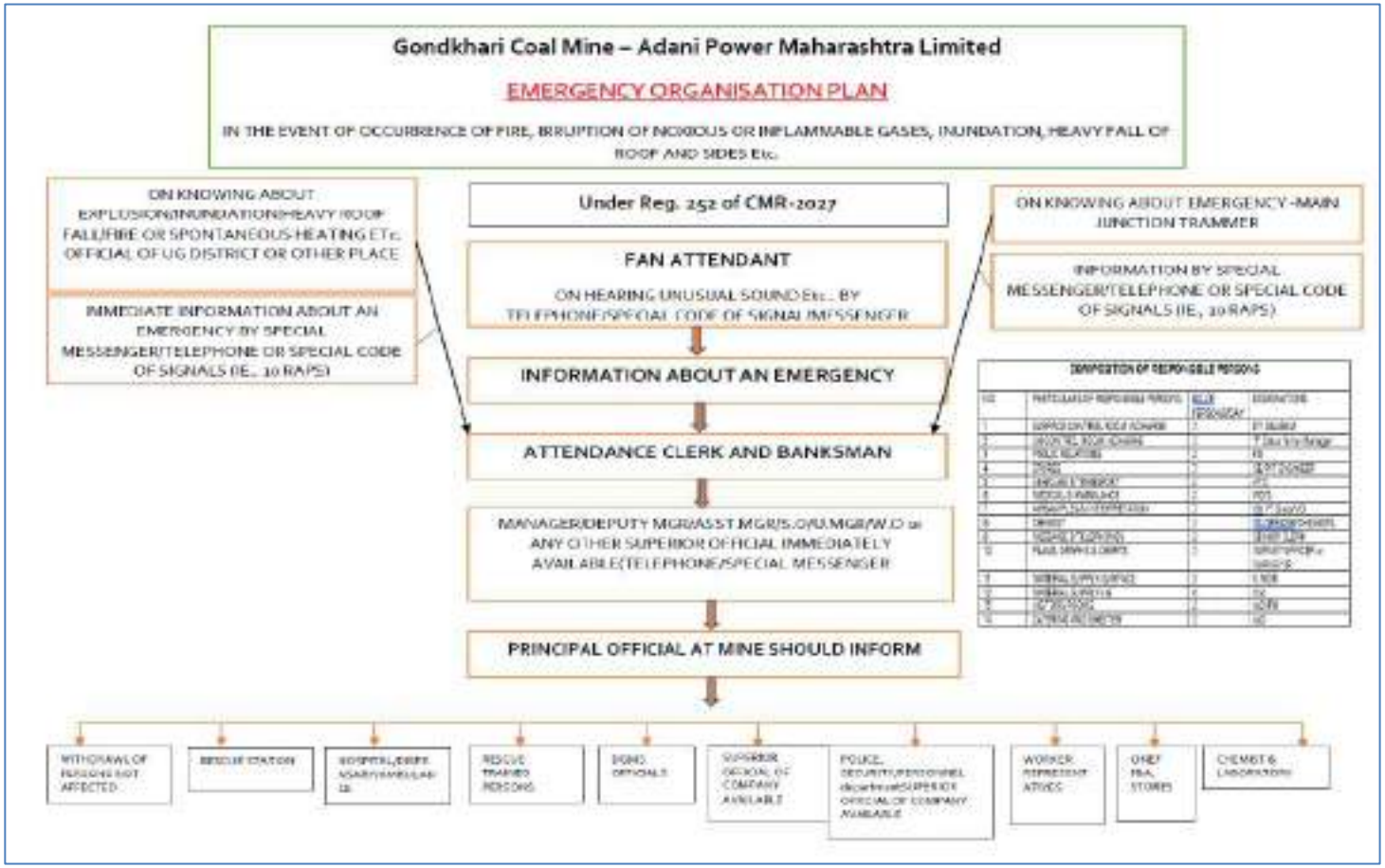


FIGURE 7.2 A: EMERGENCY ORGANIZATION CHART 1

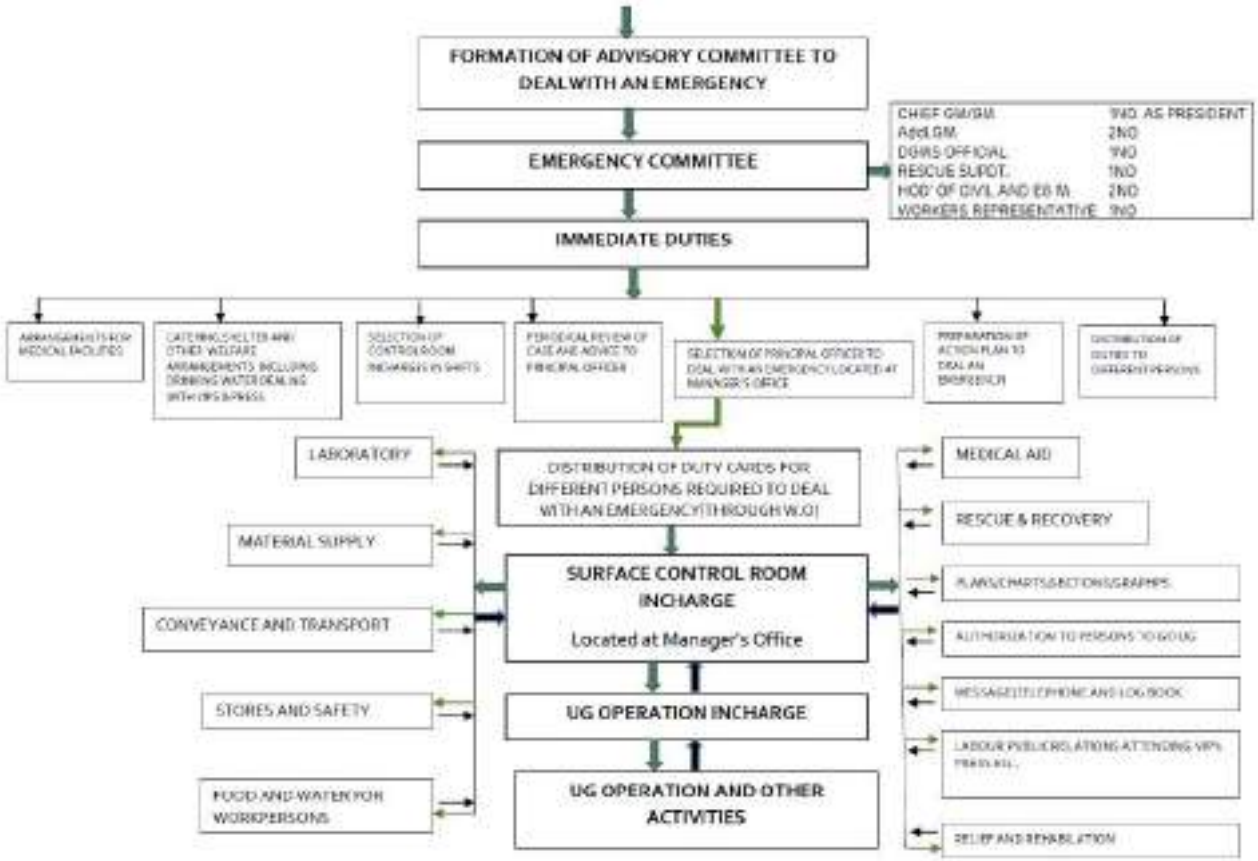


FIGURE 7.2 B : EMERGENCY ORGANIZATION CHART 2

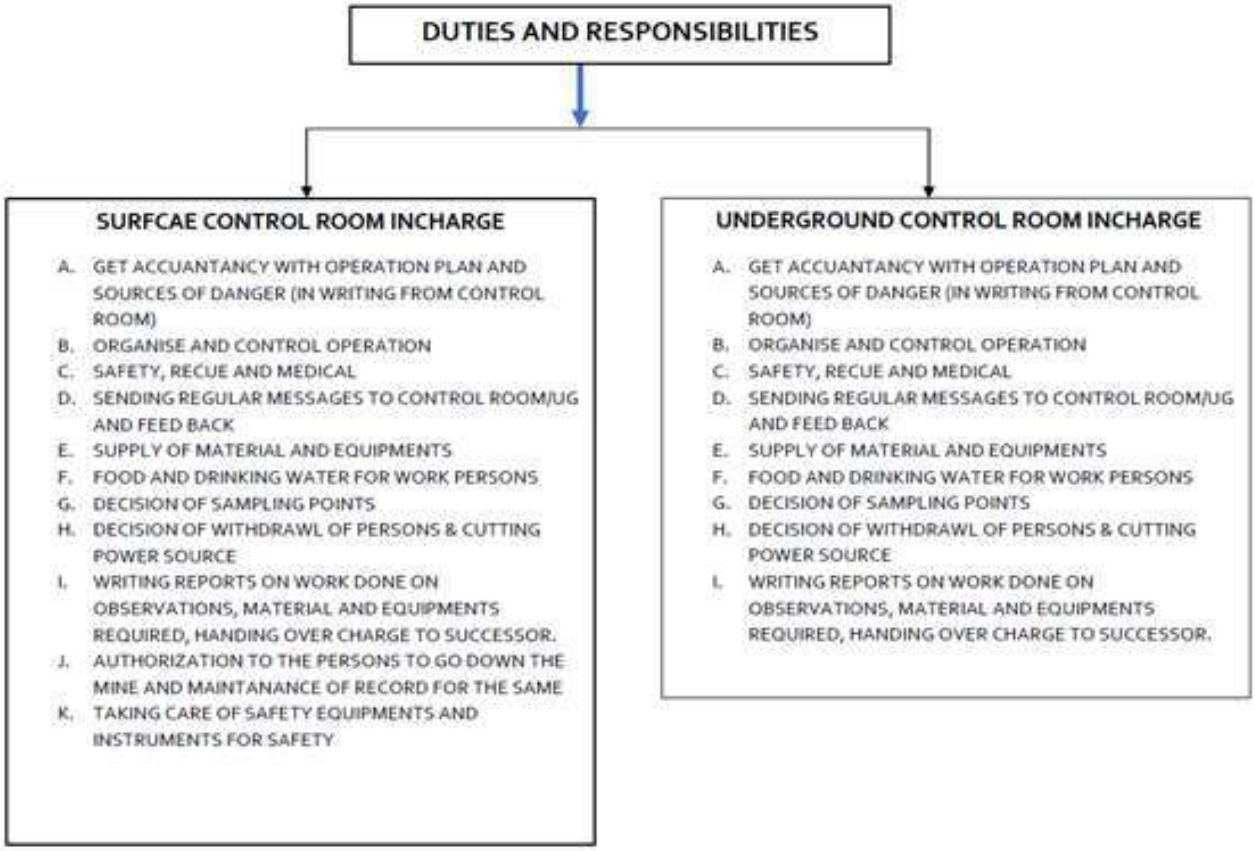


FIGURE 7.3: DUTIES AND RESPONSIBILITIES

7.7 OCCUPATIONAL HEALTH AND SAFETY MONITORING PLAN

Expected occupational & safety hazards in the underground coal mine is as below:

- High Noise
- Coal Dust
- High heat

Following measures will be adopted for protection of workers health:

- Periodic Medical Examination (PME), as required under the Mines Act / Factories Act shall be undertaken.
- Earplugs will be provided to employees working in noise prone areas.
- Good ventilation & exhaust system.
- Since coal/ash handling workers are prone to dust exposure related diseases, due attention is required to those workers.
- Enforcement of usage of Personal Protective Devices.

- Rotation of employees in specific areas to avoid continuous exposure.
- Periodic monitoring of noise levels, fugitive emissions, emissions from stack, dust suppression system, etc.
- Medical Centre and 24X7 ambulance in mining project shall be arranged by APML.
- All chest radiographs of Initial and Periodical Medical Examinations shall be classified for detection, diagnosis and documentation of pneumoconiosis in accordance with ILO standards.

Plan of pre-placement and periodical health status of workers:

Pre-employment check-up is mandatory and following tests will be conducted before joining:

- Chest x-rays
- Audiometry
- Spirometry
- Vision testing (Far & Near vision, color vision and any other ocular defect)
- ECG
- Haemogram (examination of the blood)
- Urine (Routine and Microscopic)
- Complete physical examination
- Musculo-skeletal disorders (MSD)
- Backache
- Fatigue

Medical records of each employee will be maintained separately and will be updated from time to time. Age, sex wise, department wise data on the above parameters will be maintained. Annual health report will be published.

7.8 REHABILITATION & RESETTLEMENT ACTION PLAN

The proposed underground coal mine does not have any directly displaced persons, due to acquisition of land. There are also no land oustees or mine affected persons or home oustees, thus R&R plan is not separately prepared for this purpose. However, the priority for employment will be given to local persons living in the adjoining villages. In addition to this M/s. APML will also contribute for the welfare of the people of local surrounding.

7.9 SOCIAL IMPACT ASSESSMENT

The proposed underground coal mine will provide employment to around 863 people. Local people will get benefitted during mining activities whereas direct and indirect employment opportunities will be provided by APML. Public infrastructure facilities will be improved due to the project. M/s APML will carry out CER & CSR activities in the nearby villages. Overall quality of life of people in the nearby villages will be improved further. There will be positive and beneficial impacts by way of economic improvements,

transportation, aesthetic environment and business generation.

7.10 CONCLUSION

As discussed in above sections, adequate risk control measures for mining operation needs to be considered to avoid major risk to onsite, offsite and environment. Site specific mitigation measures will be ensured by M/s. APML in order to complete workplace safety. In the event of disaster onsite, offsite and all the emergency planning procedures will be followed so as to minimize the impact on working personnel, mine surrounding area and environment.

CHAPTER-8
PROJECT BENEFITS

8.0 PROJECT BENEFITS

Coal is the most important and abundant fossil fuel in India. It accounts for 55% of the country's energy need. Further, there is need for enhancement in coal production to meet the requirement of Maharashtra State in particular and India in general.

APML is taking steps to enhance the production capacity of existing project where ever possible. Capacity of the proposed Gondkhari Coal Block is planned to produce 2.0 MTPA coal production which will be helpful for the growth of power sector. The occurrence of Coal in the area is proved by the way of detailed geological exploration and its production has important role in the local infrastructure development as well as benefits to the State Government in the form of royalty & Tax.

8.1 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The impact on the civic amenities after the commencement of mining activities is likely to be substantial. The basic requirements of the community needs will be strengthened by extending health care, educational facilities developed for the community, providing drinking water to the villages, building/strengthening of existing roads in the area through CSR activities. The proponent will initiate the aforesaid amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

8.2 PROJECT SOCIAL BENEFITS (IMPROVEMENT IN SOCIAL INFRASTRUCTURE)

- Generation of employment and improved standard of living.
- Increase revenue to the State by way of royalty, taxes and duties.
- The proposed project will enhance the prospects of employment. Large no of population of study area will be employed in proposed project either directly or indirectly.
- Overall the proposed project will change living standards of the people and improve the social-economic conditions of the area.

8.3 EMPLOYMENT GENERATION

The total manpower generation will be 863 nos. for proposed UG coal mining project.

8.4 COMPANY'S INITIATIVE IN CORPORATE SOCIAL RESPONSIBILITY (CSR)

A. CORPORATE SOCIAL RESPONSIBILITY (CSR):

The company has a well laid down Environment Policy approved by the Board of Directors. APML has always been committed to the cause of social service and has repeatedly channelized a part of its resources and activities, such that it positively affects the society socially, ethically, and environmentally. The Company has taken up various Corporate Social Responsibility (CSR) initiatives and enhanced value in the society for the sector of Education, Health, Community Infrastructure, Sustainable Livelihood, Safety and Women Empowerment etc.

B. CSR VISION:

To accomplish passionate commitment to the social obligation towards communities, fostering Sustainable and Integrated Development, thus improving Quality of Life.

C. CSR VISION:

- **Courage:** To embrace new and innovative ideas for betterment of people.

- **Trust:** Believe in all stakeholders.
- **Commitment:** Stand by our promises and adhere to high standard of work in all CSR activities.

D. CSR and Group Culture: (PRIDE)

- **Passion:** Performing with enthusiasm and Energy and true passion.
- **Result:** consistently achieve goals, Resourcefulness which brings desired results.
- **Integration:** Working across functions and businesses to create synergy with integrity.
- **Dedication:** Working with commitment in the pursuit of our aim.
- **Entrepreneurship:** Seizing opportunity with initiative and ownership. Evolving replicable models.

E. CSR Objectives and Projects:

Adani Group will carry out CSR activities through Adani Foundation, Adani Skill Development Centre. It might also implement programmes directly on ground or take the help of specialised and authorized agencies to implement social initiatives.

CSR Projects will be taken up from the following core sectors/themes covering influenced villages near business sites while few initiatives might be for a larger area or regional impact.

S. No	Core Themes	Programme Descriptions
1	Education	Infrastructural Development to Local Government schools & Anganwadi Centres. Specialized learning support for local students. Coaching support for higher class students. Other Learning Support to local students and schools. Road Safety and Environmental Education. Specialised Coaching For youths for competitive examinations.
2	Health	Mobile Medical Units for rural population Infrastructural support to government PHC and Sub centres. Ambulance Services Doorstep Multispecialty Medical Camps.
3	Livelihood & Skill Development	Skill building with placement assistance for local youths. Farm Based Livelihood Support (agriculture, horticulture, livestock etc) Water Augmentation for irrigation. Women Led Micro Enterprises through Self Help Groups and Cooperatives.
4	Rural Infrastructure	Based on local needs, rural infrastructure development programmes are taken up which serve multiple people instead of individuals like Solar Street Lighting, repairing of community halls, developing playgrounds, promoting green belts for afforestation, construction of water tanks etc.
5	Community Engagement	All the above programmes are done through a regular and rigorous community engagement procedure. This is to understand the needs and the concerns of the community.

**A Detailed Base Line Assessment has already been done by the Company to understand the present status in terms of rural infrastructure and services. The project will take up activities based on that assessment (final report awaited).*

Adani Group also runs the following flagship programmes through the Adani Foundation across the country. Some of these will also be implemented here depending on the need and suitability: -

Project Saksham	This aims at Skill Building of Youths including women.
Project Udaan	This provides exposure and training to village children and youth to gain access to various business operations and processes to gain experience.
Project Swachhagraha	This is in parity with the government programme to drive cleanliness and hygiene
Project Utthan	This project focusses on providing youth and early adults training to prepare for various competitive examinations like JEE, NEET, Entrance tests for government jobs etc.

*******All programmes in CSR in the project area will be carried out in accordance with the provisions of Schedule VII-Section 135 of The Companies Act, 2013. The initiatives will also be in concurrence with the 17 Sustainable Development Goals of the United Nations.*

8.5 EMP FOR SOCIAL ECONOMIC DEVELOPMENT (CER)

As per MoEFCC, New Delhi vide its OM dtd. 30th September 2020 a budgetary provision of Rs. 650 Lakhs is provided towards EMP for Socio economic Development. The detailed EMP for Socio economic development in terms of activities, physical target and timeline based on PH proceedings and / or from SIA accordingly now compiled and incorporated.

8.6 OTHER TANGIBLE BENEFITS

- The project benefits also entail revenue earnings to national and state exchequer through GST, road tax, income by registration of trucks & trailers, income tax, corporate tax, etc.
- Adherence towards full compliance of Environmental Compliances.
- Thus result in –
  - ❖ Periodic Monitoring of environmental parameters,
  - ❖ Progressive Green Belt Development,
  - ❖ Scientific disposal of solid waste generation.

Thus, protection of environment by adopting pollution control measures and environmental conservation measures in and around the proposed mining area result in improvement in surrounding environment as well as socio-economic aspects of the area.

CHAPTER-9
ENVIRONMENTAL COST BENEFITS ANALYSIS

9.0 ENVIRONMENTAL COST BENEFIT ANALYSIS

This is an underground coal mine project, hence a very minimum land i.e. 18 ha out of 862 Ha. (i.e.2.09%) area will be used for underground entry, infrastructure, road and green belt development in non-forest land. There will be no disturbance in the forest land as well as the legal status of forest land remains unchanged.

TABLE 9.1: GONDKHARI COAL BLOCK, TEHSIL -KALMESHWAR, DIST - NAGPUR FOREST DIVISION OF MAHARASHTRA

Sr. No.	Nature of Proposal	Applicable / Not Applicable	Remarks
1	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectares in hills	Not Applicable	NIL
2	Proposal for defense installation purposes and oil prospecting (prospecting only)	Not Applicable	NIL
3	Habitation, establishment of industrial units, tourist lodges / complex and other building constructions.	Not Applicable	NIL
4	All other proposals involving forest land more than 20 Ha in plain and more than 5 ha in hills including roads, transmission lines, minor medium and major irrigation projects, hydel projects, mining activities, Railway lines, location specific installation like Micro-wave station, auto repeater center, TV towers, etc.	Applicable	These are cases where a Cost benefit analysis is necessary to determine when diverting the forest land to non-forest use is in the overall public interest.

TABLE 9.2: ESTIMATION OF COST OF FOREST DIVERSION

Sl. No.	Parameters	Cost in Cr Rs.	Remarks
1	Ecosystem services losses due to proposed forest diversion.	0.0	Economic value of loss of eco-system services due to diversion of forests shall be the net present value (NPV) of the forest land being diverted (87.351 Ha) as prescribed by the Central Government (MoEF&CC). However, there is subsidence i.e. less than 5mm hence no NPV is required as per MoEF circular. This is an underground mine hence only 18 ha of private land is required for underground entry, infrastructure, road and green belt development and there will be no tree cutting required.
2	Loss of Animal Husbandry	0.0	As it is an underground mine hence there is no pasture land will be disturbed.
3	Cost of Human Resettlement	0.0	This is an underground mining therefore, no human resettlement in Forest land as well as private land are required.
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc) on forest land, which would require forest land if these facilities were diverted due to the project.	0.0	There are no loss of public facilities & administrative infrastructure on forest land and private land.
5	Possession value of forest land diverted.	0.0	-

Sl. No.	Parameters	Cost in Cr Rs.	Remarks
6	Cost of suffering to Oustees.	0.0	No displacement is required.
7	Habitat Fragmentation Cost.	0.0	There will be no habitat disturb for this underground mining project. Hence, not required.
8	Compensatory afforestation and soil & moisture conservation cost.	0.0	This is an underground mining therefore, no any compensatory afforestation and soil & moisture conservation required.
	Total	**0.00**	

TABLE 9.3: PROJECT COST ESTIMATES

Abstract of the Project cost estimates:		
S. No.	**Particulars**	**Value in Crores**
1	Capital Investment including preoperative expenses	1303
2	R&R	0.00
3	Cost of Public facilities and administrative infrastructure	0.00
4	Net Present Value(NPV)	0.00
5	Cost of Compensatory Afforestation	0.00
Project Cost		**1303.00**

TABLE 9.4: ESTIMATION OF BENEFITS OF FOREST DIVERSION

Life of Project	Yrs	24
Construction period	Yrs	02
Extractable Reserves:	MT	42.946

SL	Parameters	Calculations / Particulars				
1	Increase in productivity attribute to the Gondkhari Coal Block	**Net revenues due to Coal**				
		SL	**Parameters**	**Rate (Rs.)**	**Unit**	**Amount (Rs.Cr)**
		i	Gross revenues from ROM Coal for Life-of-Mine (G8 Grade) 42.946 MT @ Rs.4279 / tonne (Basic Selling Price)	4279.00	Rs/MT	18376.59
		ii	Tentative Operative Cost including depreciation, interest on loan payment & tax liability..etc for 42 Years @ (298.12 MT x Rs. 3000 per tonne)	1753.00	Rs/MT	7528.43
			Net Revenues(Benefits) due to Coal (1-2)			**10848.16**
2		**SL**	**Parameters**	**Rate (Rs.)**	**Unit**	**Amount (Rs/Cr)**
		iii	Revenue Share @ 9.5%	407.00	Rs./MT	1747.90
		iv	Royalty (14% of Revenue as Royalty + 10% of royality as DMF + 2% of Royalty as NMET	671.00	Rs./MT	2881.68
		v	Upfront Amount		Rs./MT	0.00
		vi	Fixed Cost	2.00	Rs./MT	8.59
		vii	Performance BG (Bank Guarentee)	2.00	Rs./MT	8.59

SL	Parameters	Calculations / Particulars				
			cost			
		viii		1082.00	Rs./MT	4646.76
						4646.76
3	No. of population Benefited due to the Project	Approx Population indirectly benefited				**3000.00**
4	Economic benefits due to direct & indirect employment due to the Project	Benefits due to direct employment for 863 persons (863x24Yrsx131352 /Year)				**272.06**
5	Economic benefits due to Compensatory Afforestation	No Compensatory afforestation envisaged in this project.				**0.00**
		Total Benefits (1+2+4+5) in Cr's				**15766.98**

9.1 CALCULATION OF COST BENEFIT RATIO

Total Benefits (As per **Table 9.4**: Estimation of benefits of Forest Diversion) = **Rs.15766.98 Crores**

Total Cost (As per Table (**9.2+9.3**): losses of forests + Cost of the Project) = **Rs. 00.00 + 1303 = 1303.00 Crores.**

Hence, **Benefit/ Cost Ratio =15766.98/1303 = 12.10**

Thus, the project gives positive Benefit/ Cost Ratio. The monetary returns of the Project are positive over the environmental losses.

CHAPTER-10
ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.0 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.1 INTRODUCTION

The major objective and benefit of utilizing Environmental Impact Assessment in project planning stage itself, is to prevent avoidable losses of environmental resources and values as a result of Environmental Management. Environmental Management includes protection/ mitigation/ enhancement measures as well as suggesting post project monitoring program. Environmental management may suggest revision of mining site or operation to avoid adverse impacts. The extractive industrial development in the study area needs to be intertwined with judicious utilization of nonrenewable resources of the study area and within the limits of permissible assimilative capacity. The Environment Management Plan (EMP) is required to ensure sustainable development in the study area of the mining site; hence it needs to be an all-comprehensive plan for which the Government, regulating agencies like Pollution Control Board working in the region and more importantly the affected population of the study area need to extend their cooperation and contribution.

The EMP presented in this chapter discusses the administrative aspects ensuring that mitigation measures will be implemented and their effectiveness monitored after approval of the EIA. Environmental Management Plan provides control measures of potential environmental impacts. The major adverse impact identified through **Chapter - 4** is on the air quality and land use.

In case the monitored results of environmental pollution are found to exceed the allowable limits, the Environmental Management Cell (EMC) will suggest remedial action and get these suggestions implemented through the concerned authorities.

10.2 CORPORATE ENVIRONMENTAL POLICY OF THE COMPANY

M/s. APML mission is to achieve national Identity in production and distribution of Coal.

Our policy is based on optimum resources utilization and focused on customer satisfaction.

M/s. APML committed to:

- To develop and maintain clean environment by adopting sustainable development concept with optimum utilization of natural resources.
- To support and comply with all statutory requirements concerning environmental management and practices.
- Prevention of pollution by continuous efforts in reducing emission and follow statutory compliances.
- To ensure green belt development in and around plant premises.
- To conduct periodical monitoring of all environmental parameters including air, water, noise and emissions by authorized agency as per statute and law.
- Continually improve the environmental performance of organizational processes and products through waste minimization and pollution abatement.
- To ensure in-house consumption of maximum waste by maximizing recycling and reducing wastage.
- Create awareness amongst employees, contractors and stakeholders on health.
- Overall Committed to make continual improvement through periodical review of objectives and targets and achievement to produce finished products with utmost priority of the environment.

10.3 RESPONSIBILITIES OF ENVIRONMENTAL MANAGEMENT CELL (EMC) ADDRESSED IN SOP'S

The basis of the operational philosophy of M/s. APML is that the activities will be carried out in the mining activities will be operated with all applicable laws, regulations, standards and permits, procedures, specifications, rules, standards and guidelines.

The responsibilities of EMC will be as follows:

1. Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC.
2. Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/MPCB and NABL.
3. Ensuring approval of mining plan from concern Authority before due date.
4. Timely submission of compliance status to MoEF&CC/MPCB.
5. Seeking experts guidance, as and when required.
6. Conducting CSR activities in nearby villages.
7. Safety, welfare and good health of the work force and populace.

10.3.1 Transparency in the Iimplementation of Environmental Policy

Monitoring will be conducted periodically as addressed in EC/CTO framed by MoEF&CC, New Delhi or MPCB, Maharashtra. It shall serve to drive accountability and transparency and provides for learning to implement in future initiatives. M/s. APML implemented a monitoring mechanism by its defined organizational structure with clear roles & responsibilities for every operational unit and project by creating a register specifying all the regulatory compliances and clearance condition.

10.3.2 Audit & Review

Review and audit is essentially a management tool. However, its application is crucial at the operational level for verification and feedback on the effectiveness of organization system and environmental performance. Basically, auditing involves in the following items:

- Line management system
- Procedures: standards, targets
- Verify env. impact assessment
- reporting and communication
- feedback
- awareness and training
- Plans: Waste, contingency, pollution control compliance
- verify mitigation
- documentation

Internal Audit:

A system of company auditing will be undertaken at each mining operation and includes the use of trained internal and external auditors. In addition, auditing should be undertaken to ensure compliance with all the applicable legislations.

Audit Type Frequency:

- Internal: - From other site in-charge every 6 months.
- External - independent expert every 12 months.

The company shall depute internal / external auditors who are trained and certified as competent EMS

auditors by an independent and external standard organization. The results of monitoring and auditing shall be regularly reported through the senior management team to ensure that action items are addressed.

10.4 ENVIRONMENT MANAGEMENT PLAN

The Environment Management Plan (EMP) is necessary to ensure sustainable development in the area of the underground mine. Hence, it needs to be an all encompasses plan for which the mine authorities, Government and Regulating agencies like Pollution Control Board working in the region and more importantly the affected population of the study area need to extend their cooperation and contribution. The identification and quantification of impacts based on scientific and mathematical modelling has been presented. The management action plan aims at controlling pollution at the source to the extent possible, with the available technology.

Sound environment management plan by the mine authorities is required to mitigate the impacts of the proposed mine with its surrounding environment. Specifically, the EMP lays stress on key environmental aspects and issues of the project during operation phase by:

- Identifying potential environmental impacts;
- Recommending mitigation measures for the negative impacts;
- Identifying opportunities for enhancement measures;
- Providing an organizational framework for operating Environment Management System and other functions of the project by assigning roles and responsibilities for environmental monitoring and management; and
- Formulating Environmental Action Plans which specify mitigation, periodic and annual monitoring activities during project implementation and operation.

The potential environmental impacts from the proposed modernization of mine are identified and the magnitude of these impacts also predicted. The potential environmental impacts to be regulated from the proposed mine are summarized below:

- Air pollution due to the emission of particulate matter and sulphur dioxide and fugitive emissions;
- Noise pollution due to various noise generating equipment and mining activities;
- Wastewater generation from domestic activities; and

In order to minimize these adverse Impacts and to ensure that the environment in and around the project site as well as the neighbouring population is well protected; an effective environment management plan has been developed.

10.5 ENVIRONMENT MANAGEMENT CELL

Monitoring is as important as that of control of pollution since the efficacy of pollution control measures adopted can only be determined by monitoring. An Environmental Management Cell will be for implementation of the Environmental Management Plan and conducting periodic environmental monitoring of important and crucial environmental parameters to assess the status of environment regularly during mine operations. With the knowledge of baseline conditions, the monitoring program will serve as an indicator for any deterioration in environmental conditions due to operation of the mine and so that suitable additional mitigation steps could be taken in time to safeguard the environment. The organizational chart of Environment Management Cell is as given in **Figure 10.1**.

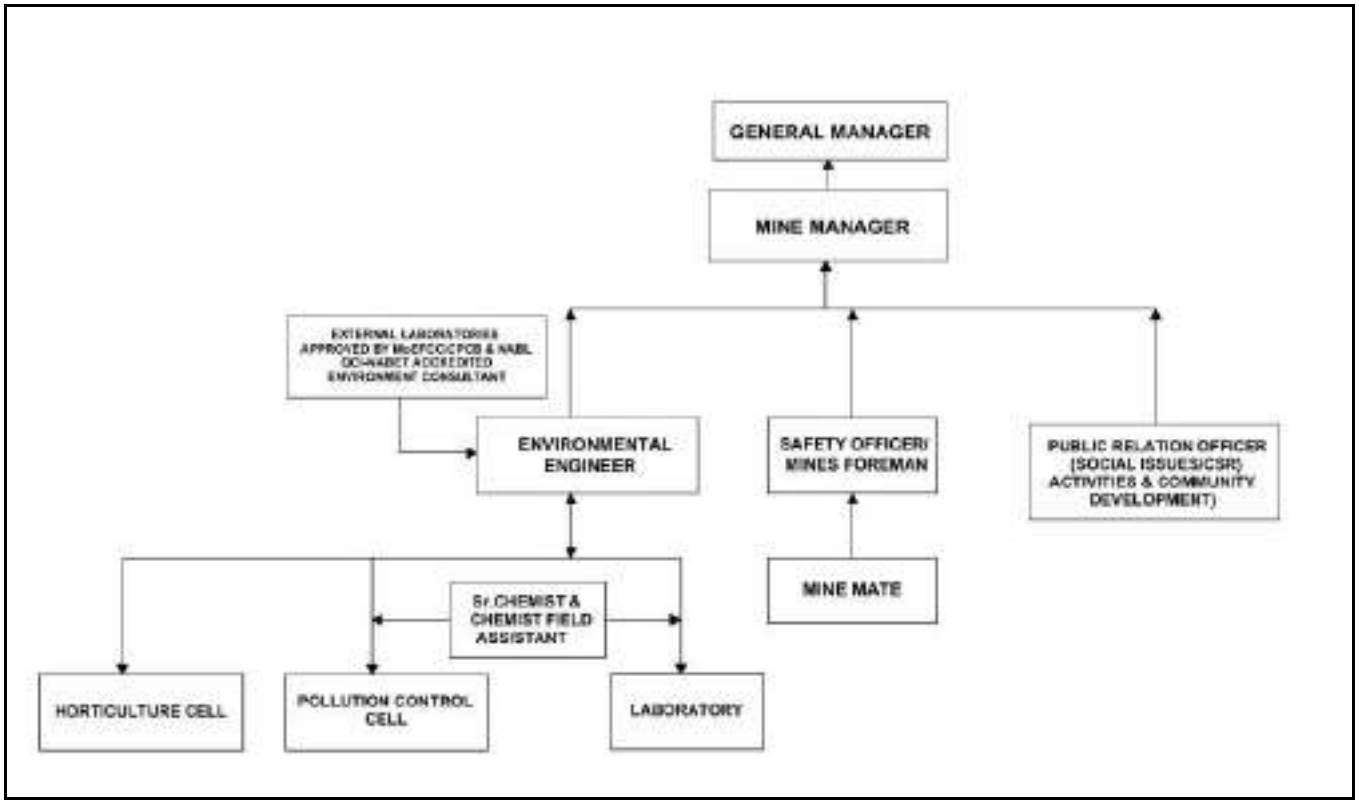


FIGURE 10.1: ORGANIZATION CHART OF ENVIRONMENTAL MANAGEMENT CELL (EMC)

10.5.1 ADDRESSING NON-CONFORMITY, CORRECTIVE ACTION AND PREVENTIVE ACTION

As per the Environmental Policy of the company, non-conformities, corrective actions and preventive actions shall be managed in accordance with Non-conformance, Preventive and Corrective Action Procedure. This procedure, which relates to all projects of the company, details the processes to be utilized with respect to the identification of non-conformances, the application of appropriate corrective actions to address non-conformances and the establishment of preventive actions to avoid non-conformances. The key elements of the process include:

i. Identification of Non-conformance and /or Non-compliances.

ii. Recording of Non-conformance and/or Non-compliance.

iii. Monitoring of non-conformances if any for material dispatch from mining faces.

iv. Evaluation of the Non-conformance and/or Non-compliance to determine specific corrective and preventive actions.

v. Corrective and preventive actions to be assigned to responsible persons. and

vi. Management Review of corrective actions to ensure the status and effectiveness of the actions.

10.5.2 Management Review

A comprehensive review of the objectives and targets associated with the individual project of the company shall be undertaken on an annual basis. These reviews, which include involvement from the senior site management and other key personnel, assess the performance of the mine over the previous year and develop goals and targets for the next phase of mining.

10.6 PURPOSE OF THE EMP

The environment management plan is prepared with a view to facilitate effective environmental management of the project, in general and implementation of the mitigation measures in particular. The environment component wise EMP provided as follows:

10.6.1 Environment Management Plan For Air Environment

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
Preparation of the site & Movement of vehicles at site	Dust generation and impact on human health	Periodic maintenance and servicing of equipment and vehicle used for site clearing for development of inclines and shaft along with associated activities including green belt within 18 Ha. Periodic Water sprinkling	Periodic check of equipment	Contractor & Mine Manager	Fugitive dust monitoring	Fugitive emission monitoring report maintained
HEMM, Loading / unloading and transportation activities	Increase in dust levels in ambient air and NOx concentration levels in ambient air due to vehicular emissions causes discomfort to workers and dust deposition on surrounding vegetation.	• All service roads will be well maintained. • Periodic water sprinkling on haul road. • Plantation will be done along the service road. • Traffic Management Plan will be implemented • BS –VI complied vehicles only allowed for transportation • Wheel Washing System at exist gate will be implemented	Periodic sprinkling Regular preventive maintenance of mine machinery	Mines Foreman/Mines Manager	Random Check by site Operator	Air Monitoring data log sheet maintained
All activities	Excessive occupational exposures to airborne particulate matter.	• Provision of dust masks to workers exposed to dusty operations / areas. • Periodic Medical Checkup of all workers.	Periodic	Safety officer/ Mine Manager	Surprised visit at mines	Medical History shall be maintained

10.6.2 Environment Management Plan For Noise Levels and Ground Vibration

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
General activities including mining operations and transportation of Coal.	Increase in noise levels occupational hazard due to noise exposures and increase in ambient	Periodic maintenance of all mining machinery and transport vehicles Provision of ear plugs/ear muffs to workers exposed to high noise generating operations. Development of thick plantation around mine	Monthly Maintenance of Vehicle and machineries	Contractor supervised by Mine Manager	Noise monitoring inside and outside of vehicle cabin	Noise data log sheet

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
	noise levels.	lease boundary to act as a noise screen. Periodic Medical Checkup of all workers. Regular noise monitoring will be carried-out.				

10.6.3 Environment Management Plan for Water Resources and Quality

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
Pumping from Underground mine	Deterioration in surface water quality of receiving pumping water from UG mine due to siltation.	Surface run-off from dumping area and stack yard will be collected in settling tank / sedimentation tank.	Maintenance of settling tank before monsoon.	Mine Manager	Monitoring as per IS2296 (Part –A) Inland surface water standard.	-
Water required in mine for dust suppression, plantation and domestic use.	Depletion of water resources	Total water requirement is 492 KLD out of which 452 KLD from mine seepage and 40 KLD from 4 nos. of borewell The Industrial water requirement will be met from existing reservoirs and mine seepage water. Application submitted to CGWA for dewatering of ground water from UG mines. Whereas, Domestic consumption water 40 KLD shall be withdraw through ground water source. Application for water withdrawal 40 KLD. PP has obtained CGWA NOC No. CGWA/NOC/MIN/ORIG/2023/19155 dtd. 01/09/2023 for ground water withdrawal and dewatering. Pumped out water will be utilized for underground mining operation and other ancillary activities, excess water if any will be discharge in natural water body after treatment. Some of the water will be used in green belt development within 2 Ha of land area.	Regular basis	Mine Manager	Regular water consumption	Water consumption data and water bill maintained

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
		Rain water harvesting structure and pumped out mine water will help in recharging ground water table and will be available to nearby villagers as an additional surface water body. Rainwater harvesting structures will be constructed in nearby villages.				
Waste water generated from Mine workshop and domestic usage at mine.	Deterioration in ground water and soil quality when discharged untreated	Generated wastewater from Mine workshop will be treated in ETP (10 KLD) along with Oil and Grease Trap. Domestic effluent will be treated in proposed STP (cap. 50 KLD) and the treated water will be used for plantation/green belt development.	Periodic Cleaning and Servicing of ETP and STP equipment's.	Env. Engineer reporting to Mine Manager	ETP and STP Outlet	Records of treated water is maintained
Hydrogeology and Drainage pattern	May impact local hydrology and drainage pattern of the area.	Pumped out water will be utilised for underground mining operation and other ancillary activities, excess water if any will be discharge in natural water body after treatment. Some of the water will be used in green belt development within 2 Ha of land area. Rainwater harvesting structures will be constructed in nearby villages.	Regular basis	Mine Manager	Regular water consumption	Water consumption data and water bill maintained

10.6.4 Environment Management Plan for Land use and Soil Characteristics

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
Removal of top soil in particular 2 Ha. area fordevelopment Shaft and inclines.	Land degradation	Top soil will be used in development of green belt. Adoption of adequate air pollution control measures to control dust emissions.	Periodic check of equipment at every site time of preparation	Horticulture cell	During construction	Top soil record should be maintained

10.6.5 Environment Management Plan for Biological Environment

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
Dust emission due to transportation of coal, loading /unloading at Gondkhari mine	Dust deposition on vegetation & agriculture crop around periphery of ML area may reduce the crop productivity specifically within 500m from mine lease area.	Development of thick green belt around mine lease boundary using native plant species. Transport through covered trucks. Water Sprinkling will be carried out at loading & unloading point; regular water sprinkling within the mining area and also on haulage road will be carried out. The waste material/OB dumps will be covered with shrubs and grasses plantation.	Phase wise plantation on set of rainy season	Horticulture expert in association with state forest department	Survival rate	Replacement of sapling datasheet

10.6.6 Environment Management Plan For Environmental Pollution, Health, Safety

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
Overall Mining operation	Occupational health issues, Community disturbance, risk of accidents, etc.	Adoption of suitable pollution control measures in the mines like periodic water sprinkling to avoid the dust nuisance. Provision of pre-employment and periodic training on health and safety to all the workers in the mine Adoption of safe working practices. Maintaining proper housekeeping at working places. Provision of necessary personal protective equipment's to all mine workers of mine machinery and transport vehicles. Display of warning signals at strategic locations. Periodic maintenance. Implementation of Covid-19 guideline which include provision of face mask, sanitizer etc. as per time to time updated Govt. guidelines	Periodic check of equipment at every site time of preparation	HSE /Mining Mate	Various Health related parameters	Air Monitoring data log sheet

10.6.7 Environment Management Plan For Socio-Economic Aspects

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
Mining operations	Improvement in economic status of people of the region due to providing direct and indirect employment opportunities.	Direct employment approx. 863 persons. Mostly local people will be employed in the mine. Mine management will carry out CSR activities in the nearby villages to improve socio-economic conditions of	Periodic check of equipment at every site time of preparation	Public Relation officer of Mine	Monitoring based on per CSR policy	Records of public grievances and facilities provided by APML shall be maintained

Project Activities	Impacts	Action Plan Proposed	Timeframe	Responsibility	Monitoring	Records
		the villages. A budgetary provision since inception made by APML under CSR to improve the basic facilities such as education, health and sanitation and communication etc. in the nearby villages.				

10.7 EMP FOR SOCIAL ECONOMIC DEVELOPMENT (CER)

As per MoEFCC, New Delhi vide its OM dtd. 30th September 2020 a budgetary provision of Rs. 650 Lakhs is provided towards EMP for Socio economic Development. The detailed EMP for Socio economic development in terms of activities, physical target and timeline based on PH proceedings and / or from SIA accordingly now compiled and incorporated. The following budget provisions are provided in **Table. 10.7.1.**

TABLE 10.7.1: EMP FOR SOCIAL ECONOMIC DEVELOPMENT (CER)

Sl.	Particulars	Physical Status	Dec 2023-Dec 2024	Dec 2024-Dec 2025	Dec 2025-Dec 2026	Amount to be spent for head (in Rs. (Lac))	Recurring Cost (in Rs. (Lac))
1	**Medical Facilities (OPD and Pathology centre)**	**Location: villages Gondkhari and Kalambi.** **Physical work:** Establishment of Ambulance Room and Health Centre, Free Medical camps and Medicine Distribute by hiring a MBBS doctor to treat patients in nearby 7 villages, Arrange Waterborne diseases camp and Cancer detection camps.	150	85	52	**287**	**28**
2	**Education Facilities at nearby villages**	**Location: Village - at ZP Primary School (old) gond Gondkhari and Surabardi Village.** **Physical Work:** Donation of computers, books, furniture to village schools, Construction of E-Class Room at Govt. School and Waiting Shed for Z.P. Primary School, Construction of 16 Toilets (06 Nos. for boys & 10 Nos. for Girls).	46	32	20	**98**	**06**
3	**Skill Development and Women Empowerment facilities**	**Location: Village- Gondkhairi, Surabardi, Kalambi ,Ketapar, Sahuli, Drugdhamna and Alesur.** **Physical Work:** Contribute to Direct Implementation in partnership with ITI and MSME, Involvement of women's in Mason training and breaking stereotypes, 7 Self Help Groups in eight villages and 155 women engage in the SHGs.	20	13	13	**46**	**08**
4	**Agricultural Facilities**	**Location: villages Gondkhari and Kalambi.** **Physical Work:** Donation of seeds, saplings, block plantation in village area, Plantation in school, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities, Construction of farm ponds for needy farmers, Training related to Modern Agricultural techniques to the farmers.	39	26	13	**78**	**06**

Sl.	Particulars	Physical Status	Dec 2023-Dec 2024	Dec 2024-Dec 2025	Dec 2025-Dec 2026	Amount to be spent for head (in Rs. (Lac))	Recurring Cost (in Rs. (Lac))
5	**Infrastructure Facilities**	**Location: Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur.** **Physical Work:** Strengthening/maintenance of village roads, Rain Water Harvesting at Community Area, Provision of Plantation and streetlights in Community Area, Provision Training for recycle SWM and Sale of recyclable waste to scrap merchants.	65	52	24	**141**	**10**
		Capital Expenditure =	**320**	**208**	**122**	**650**	**58**

10.8 GREEN BELT DEVELOPMENT

With rapid industrialization and the consequent deleterious impact of pollutants on the environment, values of environmental protection offered by trees are becoming essential. Trees are very suitable for detecting, recognizing, and monitoring air pollution effects. Monitoring of biological effects due to air pollutants by the use of the plant as indicators has been applied on a local, regional, and national scale. Trees function as sinks of air pollutants, besides their bio-aesthetical values, owing to their large surface area.

10.8.1 Design of Plantation

The following guidelines will be considered in plantation development:

- Trees will be planted in encircling rows around the shaft and inclines.
- The short trees (<10m height) will be planted in the first rows (towards plant side) of the plantation. The tall trees (>10 m height) will be planted in the outer rows (away from plant side);
- Planting of trees in each row will be in staggered orientation (Triangular form);
- Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion; and
- The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees may grow vertically and slightly increase the effective height of the plantation.
- Recommended plant spacing will be 2.0 x 2.0 m.

While selecting the plant species for the proposed plantation, the following points will be taken into

Consideration:

- Fast growing type;
- Thick canopy cover;
- Preferably perennially green;
- Preferably of native origin; and
- Should have a large leaf area index
- Maximum survival rate.

Green Belt/ Plantation Programme

The total greenbelt area is 6.00 ha. within ML area. Local species with broad leaves, higher canopy and fast-growing tree species will be preferred. Total 15000 nos. of samplings (2500 saplings/ha. considered) of local native species will be planted. The year wise proposed plantation breakup is provided in **Table 10.8.1.**

TABLE 10.8.1: PROPOSED PLANTATION DETAILS

Yr.	No. of Saplings	Area (ha)	Location
Proposed Plantation			
1st	7500	3.00	Saplings (above 6 ft. ht.) will be planted within first two year on set of rainy seasons whereas survival rate shall be maintained in subsequent years. Indigenous and broad leaf species for greenbelt development i.e., Kadamb, Neem, Shisam, Karanj, Dumer, Tamhan (Jarul), Maulsari, Jamun, Tacoma, etc. will be preferred.
2nd	7500	3.00	
Total	**15000**	**6.00**	

Besides this, The agro forestry plan for Orange cultivation over 86.0 ha area along with budgetary provision of Rs/- 11.485 crores will be implemented.

Plantation related program under Corporate Environment Responsibility (CER) in nearby villages Budget: 0.39 Cr.

Recommended Species for Plantation

Based on climate and soil characteristics of the study area, plant species are recommended for plantation and given in **Table 10.8.2**.

TABLE 10.8.2: RECOMMENDED SPECIES FOR GREENBELT WITH THEIR ECOLOGICAL IMPORTANT FEATURES

Sr.	Scientific name	Common name	Ht. (m)	Growth rate	Evergreen / Deciduous	Crown Shape	Ecological Imp. Features.
Plants for outer periphery of Road (Habit – Tree)							
1.	*Azadirachta indica*	Neem tree	20	Quick growing	Evergreen	Spreading	Sami-evergreen tree with medicinal value
2.	*Cassia fistula*	Amaltas	12	Quick growing	Deciduous	Round	Flowering & Ornamental
3.	*Cassia siamea*	Kassod	12	Quick growing	Evergreen	Oblong	Flowering & Ornamental
4.	*Dalbergia sisoo*	Sisam	10	Moderate during 1st yr. and rapid afterwards	Evergreen	Round	Air pollution tolerant plant
5.	*Aegle marmelos*	Bel	12	Slow growing	Evergreen	Oblong	Medicinal & spiritual value
6.	*Gmelina arborea*	Shivan	30	Fast growing	-		Butterfly host plant
7.	*Mimusops*	Maulsari	16	Slow growing	Evergreen	Oblong	Butterfly host

Sr.	Scientific name	Common name	Ht. (m)	Growth rate	Evergreen / Deciduous	Crown Shape	Ecological Imp. Features.
Plants for outer periphery of Road (Habit – Tree)							
	elengi						plant
8.	*Syzygium cumini*	Jamun	20	Fast growing	Evergreen	Oblong	Dense/Ornamental/fruit bearing/pollution tolerant
9.	*Ailanthus excelsa*	Mahraruk h	20	Quick growing	Deciduous	Round	Tall with shade
10.	*Diospyros melanoxylon*	*Tendu*	10	Slow growing	Deciduous	Oblong	Medicinal
11.	*Delonix ragia*	Gulmoha r	15	Quick growing	Deciduous	Spreadin g /Flat topped	Seasonal flowering and Air pollutant tolerant plant
12.	*Cassia renigera*	Pink Cassia	10	Quick growing	Deciduous	Spreadin g	Flowering & Ornamental
13.	*Peltophorum pterocarpum*	copper pod tree	25	Quick growing	Evergreen	Oblong/ Round	Air pollutant tolerant
14.	*Pongamia pinnata*	Karanj	6	Quick growing	Evergreen	Oblong	Shade & Flowing, air pollutant tolerant
15.	*Psidium guajava*	Peru	5	Slow growing	Deciduous	Oblong	Fruit bearing Tree
16.	*Bombax ceiba*	Simul	45	Slow growing	Deciduous	Oblong	Shade/Flowering/Attracts birds
17.	*Lagerstroemia speciosa* (L.) Pers.	Tamhan			Deciduous Tree	Round	Shade/Flowering/Attr acts birds
18.	*Neolamarckia cadamba* (Roxb.) Bosser	Kadamb		Quick Growing	Evergreen	Oblong	Shade & Flowing, air pollutant tolerant
Plants for inner periphery							
19.	*Bauhinia racemosa*	Astha	5	Quick growing	Deciduous	Oblong	Flowering/Butterfly host plant
20.	*Plumeria sp.*	chafa	10	Slow growing	Evergreen	Spreadin g	Fragrant flowers/Butterfly host tree
21.	*Callistemon citrinus*	bottle brush	5	Slow Growing	Evergreen	Conical	Ornamental, Butterfly host tree

Sr.	Scientific name	Common name	Ht. (m)	Growth rate	Evergreen / Deciduous	Crown Shape	Ecological Imp. Features.
Plants for outer periphery of Road (Habit – Tree)							
22.	*Tecoma stans*	Tecoma	5	Quick growing	Evergreen	Oblong	Air pollution tolerant
23.							
24.	*Murraya koengii*	Curry leaves	5	Quick growing	Evergreen	Spreading	Butterfly host tree

Source: Recommendation of green belt/plantation species based on ecological important features of plant and CPCB guidelines for developing greenbelts – 2000.

10.9 SEWAGE TREATMENT PLANT

Domestic effluent will be treated in STP. It is proposed to install 50 KLD STP based on Moving Bed Bio film Reactor technology. The details are given below.

Design basis of Treatment Plant: Moving Bed Bio film Reactor (MBBR) Technology

Sewage from main drain line is collected through gravity pipes into a bar screen followed by oil and grease chamber. This manually cleaned screen is provided to remove floating and big size particles, which may choke the pumps and pipe lines. Screened sewage is then passed through equalization tank to homogenize the sewage quality and also even out flow fluctuations and feed sewage of uniform quality at constant rate to subsequent treatment units. Air mixing is also provided to mix the contents of the equalization tank. A coarse bubble aeration grid is provided to distribute air uniformly at the base of the equalization tank. After above treatment, raw sewage is fed into aeration basin through submersible sewage transfer pump.

In aeration tank MLSS (mixed liquor suspended solids) in the range of 12000 to 15000 mg/l are maintained. The high amount of bacteria gives better and complete removal of organic matter from the raw sewage in relatively small area. Oxygen required for the bacteria is supplied through the blower. The air is used both for scouring of membranes and supplying oxygen to bacteria.

The MBBR process is a technology that consists of a suspended growth biological reactor integrated with an ultra-filtration membrane system, using membrane. The ultra-filtration membranes are immersed in an aeration tank, in direct contact with mixed liquor or in an external module. The membrane module consists of housing, aeration diffuser; permeate water manifold and membrane elements. Through the use of a permeate pump, a vacuum is applied to a header connected to the membranes. The vacuum draws the treated water through the ultra-filtration membranes. Feed water including activated sludge is filtrated by membranes with pore size of 0.04 to 0.02 micron meter. The air bubbles supplied from the bottom of the membrane elements continuously scour off cake of activated sludge accumulated on the membrane surface. This is a continuous filtration operation. The air bubbles are also used for the biological reaction to decompose organic substances included in the raw sewage.

The material of the membrane shall have high stability for chemicals and good physical strength. Form of membrane shall be fiber reinforced flat sheet / tubular hollow fiber membrane. The membrane shall have small and uniform pore size so that the rejection property of this membrane is excellent. Almost all

particles with sizes more than 0.04 to 0.02 micron meter can be removed effectively using this membrane.

TABLE 10.9.1: TREATED EFFLUENT CHARACTERISTICS (STP)

Sr. No.	Details	Values		Units
		Untreated	Treated	
1	pH	6.5- 8.5	7.0- 8.5	
2	Suspended Solids (SS)	150-300	≤100	mg/L
3	Chemical Oxygen Demand (COD)	400-600	<50	mg/L
4	Biochemical Oxygen Demand (BOD)	250-350	<15	mg/L
5	Oil & Grease	20-50	≤5	mg/L

10.10 EFFLUENT TREATMENT PLANT

- Generated wastewater from Mine workshop will be treated in ETP (10 KLD) along with Oil and Grease Trap.
- Pumped out water from UG mine will be collected in settling tank /Sedimentation tank and will be used for irrigation for nearby farmland or discharge in natural water body after treatment.

10.11 SOIL CONSERVATION AND LAKE REJUVENATION STUDIES

10.11.1 Identification of Area for Engineering and Biological Treatment

There are 4 numbers of small micro-watersheds with total area of 8.62 km^2. The study area needs treatment against soil erosion and moisture. On Examination of Land use pattern and field study, it is revealed that the land use actual treatable area available within the Catchment Area Treatment (CAT) & Soil Moisture Conservation (SMC) Area is 862.00 ha out of 862.00 ha (around 100 %) as per land capability classification as detailed below in **Table 10.11.1.** The study area has been divided into Engineering and Biological treatments and same is given in **Figure 10.2.**

TABLE 10.11.1: LAND USE AND LAND COVER IN THE STUDY AREA

Sl. No.	Net Treatable Area	CAT & SMC Area in Hectare	Treatable Area in Hectare	Percentage to the Total Area
1.	Geographical area	862	862	100%

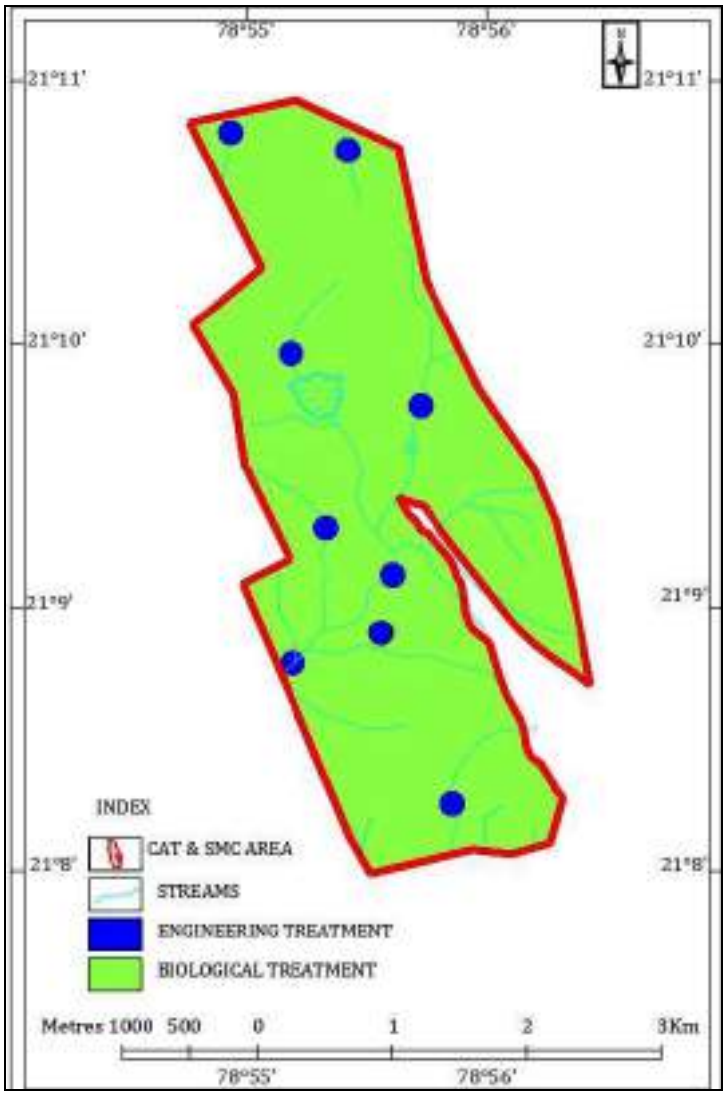


FIGURE 10.2 ENGINEERING AND BIOLOGICAL PLAN

10.11.1 Location of Engineering Method of Treatment Sites

The following Rivulets / Nalla/ Nadi are proposed for treatment. The list is given in **Table 10.11.2 and shown in Figure 10.3.**

TABLE 10.11.2: LOCATION OF ENGINEERING METHOD TREATMENT SITES UNDER CAT & SMC PLAN

Sl. No.	Type of Structure	Sample	Location	
			Latitude	Longitude
1	**Check Dam**	**CD1**	21° 08' 46.64"	78° 55' 11.80''
2	**Catch Pit**	**GB1**	21° 09' 13.55''	78° 55' 18.13''
		GB2	21° 9' 4.40''	78° 55' 28.59''
		GB3	21° 9' 45.56''	78° 55' 42.07''
		GB4	21° 9' 58.91''	78° 55' 12.26''
		GB5	21° 10' 48.4''	78° 55' 23.77''
		GB6	21° 10' 50.44''	78° 55' 2.58''
		GB7	21° 8' 49.94''	78° 55' 24.53''
		GB8	21° 8' 4.51''	78° 55' 49.30''

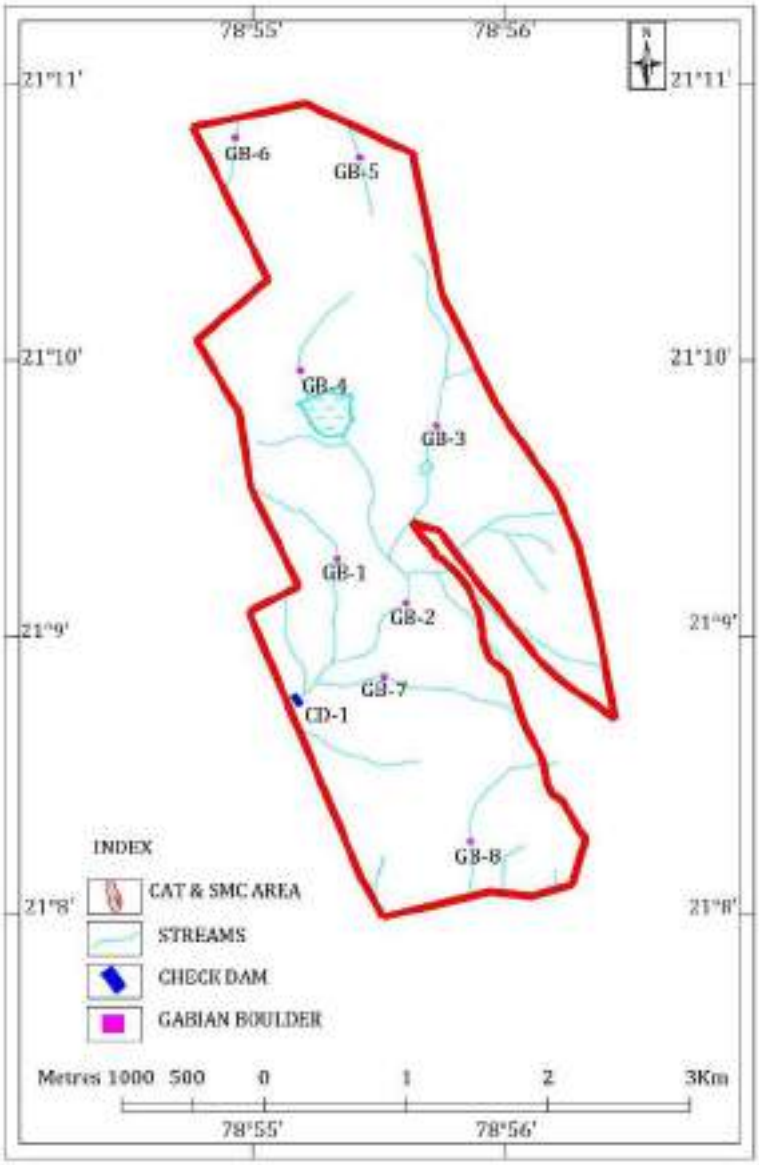


FIGURE 10.3 LOCATION OF CHECK DAM AND GABIAN STRUCTURE FOR CAT AND SMC STRUCTURE

10.11.2 Annual Yield of the Reservoir

The study area constitutes three micro-watersheds relating to respective water reservoir. The catchment area of relevant watershed of respective water reservoir under consideration is given below in **Table 10.7** and same is shown in **Figure 10.11.3.**

TABLE 10.11.3: WATERSHED DELINEATION OF RESERVOIRS

Sl. No.	Reservoir Name	Catchment Area (km^2)
1	Karle Reservoir	1.37
2	Surabardi Reservoir	8.49
3	Vena Reservoir	21.56

Annual yield of Karle reservoir, Suraburdi reservoir and Vena Reservoir have been done by using area, annual average rainfall and rainfall coefficient.

Estimation of surface water turned into groundwater during monsoon in Karle Reservoir, Suraburdi reservoir and Vena Reservoir. The normal monsoon values in days taken from IMD, Nagpur data. Based on all above parameters surface water resource in micro watershed area has been estimated and given in **Table 10.11.4.**

TABLE 10.11.4: ANNUAL YIELD OF RESERVOIR

Sl. No.	Name of Micro-Watershed of Water Bodies	Area in m^2	Monsoon Period for 120 Days Rainfall in mtr.	Rainfall Coefficient	Surface Water Available in Cum mtr/Year
1.	Karle Reservoir	1370000	1.1	0.20	301400
2.	Surbardi Reservoir	8490000	1.1	0.20	1867800
3.	Vena Reservoir	21560000	1.1	0.20	4743200

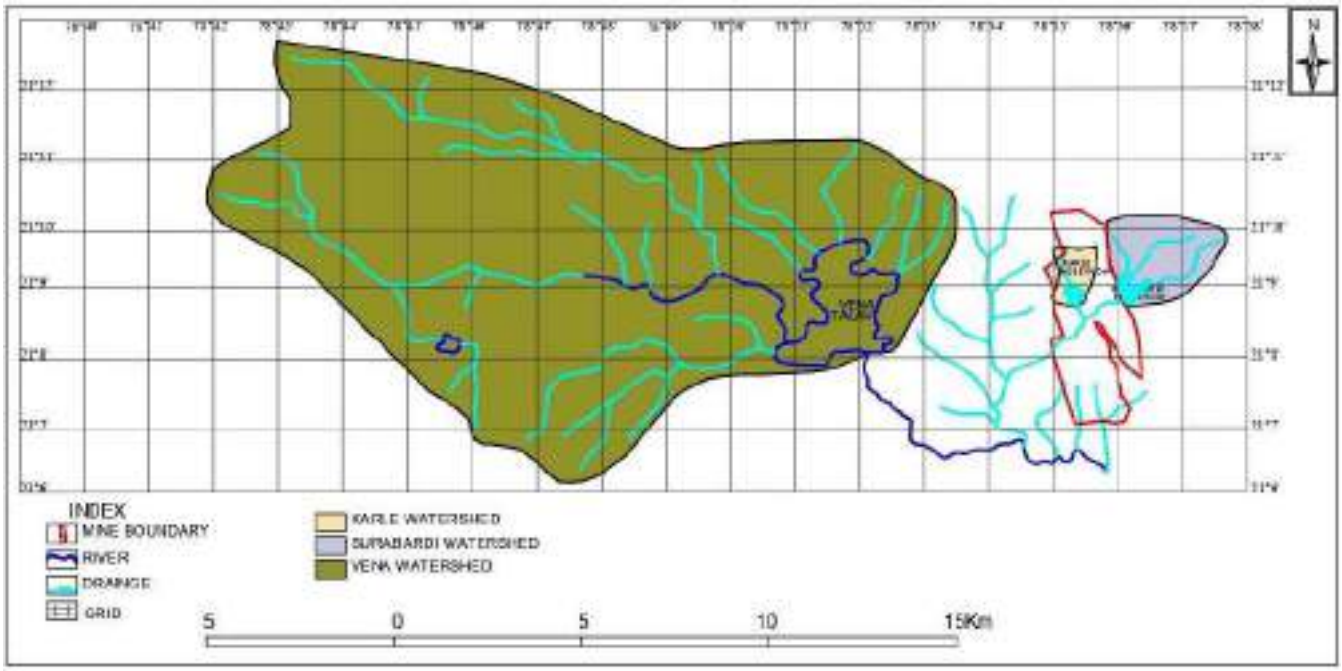


FIGURE 10.4: WATERSHED DELINEATION OF RESERVOIRS

10.11.3 Method of Treatment for CAT & SMC Plan:

The method of Catchment Area Treatment Plan and Soil Moisture Conservation plan will include both Biological & Engineering.

10.11.3.1 Biological Method Includes Following Activity on Forest and Agriculture Land

A. Strip-Cropping

Strip cropping is similar to alley cropping in that trees alternate with crops. The difference is that, with alley cropping, the trees are in single row. With strip cropping, the trees or shrubs are planted in wide strip. The purpose can be, as with alley cropping, to provide nutrients, in leaf form, to the crop. With strip

cropping, the trees can have a purely productive role, providing fruits, nuts, etc. while, at the same time, protecting nearby crops from soil erosion and harmful winds.

It is proposed to cover 100 ha of agricultural land @ of 20 plants per ha i.e. planting of 500 trees.

Agroforestry

Agroforestry is a land use management system in which trees or shrubs are grown around or among crops or pastureland. This intentional combination of agriculture and forestry has varied benefits, including increased biodiversity and reduced erosion. Agro-forestry practices have been successful in many parts of the state during Social Forestry Project.

Agro-forestry systems can be advantageous over conventional agricultural, and forest production methods. They can offer increased productivity, economic benefits, and more diversity in the ecological goods and services provided. It is proposed to have agroforestry in the 25 ha of land the in consultation with forest department.

B. Conducting training camps of non-erosive tillage practice

It is proposed to conduct training camps for Farmers to adopt non erosive tillage practice, Cropping pattern and Agro- Forestry Practices. 4 training camps will be conducted. Training camps, Planting of trees under Agro- Forestry and planting of Bena Grass slips should be implemented simultaneously to derive effect of motivation in training camps.

C. Land with or without scrub

The land with Scrub is generally Govt. Lands without tree cover and being more and more being utilized for developmental purpose. It is observed that most of the soil is either compact or affected by Rills / Gullies. It is proposed to provide staggered trenches and Grass land development on fellow lands near to Nalla bank, Forest fringes and blank government lands.

D. Gross land development

Grass lands in villages are though available but mostly devoid of palatable grass. It is proposed to develop grass lands either in Revenue Forest lands / Gochar land or in open forests in pockets. The grass land development involves a- Ploughing of area, sowing of grass seeds and application of manure periodically to have a sustainable growth. Instead of grazing, villagers may be motivated to cut and take the grass as required after 45 days of seed sowing. Planting of grass slips may also be preferred to seed sowing for ease establishment. It is proposed to develop 10 ha of Grass land during 5 years. It may be implemented for 5 years.

10.11.3.2 Engineering Method on Nala

A. Loose boulder Gabin structure (GB)

Forest blocks are the origin of many nalla, rivulets those ultimately flows to Vena River. It is proposed to have intensive Soil & Moisture conservation measures in an integrated manner. The nallas will be treated with loose boulder Gabion Structure (G.B.). There will be 8 nos. of GB Structure will be implemented.

B. Check Dam

Besides the treatment provided to rivulets / nalla originating from Forest blocks, it is also necessary to adopt soil and moisture conservation measures to check runoff and allow percolation of water to improve quality of vegetation and prevent loss of top soil (Sheet erosion). It is proposed to provide 1 no check dam.

10.11.3.3 Engineering Method for Lake Rejuvenation of Reservoirs

Engineering method used will be De-silting which is given in details below.

Principle of De-siltation

In order to achieve the objectives mentioned in the previous section, the best way is to practice desiltation of reservoirs at regular intervals. The removed silt should be used in enforcement of embankment and planting of trees on it for stabilization of the same.

The removed materials have to be taken away from the ponds and not spread over the dike /bunds so that they are not washed back into the pond during rain.

Method of De-siltation

i. De-siltation to be taken up at regular intervals in dry months of the summer season to get best result & depth required to be maintained.

ii. The dried silts to be removed manually or mechanically basing on the site condition/quantity of silt accumulated.

iii. Silt accumulation is mainly found in basal area of the pond which is about 30% less than the size of the pond mentioned.

iv. De-siltation may be taken up at 2 cycles by manually.

v. The silts so excavated will be placed around the pond in an embankment design at about width of 2.5 m and height of 1 m simultaneously and compacting the soil.

vi. Grass tufting on both the side of the pond should be done.

The detailed studies are presented in **Annexure – X.** Whereas, implementation of cost towards implementation of CAT Plan and Soil Moisture Conservation Plan for Gondkhari UG Mine are given in **Table 10.11.5.**

TABLE 10.11.5: COST TOWARDS IMPLEMENTATION OF CAT PLAN & SOIL MOISTURE CONSERVATION PLAN

Sl No	Description	Unit	Rate in Rs.	Target	Amount in lakh Rs
Biological Plan					
1	Strip cropping	No	250	500	1.25
2	Agroforestry.	ha	4000	25	1.00
3	Tainting camps for Farmers.	No	25000	4	1.00
4	Land With & Without Scrub Treatment	ha	2500	50	1.25
5	Grass land development.	Ha	10000	10	1.00
				Sub Total (A)	**5.50**
Engineering Plan					
6	Treatment of Nalla / Rivulets. Loose boulder Gabion Structure (G. B.)	No	50000	8	4.00
7	Treatment of Nalla / River banks.	No	5,00,000	1	5.00
				Sub Total (B)	**9.00**
				Escalation LS (C)	**0.50**

Sl No	Description	Unit	Rate in Rs.	Target	Amount in lakh Rs
				Total (A + B + C)	15.00

10.11.3.4 Rejuvenation of Water Reservoirs/Water Bodies

In the study area there is no natural lake formation. The water resources Department of State Government has constructed two water reservoirs for irrigation purposes and Zilha Parishad has also construct one water reservoir of small size as check dam for recharge purposes. The detailed studies are presented in **Annexure – XI.**

The Mitigative plan for rejuvenation of reservoirs have suggested following measures.

1) Biological
2) Engineering

The total cost of Rejuvenation of Water Reservoirs/ water bodies is given in **Table 10.11.6**.

TABLE 10.11.6: COST OF REJUVENATION OF WATER RESERVOIRS/WATER BODIES

Sr. No.	Reservoir Name	Biological Cost	Engineering Cost	Total Annual cost of Rejuvenation of Water Reservoirs
		Rs.	Rs.	Rs.
1	Karle Reservoir	184500	16599911	16784411
2	Surabardi Reservoir	369000	19226508	19595508
Total		**Rs. 553,500**	**Rs. 35,826,419**	**Rs. 36,379,919**

AMPL has also surveyed through an Expert for the Proposed Drinking water facilities at nearby villages the proposals are as follows: -

As per the survey was carried out in the surrounding 9 villages (Kalambi, Surabardi, Alesur, Khapri, Sahuli, Khadgaon, Waddhamana, Gondkhairi, and Ketapar), out of which 3 villages (Kalambi, Surabardi, Alesur) are having Government Tap water supply from surface water and 6 Villages are those where there is no supply of water by Government agencies. In all this Villages planning for drinking water through pipeline system will be done. The total cost for pipeline system is **Rs. 17,78,400** and detailed of the proposed pipeline system is given in lake rejuvenation **(Annexure-XI) study page no 24.**

10.11.3.5 Rain Water Harvesting System

For suggesting new rainwater harvesting facilities survey was carried out in the surrounding 9 villages (Kalambi, Surabardi, Alesur, Khapri, Sahuli, Khadgaon, Waddhamana, Gondkhairi, and Ketapar), out of which 3 villages (Kalambi, Surabardi, Alesur) are having Government Tap water supply from surface water and rest 6 Villages (Khapri, Sahuli, Khadgaon, Waddhamana, Gondkhairi, and Ketapar) are dependent on ground water through bore wells.

Accordingly, it is essential to supplement ground water resource through rainwater harvesting. The Rainwater Harvesting scheme has been done by using State Schedule of Rate 2022-23 (PWD) Govt. of Maharashtra.

Detailed rainwater harvesting plan along with protection of Dam/Lake/Reservoir lying within the ML area & in Buffer zone given in page 19-22 of Lake rejuvenation plan **(Annexure-XI)** and budgetary provision of same is **Rs.32,66,676.**

Cost Estimate for Rain-Water Harvesting Unit Village is given below:

TABLE 10.11.7: Cost Estimate for Rain-Water Harvesting Unit Village

Sr no	Type of Work	Costing in Rupees
1	RWH- Recharge Pit (SSR Item no. 48.47, sr no. 1663. Pg no. 317).	91,300
2	Boring/drilling (SSR Item no. 48.48, sr no. 1664. Pg no. 317).	41,600
3	Supplying assembling- (SSR Item no. 48.49, sr no. 1665. Pg no. 318).	49,400
4	Gravel Packing- (SSR Item no. 48.54, sr no. 1670. Pg no. 318).	1,494
Cost Estimate for Single Village		1,83,794
Cost Estimate for 6 Villages (Rs. 480194 x 6)		11,02,764
5	Maintainance of 18 Nos. Check dam	18,000,00
Labor Charges (33%)		3,63,912
Total Cost Estimate for RWH in 6 Villages		**Rs. 32, 66, 676**

10.12 POST MINE CLOSURE ENVIRONMENTAL MANAGEMENT PLAN.

❖ Post Closure Air Quality Management

After cessation of mining operation and its related activities, there will be no effect on ambient air quality due to this project. As the proper mitigation measures for air pollution control will be taken and there will be no adverse effect on the ambient air quality after closure of mine. A provision has been made for **RS 1.40 Crores** towards air quality management, plantation, post mining air quality management during progressive mine closure activity

❖ Post Closure Water Quality management

Underground mining of coal may affect both the surface as well as the underground water sources. The surface water sources, e.g., ponds, tanks, nalla rivers, etc. and the surface drainage pattern are affected by the changes in the surface topography due to the constructions and subsidence movements while the underground water sources, i.e., water table and aquifers, are affected due to the disturbances in the overlying strata / rock mass. Surface water source and surface drainage will be affected to some extent as the final extraction of coal by caving method has been proposed for all the seams.

The depillaring in the underground working disturbs the underground water bodies and the extent of the disturbances depends on the nature and magnitude of the subsidence movements, if any, at the level of the underground water bodies. The disturbances are maximum in case of caving. Due to these disturbances, the make of water in the underground workings increases and hence it is desired to assess the extent of increase in the make of water and then plan for storage of the water in underground workings on the dip side of the depillaring panels and pumping of water from the sumps and water filled workings. Final extraction in this mine has been proposed by caving. Therefore, due care will be taken in monsoon period during mining operation so that the additional make of water arising out of fractured rock strata in upper horizons is safely pumped out of the underground mine. When the underground mining activities are about to close, plan is needed for underground storage of water in the voids that remain in the underground workings. The underground water bodies thus formed have their advantages which outweigh the disadvantages in most situations as they become a permanent source of water and may tend to reactivate the aquifers and the water table. A provision has been made towards water

quality management, garland drain, post mining water quality management during progressive mine closure activity.

❖ **Restoration of Land used for Infrastructure**

As per approved Mine Plan majority of infrastructure like workshop, sub-station, store, cap lamp room, canteen, office buildings, Fan house, and surface coal handling arrangements are proposed to be constructed. Considering the ground realities prevailing five years before mine closure, plan for reutilizing these structures or decommissioning them will be made. If decommissioning of infrastructure is done, the land occupied by the infrastructure will be restored for some useful purpose. A provision has been made for **Rs 5.20 Crores** towards dismantling of infrastructure, rearranging water pipeline to agricultural land, dismantling of power lines, arterial roads to mine including 4m lane for LMV with divider during progressive mine closure activity.

❖ **Disposal of Mining Machinery**

The salvaging and shifting operation of mining machinery and other equipment will be done considering the ground realities prevailing five years in advance of financial closure of the mine. A provision has been made towards dismantling of underground equipment and disposal of mining machinery, dismantling of workshop, rehabilitation of dismantled facilities etc. during progressive mine closure activity.

❖ **Safety & Security**

Some of hazard potential specific to the proposed mine have been dealt in this report. The guidelines/ instructions from DGMS will be followed in case of discontinuance of mine operation, if any. There will be no safety hazards for the neighboring community after the mine closure The measures for management of fire in the mine and coal stockyard adopted/ will be adopted so that there will be no fire hazard for the neighboring community after the mine closure. The management has provided manpower for supervision and rehabilitation for safety and security of the post closure activities during progressive mine closure.

10.13 BUDGETARY ALLOCATION FOR ENVIRONMENTAL MANAGEMENT PLAN

The details of Environmental Management Plan for different environmental protection and control activities cost are given in **Table 10.10**.

The project cost of proposed UG coal mine of M/s. Adani Power Maharashtra Ltd. is of **Rs. 1303 Cr.** The budgetary provision under EMP towards Capital Cost of Environmental Management plan is of **Rs. 32.585 Cr.** and Recurring Cost of **Rs. 4.17 Cr.** The detailed account of the estimates is presented in **Table 10.10.** The company will also comply with its obligation for CSR as per Company's Act too, in addition to the above EMP budget.

TABLE 10.13.1: BUDGET ESTIMATION FOR ENVIRONMENTAL MANAGEMENT PLAN

Sr. No.	Particulars	Proposed EMP Cost (Rs. In Cr.)	
		Capital Cost	Recurring Cost
1	Waste Water Management, Sedimentation Tank including Wheel Washing System	0.75	0.5
2	Water spraying costs in underground and surface	0.25	0.2
3	Air Quality Management, (Dry fog Dust suppression system)	1.6	0.3
4	Implementation of Solar Light	0.2	0.1
5	Greenbelt Development including biological conservation plan	11.485*	0.18
6	Solid Waste Management	0.45	0.02
7	Environment Monitoring and Management (including Installation of CAQMS)	2.0	0.25
8	Restoration of Landuse for Infrastructure (Dismantling of structure)	5.20	0.02
	Additional Studies		
9	Soil Conservation Plan and Pond (Water Bodies) Rejuvenation and Conservation Activities	4.15**	0.10
10.	Maintenance of Existing Road Facilities as per requirement	-	2.50
11	Budget for addressing public hearing concerns	6.50	0.00
Total		**32.585**	**4.17**

*** Green belt development budget including the agro forestry (Orange Cultivation).**

****Total Cost of Water Management - Rs. 4, 15, 00, 000/**

1) Biological Cost of Biological Plan= Rs. 5, 53, 500 for five year
2) Engineering
   - Cost of Fencing = Rs. 1, 50, 33, 419
   - Cost of De-silting= Rs. 2, 07, 93, 000

The Total Cost of Rejuvenation of Reservoirs = Rs. 3, 63, 79, 919 (Rs. Three crores sixty three thousand seventy

CHAPTER-11
SUMMARY & CONCLUSION

11.0 SUMMARY & CONCLUSION

11.1 INTRODUCTION

11.1.1 Identification of Project

Gondkhari Coal mine is proposed underground coal mining project in Gondkhari area (Kamptee coal field) in Nagpur District of Maharashtra State. The lessee M/s Adani Power Maharashtra Limited (APML) applying to grant Environmental Clearance for Gondkhari Underground Coal mine (ML Area 862.00 Ha. and Production Capacity is 2.00 MTPA.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the project falls under Sector 1 (a) (i). The project activity is categorized as **Category "A"**; therefore, it requires Environmental Clearance (EC) to be obtained from EAC (Coal Mining Projects), MoEF&CC, New Delhi.

The report is prepared as per EIA Notification 2006 as amended and the ToR granted vide letter No. IA-J-11015/46/2022-IA. II(M) dated on 13.02.2023 by EAC (Coal Mining Projects), MoEFCC, New Delhi.

The mine plan has been approved from Ministry of Coal, Government of India, New Delhi vide letter dtd. 09/01/2023.

The environmental public hearing for proposed project was conducted dated 13.07.2023 at 11.00 AM at the Khasra no. 9/5, near Karli lake, Village Karli, Taluka Kalmeshwar, Dist. – Nagpur, Maharashtra by Maharashtra Pollution Control Board, Sub Regional office Nagpur 01.

- **Location of the Project**

The proposed underground coal mine is planned with a production capacity of 2.0 MTPA in Mining Lease area of 862.00 Ha at Gondkhari Village, Kalmeshwar Tehsil, Nagpur District of Maharashtra state.The lease area of 862.00 Ha is located at Village Gondkhari, Nanda (Risthi), Alesur, Kalambi, Karale, Surabardi, Pendhari and Wadhamna, Tehsil – Kalmeshwar, District - Nagpur, Maharashtra. The nearest habitation is village Gondkhari a distance of 1.50 km in SW direction from the periphery of ML area. The lease area falls under Survey of India Toposheet no. 55 K/16 on 1: 50,000 scale and lies between Latitudes N 21°07' 57" to N 21°10' 56" and longitudes E 78° 54' 45" toE 78°56' 26".

11.2 PROJECT DESCRIPTION

The proposed site is well connected by Kalmeshwar Railway Station located at about 6.0 km in the north direction from the ML boundary. The NH-53 is passing from south side of the ML area. The Dr. Babasaheb Ambetkar International Airport is the nearest Airport which is about 13.0 km in SE direction from Lease boundary. The salient features of the project are given in **Table-11.1.**

TABLE 11.1: SALIENT FEATURE OF THE PROPOSED PROJECT

Sr. No.	Description	Details
1.	Production/estimated reserves	Targeted Capacity – 2.0 MTPA Net Geological Reserve: 98.5030 Million tonnes Mineable Reserve: 52.946 Million tonnes
2.	Mining methods & technology	Mechanized Longwall (retreating) mining method
3.	Mine lease area	862.00 Ha.
4.	Life of mine	30 years (including construction phase)

Sr. No.	Description	Details
5.	Lease period	Application for mining lease has been submitted and Approval is under progress.
6.	Total water requirement & source	Total water requirement is 496 KLD (436 KLD from mine seepage and 60 KLD from borewell) Source: Industrial water requirement will be met from existing reservoirs, ground water and mine water sources. Potable water requirement will be met from ground water sources with appropriate treatment.
7.	Power requirement & source	19742 KW, Source: Maharashtra State
8.	Manpower requirement	863
9.	Raw material required	The allocated block is a commercial coal block for sale of coal.
10.	Geological reserves	Estimated Gross Geological reserves: 98.717 Mt.. Net Geological Reserve: 98.503 Mt.
11.	Seam details	Workable seam out of 10 coal seams are: II seam, III Seam, V Seam & VIII seam.
12.	Estimated cost of the project	1303 Cr.

11.2.1 Technology and Process Description

The project is proposed underground coal mine with rated capacity of 2.0 MTPA. It has been proposed to extract the coal reserves by Mechanized Road header and PSLW and the coal evacuation is through series of Conveyor systems up to surface. The life of mine is 30 years including construction period. The Longwall shearer cuts coal in both directions, with a depth of 0.8m. Three shifts for production, one for maintenance, 4 cuts will be performed in each shift annual working days per year is 305, and the rate of regular cyclic group is 90%. The annual advancement progress is 0.8x12x305x90% = 2635m. The annual production of the south wing LW face is 0.84Mt, the same of the north wing LW face is 1.00 Mt, and the development production is 0.16 Mt.

The output is considered technically feasible because of the following conditions:-

- Gradient of 9 degrees to 22 degrees of the coal seams.
- Multiple coal seams (4 of UG).
- Strike length.
- Thin coal seams (due to splitting).
- Variable thickness of OB/partings (high strip ratio).
- The minimum working height considered for LW operations is 1.20m and the barrier between 2 panels is 45m.
- The face length of the LW panel is considered as 120m.
- The gallery Dimensions for drivage is 4.5m width and height as depending upon the thickness of the seam up to maximum 3.50m.

11.2.2 Proposed Method of Mining

The proposed method to work the deposit is done by mechanized Longwall (retreating) method will be adopted as method of Mining. With high level of production planned from the mine, the following mechanization has been planned. Six Road headers and Two sets of Longwalls are adopted for development and depillaring. Coal evacuation via lump breader on to a system of belt conveyers. Side Discharge Loaders with compressed air drills and compressed air bolter for roof support. Coal evacuation by chain conveyers on to feeder breaker and belt conveyors for stray area.

11.2.3 Anticipated Life of the Mine

Total Mineable Reserves is 52.496 million tonnes and Life of the mine @ 2.0 MTPA (For Coal) = 26 Years.

11.2.4 Waste Generation & Disposal

The solid waste generated from the proposed project during incline drivages and shaft sinking in the sub-soil and hard rocks for mine entries and also from drivages of cross-cuts in hard rock is estimated to be about **127000 Cum** of solid waste. The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation bank head and filling of low lying areas, development of the land for infrastructure and development of greenery. The solid waste generated from colonies and service buildings shall be dumped in the low-lying areas and suitable plantation will be done over it.

11.2.5 Water Requirement & Source

Total water requirement is 496 KLD (436 KLD from mine seepage and 60 KLD from bore-well)

Source: Industrial water requirement will be met from existing reservoirs, ground water and mine water sources. Potable water requirement will be met from ground water sources with appropriate treatment.

11.2.6 Manpower Requirement

The total manpower requirement is 863 nos. and no further additional manpower is required.

11.2.7 Site Infrastructure

The infrastructure will be in the form of mines office, rest shelter, Transformer and machinery. The haul road, the road from mining to connecting NH already exists. The first aid center, water drinking point is already available inside mine lease area.

11.3 BASELINE STUDY REPORT

Baseline Study Reports		
Period	Pre-monsoon Season (**1st March 2022 – 31st May 2022**)	
Meteorological data	**Predominant Wind Direction**	**Pre-monsoon season**
	First Predominant Wind Direction	WNW (11.96%)
	Second Predominant Wind Direction	NW (10.91%)
	Calm conditions (%)	0.86
	Avg. Wind Speed (m/s)	2.95

Baseline Study Reports

Period

Pre-monsoon Season (**1st March 2022 – 31st May 2022**)

AAQ parameters at 12 Locations

Sl.	Name of Pollutant	Min	Max
1	PM_{10} (µg/m^3)	41.5	88.4
2	$PM_{2.5}$ (µg/m^3)	15.8	41.0
3	SO_2 (µg/m^3)	4.8	15.9
4	NO_2 (µg/m^3)	8.8	31.1
5	CO (mg/m^3)	0.215	0.435
6	Ozone (µg/m^3)	4.8	9.9
7	Ammonia (µg/m^3)	4.2	9.2
8	Lead (µg/m^3)	0.07	0.24
9	Arsenic (ng/m^3)	BDL (DL-0.1)	BDL (DL-0.1)
10	Nickel (ng/m^3)	BDL (DL-0.1)	BDL (DL-0.1)
11	Benzene (µg/m^3)	BDL (DL-0.01)	BDL (DL-0.01)
12	BaP (ng/m^3)	BDL (DL-0.01)	BDL (DL-0.01)

The overall ambient air quality in the study area is within CPCB limits as per NAAQS standards.

Ground water quality at 8 locations

Parameter	Unit	Result	
		Min	Max
pH	-	7.03	7.61
EC	µS/cm	553.32	1399.08
TDS	mg/l	348	786
Chlorides (as Cl)	mg/l	39.82	209.81
Sulphate (as SO_4)	mg/l	9.62	24.01
Nitrate	mg/l	9.62	18.59
Total Alkalinity(as $CaCO_3$)	mg/l	104	260
Total Hardness (as $CaCO_3$)	mg/l	210.63	478.05
Calcium (as Ca)	mg/l	62.11	135.17
Magnesium (as Mg)	mg/l	7.95	34.12
Iron (as Fe)	mg/l	0.13	0.24
Total Coliform	Per 100 ml	Absent	Absent

The Total suspended solid concentration was found below detection limit (DL - 10mg/l) at all sampling location. Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.1), BDL (DL-0.001), BDL (DL-0.01) respectively. The overall ground water quality in the study area is within CPCB limits as per IS10500:2012 Standard.

Surface water quality at 8 locations

Parameter	Unit	Result	
		Min	Max
pH	-	7.12	8.37
EC	µS/cm	594.36	1947
TDS	mg/l	381	1100
Chlorides (as Cl)	mg/l	58.6	240.8
Sulphate (as SO_4)	mg/l	9.28	57.61
Nitrate	mg/l	9.21	22.81
Total Alkalinity(as	mg/l	136	432

Baseline Study Reports	
Period	Pre-monsoon Season (**1st March 2022 – 31st May 2022**)
	$CaCO_3$)			| Total Hardness (as $CaCO_3$)	mg/l	211.95	712.19 Calcium (as Ca)	mg/l	61.7	173.04 Magnesium (as Mg)	mg/l	13.09	68.08 Dissolved Oxygen	mg/l	5.1	6.3 BOD at 27°C for 3 days	mg/l	3.6	17.3 Total Coliform	MPN Per 100 ml	Present	Present Fecal coliform	MPN/100 ml	58	542 Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.01) respectively. The overall surface water quality in the study area is within standard limits as per IS 2296:1982 standards.
Noise levels at 8 locations	Noise levels in the study area was observed as – Residential Area – 51.2 to 54.7 dBA for day time and 39.7 to 42.6 dBA for night time. Commercial Area – 59.8 to 62.5 dBA for day time and 43.7 to 47.2 dBA for night time. Silence Zone – 46.7 to 48.1 dBA for day time and 37.4 to 39.2 dBA for night time. Industrial area – 51.5 dBA for day time and 38.3 dBA for night time. Ambient noise levels in the study area were observed to be well within the permissible limits prescribed in CPCB Standards.
Landuse	As per LULCclassification the predominant class within study area is Scrubs/Wastelands 13.83% followed by Agriculture Land 63.09% and Forest land 9.47%
Soil quality	**Parameter** | **Unit** | **Result** (Min | Max) | **Fertility Status** pH | - | 5.34 | 6.57 | neutral to moderately alkaline Organic carbon | % | 0.22 | 0.67 | quality less to average sufficient Nitrogen | Kg/ha | 116.8 | 297 | quality less to better Phosphorous | Kg/ha | 13.01 | 40.15 | quality very less to less Potassium | Kg/ha | 120.32 | 358.47 | quality medium to more than sufficient Sodium adsorption ratio | - | 2.57 | 4.6 | Little or no hazard to unsatisfactory for all the crops)
Biological environment	Flora Among the enumerated flora in the study area, none of them were assigned any threat category, by RED data book of Indian Plants. (Nayar and Sastry, 1990) and Red list of threatened Vascular plants (IUCN, 2010; BSI, 2003). **Fauna:** **As per IUCN RED (2013) list** Among the reported animals, *Rusa unicolor* (Sambar) is categorized as Vulnerable (VU) whereas Bengal monitor lizard (*Varanus bengalensis*) is categorized as Near Threatened (NT) category as per IUCN. Rest of the animals is categorized under Least Concern (LC) category as per IUCN. **As per Indian Wild Life (Protection) Amendment Act, 2022** Among mammals; Common Mongoose (*Herpestes edwardsi*), Jackal (*Canis aureus*)

Baseline Study Reports	
Period	Pre-monsoon Season (**1st March 2022 – 31st May 2022**)
	Jungle cat (*Felis chaus*), *Rusa unicolor* (Sambar) are protected in schedule – I. While, Hanuman/Common Langur (*Presbytis entellus*), Wild Boars (*Sus scrofa*) and Indian hare (*Lepus nigricollis*) are provided protection by incorporating them in schedule–II whereas Rats Bat and Squirrel species which are found in the study area dose not included in any schedule of the Wild Life (Protection) amendment Act, 2022. Among the herpetofauna, Bengal Monitor Lizard (*Varanus bengalensis*), Indian Cobra (*Naja naja*), Russell's Viper (*Daboia russelii*) and Common Rat Snake (*Ptyas mucosus*) were provided protection as per Schedule - I of Wild Life (Protection) amendment Act, 2022 and Common Indian Krait (*Bungarus caeruleus*) and Indian Toad (*Duttaphrynus parietalis*) were provided as per Schedule – II of Wild Life (Protection) amendment Act, 2022. Among the Avifauna in the study area Indian peafowl (*Pavo cristatus*) and Shikra (*Accipiter badius*) are protected in schedule –I. While rest of the birds are included in schedule II as per Wild Life (Protection) amendment Act, 2022.
Socio economic environment	• ***Salient observation of the Social survey in study area:*** • **Education:** Government Pre Primary, Govt Primary, Private Primary, Govt Middle, Private Middle and Govt Secondary Schools are available in this Village. Nearest Govt Engineering College and Govt Medical College are in Hingna. Nearest Govt Disabled School, Govt Arts and Science Degree College, Govt MBA College, Govt Polytechnic College and Govt ITA College are in Nagpur. • **Health:** Primary Health care centre , 1 Primary Health Sub-Centre , 1 Maternity And Child Welfare centre , 1 TB Clinic , 1 Modern Hospital , 1 Veterinary Hospital , 1 Family Welfare centre , 2 Medical Shops are available in this village. • **Agriculture:** Pipe Factory is Product Manufactured in this village. Total irrigated area in this village is 639 hectares from Boreholes/Tube wells 236.2 hectares is the Source of irrigation. • **Drinking-Water and Sanitation:** Tap Water Supply all-round the year. Covered Well, Uncovered Well and Hand Pump are other Drinking Water sources. Open Drainage System Available in this Village. There is system to collect garbage on street. Drain water is discharged directly into water bodies. • **Communication:** Post Office is available in this Village. Landline and Mobile Coverage is also available. Internet Centre available in this village. Private Courier Facility available in this village. • **Transportation:** Public Bus service available in villages. Private bus service is also available in these villages. There is no Railway Station in less than 10 km. Autos Available in this Village. National Highway passes through this village. No Nearest State Highway in less than 10 km. District Road passes through this village. Pucca road, Kuccha Road, Macadam Road and Foot Path are other Roads and Transportation within the village. • **Commerce:** Commercial Bank available in villages. Cooperative Bank available in this village. Agricultural Credit Society, Mandis/Regular Market, Weekly Haat/santha and Agricultural Marketing Society are available in this village. • **Other Amenities:** Villagers get Power supply with 20 hour in summer and 22 hour power supply in winter, Anganwadi centre, ASHA, Birth & Death registration office, Sports facilities, Cinema Theater in village or nearby, Public library, Daily News Paper and Polling station are the other amenities in the village.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.4.1 Impact on Topography, Drainage & Land use

- **Topography**

Total forest area within ML area is 87.351 Ha. However, no disturbance in the forest land as well as the legal status of forest land remains unchanged. Topographically the Mine Lease area characterized by a flat topped and terraced features with maximum elevation of 387m MSL and lowest elevation of 329m MSL. Towards northern side of Mining Lease area exhibit higher altitude while the southern part shows low lying area of gentle slope.

Subsidence due to total extraction of coal may cause changes in topography by developing micro basins, subsidence fractures, ridges, pot holes etc.

Care will be taken during mining activity to leave enough pillars in underground as barriers below water body to avoid any damage to surface water bodies.

- **Land use**

Large-scale excavations are the basic causes for impact on land use. However, excavation will be carried out below the ground and no surface area will be disturbed.

Thus, there will no significant change in land use within 862.00 Ha of ML Area over decades of proposed mining activities. The subsided areas due to caving during mining operation will be filled up and reclaimed for agriculture and plantation purpose.

11.4.2 Ambient Air Quality

➢ **Impacts on Air Quality**

The mining activities are restricted to underground only; there will not be any significant impact on surface air quality. However, the mine exhaust contains minor percentage of methane and CO_2, which are easily diffused in the ambient atmosphere. The mine is provided with online sensors for monitoring the concentrations of CO and methane within the mine. The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time (45 Ton dumpers). These movements of trucks are expected to contribute to oxides of nitrogen, carbon monoxide and particulate matter.

➢ **Mitigation Measures**

- All the vehicles used for transportation of coal shall be covered with tarpaulin to avoid dust pollution.
- With stringent traffic management system within the coal mine lease area, scope for air pollution due to movement of coal transports will be minimized. The layout of the project has generous area earmarked for greenery development. This will act as effective media for arresting the emissions within the coal mine lease area.
- The vehicular traffic plying in and out of the project site is one of the significant sources of air pollution. If the site is not properly regulated, it can create disruption in free traffic movement leading to air pollution problems. This difficulty can be tackled to a great extent by properly regulating the traffic and by following strict and disciplined vehicular movement and operation at the project site. By imposing vehicular emission standards, this problem can be further curbed to a large extent.

- BS-6 trucks/dampers will be used for the transportation of coal.
- GPS tracking and speed monitors shall be installed in the Vehicles.
- The Trucks which are found to have Pollution Under Control Certificates only will be allowed. Every other vehicle used in the plant even for passenger transport will be checked for Pollution under Control at the prescribed frequency.
- Adequate and planned road network will be set up at the project site for smooth movement of the goods vehicles.
- It would be ensured that all the vehicles plying in the working zone are properly tuned and maintained to keep emissions within the permissible limits. At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will be minimized further.
- All the internal roads within the plant are metaled; hence dust arising from the internal roads will be insignificant. The greenbelt development shall further help in reduction in fugitive emissions.

11.4.3 Impacts on Ambient Noise Levels and Effects

As the mining operations will be carried out in underground, there will be no significant impact on the ambient noise levels. The only activity affecting the noise level could be due to surface mine ventilation fan. But due to isolation around the fan house not envisaged any adverse noise level to any extent. Hence, no tangible impact is assessed on the ambient environment near the pits.

Significant noise could get generated from roof bolter, cutting, crushing of coal, screening and its handling. But all these are confined to the specific area, which are enclosed. It does not have much impact on the ambient noise since all these operations are carried out under proper enclosures.

It can be further concluded that in actual conditions due to presence of various topographical features in the path of sound propagation the noise levels will be further attenuated.

The damage risk criteria as enforced by OSHA (Occupational Safety and Health Administration) to reduce hearing loss, stipulates that noise level up to 90 dB (A) are acceptable for 8 hrs working shift per day.

- **Mitigation Measures**

1. Designing inherently quiet mining equipment is also included in this technique which aims to control and reduce noise emission. The preferred cost effective system for the underground mining has been the personal protective system ear muffs for the operator of the noise producing units.
2. As the mining operations will be carried out in Underground, there is no significant impact on the surface noise levels. The only activity affecting the noise level could be due to surface mine ventilation fan.
3. The noise generated by equipment can be reduced by proper maintenance. Also low-noise level generation design will be stipulated, as a necessary specification while purchasing equipment.
4. Regular noise monitoring will be carried at project site to check compliance with prevailing rules.
5. Personal Protective Equipment’s (PPEs) like ear plugs/ear muffs are provided.

- **Ground Vibration due to Mining Operation**

Large scale mining operation may cause ground vibration due to use of machinery below ground level such as deployment of mobile equipment, rock bursts and rock bumps. This vibration may cause structural damages, the vibrations by the mechanical effects act on existing rocks and subject them to tensile, compressive and shearing stresses which spoil their mechanical characteristics with an immediate consequence and may cause structural damages.

- **Measures to Control Ground Vibration**

To control ground vibration while mining the method of mining is chosen based upon the lithological strata of the area duly supported by physical properties of the rock formations. There is no drilling and blasting envisaged while mining. Hence, ground vibration will be minimum due to mining operation.

11.4.4 Impact on Water Environment

The underground mining is going on as development and depillaring in II seam, III seam, V seam and VIII seam. Due to the mining operation Groundwater depletion will occur. Alesur Lake and Surabardi Lake are present in lease area which will fulfill surface water requirement for the project. Water from water bodies on surface and below ground aquifers, tends to seep through strata and reach mine workings. Stowing water is also a major source of water entering the mine working. These require regular pumping of water out of this mine. In instant case, since all depillaring will be done with hydraulic sand stowing, danger of monsoon precipitation percolating into U/G working, through subsided areas, gets greatly controlled. However, surface jores & streams need attention for management of surface water to prevent its entry into the mine. The stowing water has to be regularly pumped out in addition to seepage water. There are two sources of inflow of water into Mine workings are one is from development of inclines and another one is from fault zones during mining operation. The water pumped out from the mine, contain coal fines. It needs sedimentation, before its use and its discharge into natural water course/ open land. Large Environmental Impact Assessment for the Proposed Underground Coal Mine settling ponds will be developed, for storage and sedimentation of mine water before its discharge/uses; to conform to the effluent standards as prescribed by water consent conditions, issued by SPCB. The excess mine water, if any, is discharged into nearby tanks & can be used by local villagers for agricultural purpose. This will also augment recharge of the ground water regime near the villages. Routine analysis of effluents, once in fortnight, has been scheduled.

- **Proposed Water Conservation & Water Pollution Control Measures**

- The water withdrawal through pumping during mining operations contains coal fines that need to be settled before discharge in natural water courses or on open land to avoid contamination of natural water bodies. Further, the water quality will confirm the effluent standards as prescribed by the CPCB and MPCB.
- The mine water will be utilized for underground stowing purposes and recycled; any excess water overflows from the tank after sedimentation occurs. Some of the water will be used in green belt development within 2 Ha of land area. Effluent treatment plant will be provided at workshop for water treatment. Further, gradient flow will be maintained thus, surface run-off will also diverted to the ponds to ensure that no waste-water is released untreated.

- The excess mine water, if any, is discharged into nearby tanks & can be used by local villagers for agricultural purpose. This also augments recharge of the ground water regime near the villages. Periodic analysis of effluents, once in month will be carried out.
- Effluent treatment plant having oil & grease trap facility will be provided at workshop area. The treated water is reused back in workshop. Domestic waste water will be treated in STP and treated domestic water will be used in green belt development as well as dust suppression.

11.4.5 Solid Waste Generation & Management

The generation solid waste in proposed UG mine is significantly less low than opencast mining project. The details of solid waste are as under:

❖ **Solid Waste Generation and its Disposal**

The solid waste generated from the proposed project during incline drivages and shaft sinking in the sub-soil and hard rocks for mine entries and also from drivages of cross-cuts in hard rock is estimated to be about 127000 Cum of solid waste. The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation bank head and filling of low lying areas, development of the land for infrastructure and development of greenery. The solid waste generated from colonies and service buildings shall be dumped in the low-lying areas and suitable plantation will be done over it.

❖ **Municipal Solid Waste Generation and Disposal**

The municipal wastes in the form of trash, garbage, food waste, waste papers and card board, etc. expected to be generated is 50 kg/day during construction activities and 170 kg/day during operation phase. Solid wastes generated will be properly collected, segregated and reused / disposed off appropriately as per Solid Waste Management Rules, 2016 as amended.

❖ **Hazardous Waste Generation and Disposal**

Spent oil and lubricants (approx. 5 KL/Year) will be generated and it will be disposed as per Hazardous and other Wastes (Management and Trans boundary movement) Rules, 2016. It will be given to authorized recyclers. Used Batteries and other electronic wastes to be given to authorized re-processors.

11.4.6 Biological Environment

Aspect - Impact identification and mitigation measures suggestion

S. No.	Project Aspects / Activities	Impacts	Mitigation Measures Suggested
1	**Site Preparation:** Construction Phase Activity: development of shaft and inclined/underground entry, infrastructure within 18 ha of non-forest land Aspect: Removal of vegetation	**Impact:** Loss of vegetation in the form of shrubs (780 Nos./Ha.) and seasonal herbs (940 Nos./Ha.) No significant trees observed (Trees appears stunted and crooked manner due to anthropogenic activities having density 45 Nos./Ha.)	**Construction Phase:** The overall biological environment study revealed that, it is an underground mine project so the impact of the project would be minimum or significantly low and therefore net loss of biodiversity or long-term degradation of the receiving environment not envisaged. Ecosystem Services report is prepared and mitigation measures will be implemented accordingly. Greenbelt will be developed within 2 ha.

S. No.	Project Aspects / Activities	Impacts	Mitigation Measures Suggested
2	Transportation and mining activities	**Operation Phase:** No protected area was observed within core or buffer zone. Impact studies due to transportation and mining activities on forest land 87.351 ha within core area.	**Operation Phase:** The total UG ML area is 862.00 ha. Out of 87.351 ha is forest land having multiple small scattered forest patches. However, mining has been planned below the entire forest land. There will be no disturbance in the forest land as well as the legal status of forest land remains unchanged. Traffic management plan based on traffic studies will be implemented.
3	Land subsidence	Impact of mining activities on forest land due to land subsidence	Land subsidence study conducted by IIT, Kharagpur, mining has been planned below the entire forest land. The largest magnitude of predicted subsidence is 2.158 m corresponding to a tensile strain induced due to mining activity below the forest area. However, no significant subsidence is envisaged in the forest area.
4	Air emission	Impacts of mining activities on nearby vegetation and cropland is anticipated	Some air emission causes disease in plants, the effects of air emissions on nearby vegetation and crop lands are not likely to be injurious and noticeable as the pollutant's concentrations are expected to be well below the prescribed standards.
5	Ecological Changes	Impacts on movement of faunal species in the core and buffer zone of proposed underground mining.	No REET species observed with Core area. Further, the mining operation is underground, thus insignificant impact on local fauna is anticipated.
6	Conservation Measures to maintained local bird diversity within mining areas.	Scarcity of food and water for local birds during summer season anticipated.	It is recommended artificial nesting boxes, bird feeders and hanging earthen pot/dishes to fill water during summer season.

11.4.7 Socio-Economic Environment

➢ **Impacts**

- Change in population density and diversity through the immigrants may cause certain adverse social changes in the region. Also, social security problems may increase in the community due to influx of population.
- Reduction in groundwater availability for domestic or local business purposes, irrigation purposes.
- Community annoyance from coal dust deposition.
- There will be an increase in number of vehicles for transportation of the existing road network due to the proposed project. Thus chance of traffic congestion or chance of accident cannot be ruled out among the vehicles and also with the boundary wall of factory premises.

➢ **Mitigation Measures**

In order to mitigate the adverse impact likely to arise in social, cultural and economic aspects in the surrounding region due to the proposed project and improvement in quality-of-life following mitigation measures should be adopted:

- Total 863 persons will be benefited in terms of direct employment due to the proposed project. During regular operations indirect unskilled employment will also be generated as helpers for maintenance.
- Preference for direct/contractual employment will be given to the locals based on their skills and aptitude. Social development program will be conducted as the part of CER.
- Traffic management plan will be implemented to avoid road accident. Equipment will be regularly maintained to ensure that it is in good working order.
- Priority should be given to safety aspects such as use of PPE's, safe working conditions, observance of traffic rules etc. to avoid accidents.

11.5ANALYSIS OF ALTERNATIVE TECHNOLOGY AND SITE

The mining project is site-specific, thus no alternate sites were considered. Underground coal mining methods can be classified into four distinct categories as Room-and-Pillar, Longwall, Shortwall, and Thick-seam. The minimum depth of occurrence of coal seam is 135m while the maximum is beyond 400m. These conditions rule out open cast mining as the minimum depth of the coal seam is beyond 135. The other alternative is underground mining only. The coal block of proposed project having more than 1000m wide and 5000m length; which cause Longwall mining method is proposed for excavation.

The output is considered technically feasible due to mining by Longwall method because of the following conditions:-

- Gradient of 9^0 to 22^0 of the coal seams.
- Multiple coal seams (4 of UG).
- Strike Length.
- Thin coal seams (due to splitting).
- Variable thickness of OB/partings (High Strip Ratio).
- The minimum working height considered for LW operations is 1.20m and the barrier between 2 panels is 45m.
- The face length of the LW panel is considered as 120m.
- The gallery Dimensions for drivage is 4.5m width and height as depending upon the thickness of the seam up to maximum 3.50m.

11.6ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell will be for implementation of the Environmental Management Plan and conducting periodic environmental monitoring of important and crucial environmental parameters to assess the status of environment regularly during mine operations. Environmental monitoring will be carried out for Ambient Air Quality, Water table depth, Water quality, Ambient

Noise Levels, Soil Quality, etc. will be carried out through MOEFCC accredited agencies regularly and reports will be submitted to MPCB/MoEF&CC.

11.7RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the project has been estimated for hazards like fires, explosion, machinery failures, land sagging, inundation, spontaneous heating, mine gases, Subsidence, etc. and corresponding mitigation measures are suggested in the EIA/EMP report.

A detailed Disaster Management Plan for facing disasters due to natural effects and human reasons is prepared and incorporated in the EIA/EMP report for ensuring safety of life, protection of environment, protection of installation in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training rehearsals will be carried out through. Mitigation measures, Site facilities, procedures, Duties and responsibilities, Communications, etc. is considered in detail in the Disaster Management Plan.

11.8PROJECT BENEFITS

M/s. APML envisage the social development programs that health care, educational facilities developed in the township for the community, providing drinking water to the villages, building/strengthening of existing roads in the area.

A CSR budget of 2% of Company's average net profits of the immediately preceding three years will be assigned by the company owing to the demand of the community during the Need Assessment survey done in the nearby 10 villages and would keep the budget on the higher side owing to the various growing community demand in the coming years.

- The project benefits also entail revenue earnings to national and state exchequer through GST, road tax, income by registration of trucks & trailers, income tax, corporate tax, etc.
- Adherence towards full compliance of Environmental Compliances.
- Thus result in –
  - ✓ Periodic Monitoring of environmental parameters,
  - ✓ Progressive Green Belt Development.
  - ✓ No significant solid waste generation.

Thus, protection of environment by adopting pollution control measures and environmental conservation measures in and around the mining area result in improvement in surrounding environment as well as socio-economic aspects of the area.

11.9ENVIRONMENTAL COST BENEFIT ANALYSIS

The project gives positive Benefit/ Cost Ratio. The monetary returns of the Project are positive over the environmental losses.

11.10 ENVIRONMENTAL MANAGEMENT PLAN

The project cost of proposed UG coal mine of M/s. Adani Power Maharashtra Ltd. is of **Rs. 1303 Cr.** The budgetary provision under EMP (including additional studies) towards Capital Cost of Environmental Management plan is of **Rs. 32.585 Cr.** and Recurring Cost of **Rs. 4.17 Cr.** The company will also comply with its obligation for CSR as per Company's Act too, in addition to the above EMP budget.

11.11 MITIGATION OF ADVERSE EFFECTS

Adverse Impact	Site Specific Mitigation Measures
Environmental Functional Area : Risk Assessment and Hazard Management **Spontaneous heating of fire:** Failure of Mining operation, loss of property and human life.	
• Adverse impact on human life due to Spontaneous heating is caused as coal absorbs atmospheric oxygen and gets heated if exposed for period longer than the incubation period. Accidental or open fires caused when fuel reacts with atmospheric oxygen. etc.	Fire extinguishers will be installed at selected locations. Sufficient number of water hydrants with sufficient hose pipes will be provided in the surface for fire protection. The appropriate measures for management of fire at coal faces in the mine and coal stockyard would be adopted in the mining phase.
Inundation: Drowning of machineries, collapsing of mine benches, contamination of exposed coals, damage to roads and ramps, etc.	
• Impact: Drowning of machineries, collapsing of mine, contamination of exposed coals, damage to roads and ramps, etc.	The RL of incline mouth is +338 m which is sufficiently above the MSL and there is no risk of surface run-offs of nearby area to inclines, especially during rainy season. However, in proposed mine there is no danger from any river, nalla etc.
Land subsidence due to UG mining	
Impact: • Damage to surface installations, like buildings, railways, roads, water supply pipelines, power line, etc., • Produce fractures in coal seam, immediately above the one being exploited, • Cause fractures, on the surface, which may in turn cause flooding of the underground working by drawing water from the sources on the surface. • Cause damage to other mining installations as well as affect roots of the vegetation. • Subsidence will occur in the area where full pillar extraction is done and allowed the roof to cave in.	During study it was found that neither the magnitude of subsidence nor the tensile strain anywhere due to the proposed mining plan was found to be hazardous in regard to subsidence on the surface.
➢ **Environmental Components** : Air Environment **Project Activities:** Emission of Particulate Matter from Loading & Unloading and Transportation.	
• Emission of Particulate matter, NO_x and other gasses. • Impact: Change in air quality, Acute and chronic effects on living being. Crop yield may be reduced during uncontrolled conditions. Impact on nearby forest area. • Adverse impact on human health due to Fugitive emissions by loading & unloading of raw material and finished product. **Transportation:** • Overall 2.0 MTPA Coal will be transported through road (considering 305 working days) for the plant. The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum	The PM emission will be kept minimum through implementation of site specific mitigation measures. **Site Specific Mitigation Measures:** • Periodic Water sprinkler for dust suppression. • Wheel Washing System will be implemented at exit gate. • All the vehicles used for transportation of coal shall be covered with tarpaulin to avoid dust pollution. • With stringent traffic management system within the coal mine lease area, scope for air pollution due to movement of coal transports will be minimized. • BS-6 trucks/dampers will be used for the transportation of coal. • The Trucks which are found to have Pollution Under Control Certificates only will be allowed.

Adverse Impact	Site Specific Mitigation Measures
Trips per day to be taken at a time (45 Ton dumpers) is 270 which is equivalent to 810.	• Online Monitoring System will be implemented. • PPE to workers will be provided.
➢ **Environmental Components:** Water Environment **Project Activities:** Inflow of water into Mine Working, Domestic Effluent, Mine water Discharge, Spillage of Oil from machinery/ equipment and Scrap yard etc.	
• The water pumped out from the UG mine, contain coal fines may cause contamination for agricultural activity. • Generation of Industrial and Domestic Waste Water may cause groundwater contamination, if it is not managed scientifically.	• Effluent treatment plant (Capacity 10 KLD) having oil & grease trap facility will be provided at workshop area. The treated water is reused back in workshop. Domestic waste water will be treated in STP (Capacity 50 KLD) and treated domestic water will be used in green belt development as well as dust suppression. • The water withdrawal through pumping during mining operations contains coal fines that need to be settled before discharge in natural water courses or on open land to avoid contamination of natural water bodies. Further, the water quality will confirm the effluent standards as prescribed by the CPCB and MPCB. • The mine water will be utilized for underground stowing purposes and recycled; any excess water overflows from the tank after sedimentation occurs. Some of the water will be used in green belt development within 2 Ha of land area.

11.12 MITIGATION OF ADVERSE IMPACT CONSIDERING EMERGENCY CONDITION

Sl. No.	Impact	Conditions			Mitigation Measures
		Normal	Abnormal	Emergency	
1.	Fire explosion (due to methane or carbon mono oxide)	-	-	✓	1. Disaster Management Plan & Rescue team to be alert round the clock. 2. Continuous detection of mine gas by multigas detector, Methanometer, Co-detector. 3. Use of PDS 4. Periodical training of employees for response during such situation.
2.	Water Inundation	-	-	✓	1. Conducting check survey & Joint Survey to eliminate error. 2. Preparation of seam-wise danger plan 3. Preparation & implementation of Pre-monsoon plan. 4. Adequate pumping facilities with adequate sumps. 5. DMP to be active round the clock i.e.24*7. 6. Liaison with state Meteorological deprt. & Dam authorities. 7. Periodical training of employees for suitable response in such situation.
3.	Land Subsidence	-	-	✓	1. Final extraction in this mine has been proposed by caving hence to

Sl. No.	Impact	Conditions			Mitigation Measures
		Normal	Abnormal	Emergency	
					avoid subsidence due care will be taken during operation particularly during monsoon period **2. Karle reservoir & Surabardi reservoir:** To avoid damage to the Karle reservoir, no extraction is proposed below it. **3. Roads:** There are two important roads passing on the block i.e., the ring Road and NH-6. As per the subsidence analysis report the maximum subsidence along the Ring Road will be considered as 2.158m and the maximum tensile strain will be considered as 1.160 mm/m. The maximum subsidence and horizontal tensile strain along NH-6 will considered as 0.547 m and 0.288 mm/m respectively.
4.	Roof fall	-	-	✓	1. Roof bolt support system will be implemented to prevent roof fall it is to be regularly checked as per statutory norms.

11.13 CONCLUSION

The proposed Gondkhari Coal Mine (Lease area: 862.00Ha) project of M/s. APML, will be beneficial for the development of the nearby villages in terms of enhancement of livelihood, employment and revenue generation which eventually gives a boost to the regional growth and industrialization. Further improvement in infrastructure will take place like education, roads, availability of drinking water, medical facilities and growth of allied in adjacent villages. There will be no significant pollution of air, water, soil and noise since the mining method is underground. Some environmental aspects like dust emission, noise, siltation due to surface run-off, etc. will have to be controlled within the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like water sprinkling, plantation, personal protective equipment's, etc., will form regular practice in the project. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of thick green belt and plantation within mine lease area and along transport road, adoption of rainwater harvesting in the mine and in nearby villages, etc. will be implemented. The CSR measures to be adopted by the mine management will improve the social, economic status of the nearby villages.

The overall impacts of the proposed underground mine will be positive and will result in overall socio-economic growth of nearby villages.

CHAPTER - 12
DISCLOSURE OF CONSULTANTS

12.0 DISCLOSURE OF CONSULTANTS

12.1. INTRODUCTION

Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab for environment and food in Central India region. The lab is well equipped with basic infrastructural facilities and manpower. We are rendering our services in this field to various industries since last 20 years. We are a group of experienced former Scientists from the Government Institutions and recognized by **Ministry of Environment & Forests, New Delhi for carrying out environmental Studies** & accredited by Quality Council of India (**QCI**) for conducting Environmental studies vide accreditation Certificate No: **NABET/EIA/2326/RA 0304 dtd. 18 September, 2023 valid till 29 September, 2026** as category '**A**' consultant organization in 20 Sectors viz. Mining projects, Thermal Power Plants, Coal Washeries, Metallurgical Industries, Cement Plants, Asbestos milling & asbestos based products, Chemical fertilizers, Pesticides industry & pesticide specific intermediates, Petro-chemical complexes, Synthetic Organic Chemical Industries, Distilleries, Oil & gas transportation pipeline, Isolated storage & handling of hazardous chemicals, Air ports, Industrial estates/ parks/ complexes/areas, export processing Zones, Special Economic Zones, Biotech Parks, Leather Complexes, Ports, Harbours, Jetties, Marine terminals, Break Waters and dredging, Highways, Common Effluent Treatment Plants (CETPs), Building and Construction Projects and township and area development projects.

Our organization is also certified by **ISO 9001:2015, 14001:2015 and ISO 45001:2018** & our Lab division is accredited by **National Accreditation Board for Testing & Calibration Laboratories (NABL**, **Govt. of India) for Chemical, Biological & Mechanical Testing vide certificate No. TC - 5458 for 2316 parameters for Water, Food & Agricultural products, Cereals, Pulses, Bakery products, Spices & Condiments, Milk & Dairy products & Chemical Testing of Ores & Minerals, Coal/Coke & Cosmetic products.** We are also approved by 'Bureau of Indian Standards (**BIS**)'. We are recognized by Indian Bureau of Mines (IBM) as a RQP for preparation of Mine Plan / Scheme. Anacon has received approval by Govt. of India, "APEDA" - Export Quality Certification for Agricultural produce such as fresh fruits vegetables, cereals & Pulses etc. (as per US & European guidelines).

We are pleased to inform you that we have received **"MSME National Award 2010" for "Outstanding Entrepreneurship Performance"** on 2nd Sept. 2011 at Vigyan Bhawan, New Delhi.

We are also working for various industries in the sectors of Steel, Cement, Power, Distilleries, Textile and Pharmaceuticals. Our activities are spread in the states of Assam, Chhattisgarh, Jharkhand, Kerala, Madhya Pradesh, Orissa & Maharashtra. Our esteemed client group includes many large scale industries from private as well as the Public Sector Units. National Productivity Council, BALCO, MECON, TATA STEEL, LAFARGE, GRASIM, Ultra Tech Cement Ltd., RAYMONDS, LUPIN, Ranbaxy, GAIL, Seagram & Sagar Distilleries and Sponge Iron are our major clients. To know more about our Group and the assignments completed please visit us at *www.anaconlaboratories.com*.

We have expanded and commissioned laboratory at Butibori Food Park, Nagpur at Plot Nos. FP 34, 35 equipped with highly sophisticated imported equipments, like GC MSMS, LC MSMS (both triple quad), HPLC, ICP, AAS, UV–Vis, FTIR, IC, CHNS analyser etc. for chemical analysis for the samples viz. Water, Air, Chemical, Fertilizer, Mineral, Metal, Coal, Food, Agricultural Products, Pesticides, Insecticides, Ores, etc.,

We have successfully carried out studies related to Air, Noise, Water, Wastewater, Hazardous Waste, Land Environment, Ecology, Risk & Hazard management and Socio-economy as a part of

EIA studies of various industries. We have also carried land use and land cover studies based on the satellite imageries.

Our operations are spread over in six different states in Central India region with branches at Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Maharashtra and Delhi.

12.2. CREDENTIALS & QUALITY SYSTEMS

Our laboratory is registered with following Govt. departments for providing technical services in the field of environment. The registration numbers are as follows;

1. Recognized by Ministry of Environment & Forests (**MoEF**) vide Notification No. **15018/62/2018-CPW valid upto 22 May, 2024**
2. National Accreditation Board for Mechanical Testing & Calibration Laboratories (**NABL**) has granted us Accreditation vide Certificate No.TC -5458 w.e.f. 04.10.2021 to 03.10.2023 validity further extended to 03.12.2023 as QCIN mail dtd. October 3, 2023
3. National Accreditation Board for Chemical Testing & Calibration Laboratories (**NABL**) has granted us Accreditation vide Certificate No. TC -5458 w.e.f. 04.10.2021 to 03.10.2023 validity further extended to 03.12.2023 as QCIN mail dtd. October 3, 2023
4. National Accreditation Board for Biological Testing & Calibration Laboratories (**NABL**) has granted us Accreditation vide Certificate No TC -5458 w.e.f. 04.10.2021 to 03.10.2023 validity further extended to 03.12.2023 as QCIN mail dtd. October 3, 2023
5. Approved by Bureau of Indian Standards (**BIS**) for ISI mark certification vide No. WROL/LRS/OSL (7124116) dt. 13.04.2018 for package drinking water, milk and its products
6. Authorized by Food Safety & Standards Authority of India under FSS Act.
7. **ISO 9001:2015** vide Registration No. 44 100 19392302, **ISO14001:2015** vide registration No. 44 104 19392302 and **ISO 45001:2018** vide registration No. 44 116 19392302.
8. Accredited as EIA Consultant Organization under NABET-QCI, vide accreditation Certificate No: **NABET/EIA/2326/RA 0304 dtd. 18 September, 2023 valid till 29 September, 2026** as category '**A'** consultant organization in 20 Sectors.
9. Mah. Govt.WQM2003/PK26(2)PP12 Dt.1.9.2004 – Drinking water quality monitoring
10. Mah. Govt. JSP 2004/PK3715 PP11 Dt. 28.04.2004 – Hydrogeological survey
11. RQP/NGP/328/2005/B dt. 01.02.2005 – Indian Bureau of Mines for preparation of mine plan, mine closure plan.
12. SPCB, Odisha No. 3091 dt. 13.02.2008
13. RSPCB, empanelment of environment consultant & analytical laboratory in continuation to Board's circular no. F.14 (3) Corres/RPCB/Plg/3491-3514 dt. 14.12.2009 & Dt. 25.3.2010 as testing lab under EPA & Env. Consultant.
14. RSPCB recognition of laboratory for Air pollution studies vide notification dated May 20, 2009 and published in Rajasthan Gazette Extraordinary dated June 22, 2009

For the organizational statutory requirement the registration numbers are as follows;

1. Company Law Board Registered
2. Provident Fund Registered
3. Professional tax Registered

4. ESIC Registered
5. Service Tax Registered
6. Income Tax – Registered
7. MSMED Registered

12.3. SERVICES OFFERED

Air (Monitoring / Survey / Modeling etc., Pl. specify)	Yes - Stack and Ambient Air Quality Monitoring, Survey / Modeling as per MoEF requirements. Specific gas monitoring like PM_{10}, $PM_{2.5}$, HC, CO, O_2, CO_2 & VOCs using state of art microprocessor based portable kits.
Water : Surface, sea, inland & groundwater (Monitoring / Survey / Modeling etc., Pl. specify) Geohydrological Survey	Yes - Monitoring of Water Environment in EIA projects, hydrogeological survey and water shed development.
Soil (Analysis, Remediation, Salt water intrusions, Water Harvesting etc.)	Yes – Monitoring of land environment in EIA projects.
Plant (Effect of pollution, Treatment Technologies, Pollution Indicators etc.)	Yes - The effect of pollutant from various industrial sectors has been evaluated in terrestrial ecology of EIA project.
Assessment & impact studies on Biodiversity (Flora and Fauna)	Yes – Studies on biodiversity has been reported in EIA projects.
Municipal Solid Wastes (Analysis, Management – Handling, Storage, Transportation, Treatment and Disposal, Site Identification, remediation, Development/ Evaluation of Technology etc.)	Yes National Productivity Council is utilizing our services for monitoring and analysis of solid waste samples, which includes sampling and analysis of solid waste samples. **Anacon** lab can undertake the consultancy project on solid waste management for municipal corporation, resorts and newly developed cities. Preparation of detailed feasibility report is an expertise of **Anacon** lab.
Hazardous Wastes (Quantification, Site Assessment, Designing / Monitoring of Treatment Facilities, Technology Assessment etc., Pl. specify)	Yes – The project on development of landfill site including Engineering design, Hydrogeological studies and Environmental quality in respect of the Air, Water and Soil have been successfully completed for Force Motors (Bajaj Tempo), Kinetic Motors and Pratibha Syntex, Pithampur, Indore (MP)
Noise (Monitoring/Survey, Modeling etc.)	Yes – The monitoring of the Noise Environment in the Impact zone of the industries and in plant have been carried out by **Anacon** Lab.
Bio-Medical Wastes (Quantification, Site Assessment, Designing / Monitoring of Treatment Facilities Tech. Assessment etc., Pl. Specify)	Yes – The survey of Hospital waste management have been carried out in few cases.
Hazardous Chemicals (Site assessment, Inspection of Storages, Major Accident Hazards, Preparation / assessment of Safety Report, risk assessment /Onsite / offsite Emergency Plan preparation etc.)	Yes – The storage of the hazardous chemicals have been assessed in respect of fugitive emissions and risk assessment for Pharmaceutical Industries at Lupin, Mandideep, Bhopal (M.P.). Four dumping sites developed maxi cap 8000 Tons for BALCO, Korba, Chhattisgarh.
Plastic Wastes (Management, recycling/reuse technology evaluation etc.)	Yes – On the similar line of solid waste management, studies on the plastic waste management could be undertaken by **Anacon** Laboratories Pvt. Ltd.
Electronic Waste (Management, recycling/reuse, technology evaluation etc.)	No
Environmental Education/Awareness (Projects approved/ grants received /campaigns carried out etc.)	Yes - Conducted Workshop at Raipur on 14.2.04 Theme - Latest Trends in Mining Technical and Legislative requirements, 67 participants attended. ; Conducted

	several Environment Awareness programs for PCB on different topics and also at Educational institutions/P.G. Departments. College students along with HOD have visited Anacon Laboratories Pvt. Ltd., for Educational tour. Anacon Laboratories Pvt. Ltd., has participated as a Key participant at CII seminar in the field of mining industries at Raipur Dt. 22.03.2006.
Environmental Impact Assessment (EIAs carried out/ sector wise expertise in EIA/ clearances obtained from MoEF / State Government etc.)	Yes - Successfully completed 105 EIA studies and 48 EIA presented before MoEF & environmental clearance is granted; remaining 57 presented at State level & the environmental clearance is granted, till end of 2013.
Environmental Audit/s (Details of the audits conducted along with client list and Purposes of such audits)	Yes for various types of Industries. Conducted water audits for 17 Reserve banks in India
Energy Audits / Water Audits (Expertise available, list of the clients and details on such audits)	Yes - Energy Audit for L & T Hirmi, Raipur on STP to conserve energy. In this exercise saving of the 40 % energy is suggested.
Environmental Planning & Management (Projects undertaken/ expertise for actual field implementation of the EMP)	Yes - The special efforts have been put up by Anacon for Seagram Distilleries Pvt. Ltd., and Sagar Industries & Distilleries Pvt. Ltd., Nashik for planning and implementation of EMP. Other projects also have been executed on Environmental Planning and Management.
Others (R&D Projects) (State briefly the other activities of your organization and the success Stories, if any)	Yes – 1. Conducted feasibility studies for pyrite recovery plant for 1000 TPD Cap for GHCL Lignite mine to reduce Sulphur from 7 % to 2 % 2. Identification of route cause for river bed drying (300 m width) for Lafarge, Raipur

12.4. FACILITIES

Anacon offer vide range of services in indoor and outdoor monitoring and analytical characterization in the field of Environment. Further, it is ably supported by highly skilled and experienced team of professionals in the fields of Science, Engineering, Ecology, Meteorology, Social Planning, Geo & Hydro-geology, and Environmental Planning.

Besides the regular monitoring equipment such as Respirable Dust Samplers, PM 2.5 Automatic Weather Monitoring Stations, Stack Monitoring Kits, Personal Samplers, Noise Meters, Portable Water Kits etc., the other major specialized equipment include:

Anacon Laboratories has well equipped with sophisticated instrument such as **Thermo ICAP 6300 ICP UK make – OES Radial View Spectrometer** with Standard Gas System for analysis of heavy metals, required for the analysis of water (130 parameters as per various categories of IS standards for water), wastewater & Hazardous waste + Gas Chromatograph.

We have expanded and commissioned biggest state of art Environment and Food testing laboratory in Central India region at Butibori Food Park, Nagpur at Plot Nos. FP 34, 35 equipped with highly sophisticated imported equipments, like GC MSMS, LC MSMS (both triple quad), HPLC, ICP, AAS, UV–Vis, FTIR, IC, CHNS Analyser etc. for chemical analysis for the samples viz. Water, Air, Chemical, Fertilizer, Mineral, Metal, Coal, Food, Agricultural Products, Pesticides, Insecticides, Ores, etc., kindly visit us at *www.anaconlaboratories.com.*

Anacon Laboratories has established the facilities for Ambient Air Quality by using US Make Meteorological Station and High Volume Sampler. Stack Monitoring is also undertaken. The methodology for estimation of SO_2, NOx, SPM, PM_{10}, $P.M._{2.5}$ has been established along with project specific pollutant e.g. HM, CO, O_3, CO_2 VOC, HC etc.

12.5. ACHIEVEMENTS

1. Anacon laboratory recognized under Environment Protection (EP) Act by GOI in 2007, Environment Division with its best mind power and industrial knowledge competency that allows it to compare with the standards set by GOI as a Competent Organization.
2. Anacon has organized 10 days training program for the FDA officials, Government of Maharashtra from 16.08.2010 to 27.08.2010 on newly announced “Food Safety & Standards Act, 2011”
3. Anacon has received “MSME National Award 2010” for “Outstanding Entrepreneurship Performance in service sector” on 2nd Sept. 2011 at Vigyan Bhawan, New Delhi.
4. Anacon has signed MOU with Nagpur University, Nagpur to Promote Academic and Research Cooperation in Feb’2012. Under this program Post Graduate i.e. post M.Sc., M. Tech students professional training programs and R&D projects are undertaken on regular basis to meet Industry – Academia requirements for human resource development.
5. Dr. (Mrs.) Sugandha Garway, Director, ANACON Laboratories Pvt. Ltd. has been selected on the panel of the National food standards harmonization / development process for our country by Food Safety Authority of India.
6. Anacon has signed the MOU dtd. 26th Dec. 2012 for soil testing for a period of two years from Agriculture Department, Government of Chhattisgarh, season wise soil samples are collected for each farm and analyzed, fertilizer dosing is advised on appropriate time in order to increase crop yield and Soil health cards are issued to every farmer of different districts of Chhattisgarh.
7. Anacon has executed the work of water Quality monitoring to maintain overall residual chlorine in the entire city of Nagpur for period from 16.06.2007 to 31.01.2012 and in the period Anacon team has worked sincerely to the best of our ability by utilizing all Technical expertise to the entire satisfaction of the Municipal authorities concerned. Anacon has delivered consistent results from last 5 years as a result which water borne deceases i.e. jaundice & gastro have been reduced to the extent of 70 %. Nagpur Municipal Corporation is leading in India for successful implementation of 24 x 7 water supply scheme under JNURM scheme, GOI and Anacon contributed for improving water quality in the entire city of Nagpur. Anacon has also designed & developed dedicated website for tracking the Water quality of the city.
8. Anacon has executed the work of "Source apportionment studies "of National Environmental Engineering Research Institute (NEERI), Nagpur vide Order No. Outsource/S.A (APC)/2007-GL dt.22.01.2008 & Order No. Outsource/S.A (APC)/2007-GL dt.02.05.2008 for 236 Air Dust Samples for 33 elements using ICPA instrument, all results submitted as per Internationally approved procedures and standards, and also Quality Assurance & Quality Control (QA/QC) procedures were followed strictly during analysis.
9. Anacon Lab is executing the project of Rajiv Gandhi Science and Technology commission, Government of Maharashtra, for" Evaluation studies of water purification systems in 16 schools of the rural areas nearby Nagpur.
10. Anacon has completed the TRANSIT SURVEY of SEONATH RIVER, M/s Lafarge India Pvt. Ltd., Sonadih Cement Plant, Raipur (C.G.) Sonadih river width 300 M, bed was drying, route cause analysis was identified and corrective measures suggested were implemented by Lafarge and the solution was provided successfully.
11. Training has been imparted on "Pesticide residue analysis" to scientists of National Test House, Mumbai & "Coal analysis" to scientists of NALCO, Orissa.
12. ANACON has signed MOU with Nagpur University & Kada College Ahmednagar to undertake joint collaborative projects, imparting training to students & staff & to provide incubation centre for research projects undertaken by academicians.
13. ANACON has also completed mapping of water quality of 2 districts of Madhya Pradesh.

NABET CERTIFICATE

QUALITY COUNCIL OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Anacon Laboratories Pvt. Ltd, Nagpur

60, Bajiprabhu Nagar, Near Ram Nagar, Nagpur, Maharashtra- 440033

*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 mining	1	1 (a) (i)	A
2	Thermal power plants	4	1 (d)	A
3	Coal Washeries	6	2 (a)	A
4	Metallurgical industries	8	3 (a)	A
5	Cement plants	9	3 (b)	A
6	Asbestos milling and asbestos based products	12	4 (c)	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.	Distilleries	22	5 (g)	A
12.	Oil & gas transportation pipelines, passing through national parks/ sanctuaries/coral reefs /ecologically sensitive Areas including LNG terminal	27	6 (a)	A
13.	Isolated storage & handling of hazardous chemicals	28	-	B
14.	Air ports	29	7 (a)	A
15.	Industrial estates/ parks/ complexes/areas, export processing Zones, Special Economic Zones, Biotech Parks, Leather Complexes	31	7 (c)	A
16.	Ports, harbours, jetties, marine terminals, 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.	Building and construction projects	38	8 (a)	B
20.	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 August 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/23/2879 dated September 18, 2023. The accreditation needs to be renewed before the expiry date by Anacon Laboratories Pvt. Ltd, Nagpur following due process of assessment.

Sr. Director, NABET
Dated: September 18, 2023

Certificate No.
NABET/EIA/2326/RA 0304

Valid up to
Sept 29, 2026

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

NABL ACCREDITATION VALIDITY FURTHER EXTENDED TO 03.12.2023

From: Ramsha Alam <ramsha.alam@qcin.org>
Sent: Tuesday, October 3, 2023 9:51 AM
To: Sugandha Garway Anacon Laboratories <sd.garway@anacon.in>
Cc: Vinay Kumar Tyagi <vinay@nabl.qcin.org>
Subject: EXTENSION IN VALIDITY

Dear sir,

NABL is pleased to inform you that the validity of accreditation of your laboratory ANACON LABORATORIES PVT. LTD. (T-0929) is extended for the existing scope of Chemical, Biological and Mechanical discipline up to 03.12.2023 or till the decision on reassessment whichever earlier.

The extension of accreditation validity is subject to continued compliance of NABL norms during the accreditation period.

Being an accredited laboratory of NABL, you must fulfil all the Terms and Conditions laid down in NABL document NABL-131. You are requested to follow NABL-133 for using NABL symbol.

Thank you
Ramsha Alam
Quality Council of India – (Board NABL)
NABL House
Plot- 45, Sector 44,
Gurugram- 122002. Haryana.

2858

NABL CERTIFICATE

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

ANACON LABORATORIES PVT. LTD.

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

FP 34, 35, FOOD PARK, FIVE STAR INDUSTRIAL AREA, MIDC BUTIBORI, NAGPUR, MAHARASHTRA, INDIA

in the field of

TESTING

Certificate Number: TC-5458

Issue Date: 04/10/2021 Valid Until: 03/10/2023

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 Identity : Anacon Laboratories Pvt. Ltd.

Signed for and on behalf of NABL

N. Venkateswaraa
Chief Executive Officer

RECOGNITION OF ANACON LABORATORIES PVT. LTD. BY MOEFCC, NEW DELHI

F.No.15018/62/2018-CPW
Government of India
Ministry of Environment, Forest and Climate Change
(CP Division)

Agni-233, Indira Paryavaran Bhavan,
Jor Bagh Road,
New Delhi – 110 003.
Dated, the 23rd May ,2019

To

M/s Anacon Laboratories Pvt. Ltd.
FP-34,35 Food Park
5 Star Industrial Estate
Butibori, Nagpur-441122
Maharashtra

Subject:-Recognition of M/s Anacon Laboratories Pvt. Ltd., FP- 34,35 Food Park, 5 Star Industrial Estate, Butibori, Nagpur-441122, Maharashtra as Environmental Laboratory under the Environment (Protection) Act, 1986.

Sir,

I am directed to refer to your application dated: 26.09.2018 for recognition of your laboratory under Environment (Protection) Act, 1986. Based on the recommendations of the Expert Committee for Recognition of Environmental Laboratories in its 59th meeting held on 22nd April, 2019 and your acceptance of the revised terms and conditions at Annexure-III & IV of the Guidelines for recognition of Environmental Laboratories, this Ministry approves the recognition of M/s Anacon Laboratories Pvt. Ltd., FP- 34,35 Food Park, 5 Star Industrial Estate, Butibori, Nagpur-441122, Maharashtra for five years, as shall be notified in the Gazette of India.

2. As sought in your aforementioned application M/s s Anacon Laboratories Pvt. Ltd., Nagpur may undertake the following tests:

i. **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).

ii. **Inorganic (General & Non-metallic):** Acidity, Alkalinity, Ammonical nitrogen, Chloride, Chlorine residual, Dissolved oxygen, Fluoride, Total hardness, Total kjehldal nitrogen (TKN), Nitrite nitrogen, Nitrate nitrogen, Phosphate, Sulphate, Bromide, Carbon dioxide, Chlorine demand, Iodine, Sulphite, Silica, Cyanide, Sulphide, Carbonate, Bicarbonate and Oxygen Absorbed in 4 hr.

iii. **Inorganic (Trace metals):** Boron, Cadmium, Calcium, Chromium Total, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium absorption ratio, Zinc, Arsenic, Aluminium, Barium, Lithium, Manganese, Selenium, Silver, Strontium, Tin, Antimony, Cobalt, Vanadium, Phosphorus and Silicon.

iv. **Organics (General) and Trace Organics:** Bio-chemical oxygen demand (BOD), Chemical oxygen demand (COD), Oil & grease, Phenol, Pesticide (Organo-chlorine, Organo nitrogen-phosphorous), Total organic carbon, Absorbable organic halide, Surfactants, Tannin & lignin, Poly-chlorinated biphenyl (PCB's) each (Water), Poly nuclear aromatic hydrocarbon (PAH) each, Organic Carbon (in Solid), Carbon/Nitrogen ratio.

v. **Microbiological:** Total coliform, Faecal Coliform, Faecal streptococci, E. coli and Total Plate Count, Salmonella, Vibrio cholera & vibrio Parahemolyticus, Shigella, Aerobic Microbial Count, Faecal Coliforms (Thermo tolerant), Standard Plate Count, Proteolytic & Lipolytic organisms, Sulphite Reducing Anaerobes, Pseudomonas aeruginosa, Yeast & Mould and Staphylococcus aureus.

vi. **Toxicological Tests:** Bioassay method for evaluation of toxicity using fish after 96 hrs., Bio-accumulation, bio magnification and bio-transformation studies, Estimation of the effect at tissue level, Measurement of toxicity using Daphnia or other organism and Measurement of toxicity factor using zebra fish.

vii. **Biological Tests:** Benthic organism identification and count, Macrophytic identification, Planktonic identification count, Measurement of various diversity index and Chlorophyll.

viii. **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.

ix. **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, Total Kjehldal Nitrogen

(TKN), Calorific value, Ammonia, Bicarbonate, Calcium, Calcium carbonate, Chloride, Colour, Exchangeable sodium percentage (ESP), Gypsum requirement, H. Acid, Heavy metal, Magnesium, Mechanical soil analysis, Nitrate, Nitrite, PAH, Pesticide, Potash (availbale) , Sulphate, Sulphus, Total water soluble salt and Water holding capacity.

x. **Ambient Air/ Fugitive Emissions:** Nitrogen dioxide as NO2, Sulphur dioxide (SO2), Total suspended particulate matter, Respirable suspended particulate matter (PM_{10}) & P.M. 2.5, Ammonia, Carbon monoxide, Chlorine, Fluoride, Non methane hydrocarbon, Lead, Methane, Ozone, Polycyclic aromatic hydrocarbon (PAH) Benzo-a-pyrine & others, $PM_{2.5}$ and Volatile Organic Carbon

xi. **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), Hydro-chloric acid, Total Hydro carbon, Hydrogen Sulphide, Carbon disulphide and Mercaptan.

xii. **Noise Level:** Noise level measurement (20 to 140 dba) and Ambient noise & source specific noise.

xiii. **Meteorological:** Ambient temperature, Wind direction, Wind speed, Relative Humidity, Solar radiation and Rain fall.

xiv. **Vehicular Emission Monitoring:** Carbon monoxide, Hydrocarbon and Oxides of Nitrogen.

3. Farther, the following analysts have been approved for recognition as Government Analysts.
   (i) Dr. Dattatraya Gajanan Garway
   (ii) Dr.(Mrs.) Sugandha Dattatraya Garway
   (iii) Mrs. Kavita Sanjay Saygaonkar

4. The laboratory shall compulsorily participate in the Analytical Quality Control (AQC) exercise conducted by the Central Pollution Control Board (CPCB) at least once a year to ascertain the capability of the laboratory and analyses carried out and shall submit quarterly progress reports to this Ministry.

5. Periodic surveillance of the recognized environmental laboratory will be undertaken by this Ministry/ CPCB to assess its proper functioning, systematic operation and reliability of data generated at the laboratory.

6. It is also mandatory for the laboratory to have requisite accreditations of the NABL/ ISO 9001 and OHSAS and its renewal as per accreditation rules. Permission in para 2 above is subject to such accreditations and renewal, as applicable.

7. The laboratory should compulsorily follow the accepted Terms & Conditions. 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.

Yours faithfully,

(Dr. Susan George K.)
Scientist 'D'
Tel. No. 011-24695327
Email: susan.george@nic.in

Copy to:

1. Member Secretary, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, New Delhi – 110032.
2. Member Secretary, Gujarat Pollution Control Board, Paryavaran Bhawan, Sector-10A, Gandhinagar-382010, Gujarat
3. Additional Principal Conservator of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (WZ), E-5, Kendriya Paryavaran Bhawan, E-5 Area Colony, Link Road-3, Ravishankar, Bhopal-462016
4. Director, IT Division, MoEF&CC, New Delhi-110003: for uploading on MoEF&CC website

ANNEXURE - I
TOR LETTER

File No. IA-J-11015/46/2022-IA. II(M)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)
*****

Indira Paryavaran Bhawan,
Jorbagh Road, N Delhi – 3
Email: lk.bokolia@nic.in; Tel: 011-20819417

Dated: 13th February, 2023

To

M/s Adani Power Maharashtra Limited
Adani Corporate House Shantigram,
Near Vaishno Devi Circle, S.G. Highway,
District Ahmedabad-382421 (Gujarat)
Email: gondkhari@adani.com

Sub: Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2 MPTA (rated capacity)/3.0 MTPA (Peak capacity) in the mine lease area of 862.00 Ha of M/S Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) - For Terms of Reference –reg.

Sir,

This has reference to your Online Proposal No. IA/MH/CMIN/401870/2022 dated 5th January,2023 on the above-mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has considered the proposal for grant of Terms of Reference to Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2 MPTA (rated capacity)/3.0 MTPA (Peak capacity) in the mine lease area of 862.00 Ha of M/S Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).

3. The proposal was considered by the sectoral Expert Appraisal Committee (EAC) in the Ministry in its 39th EAC meeting held on 12 -13 January, 2023 through Video Conferencing. The details of the project, as per the documents submitted by the project proponent, and also as informed during the meeting, are reported to be as under: -

(i) The project area is covered under Survey of India Topo Sheet No 55K/16 (New-F44M16) and is bounded by the geographical coordinates ranging from 210 07' 57.737" N to 210 10' 55.196" N and longitudes 780 54" 45" E to 780 56" 26" E.
(ii) Coal linkage of the project is allocated 18.11.2021 under the commercial coal mining auction process for sale of coal, allotment order vide Letter No. NA-104/7/2021-NA dated: 18 November 2021.
(iii) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.
(iv) Employment generation, Direct and Indirect employment to 863 Persons will be provided from the project.

(v) The project is reported to be beneficial in terms of energy security for the development of country.

(vi) Total mining lease area as per block allotment is 862ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved Ministry of Coal, Government of India on 22.12.2022.

(vii) The land usage pattern of the project is as follows:

Pre-mining land use details (Area in 862 Ha)

S. no.	Ownership	Type of land (Within Mine lease)	Area (ha)
1	Tenancy Land	Agricultural	687.347
2		Barren	
3		Water bodies	
4		Road	
5		Community	
A	Sub-Total		687.347
1	Govt Non-Forest Land	Agricultural	87.301
2		Barren (Road)	
3		Other	
B		Sub total	87.301
1	Forest Land	Revenue Forest land	87.351
C	Sub total		87.351
	Grand Total (A+B+C))		862.00

Post Mining

Mining Activity	Proposed Land Use Area (ha)	Land Use (End of Life) Area	Post Mining Land Use (ha)						
			Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	Total
Excavation Area	-	-	-	-	-	-	-	-	-
Backfilled Area (in Excavation Area)	-	-	-	-	-	-	-	-	-
Excavated Void (in Excavation Area)	-	-	-	-	-	-	-	-	-
Topsoil Dump	-	-	-	-	-	-	-	-	-
External Dump	-	-	-	-	-	-	-	-	-
Safety Zone	-	-	-	-	-	-	-	-	-
Haul Road between quarries	-	-	-	-	-	-	-	-	-
Road diversion	-	-	-	-	-	-	-	-	-
Settling pond	0.08	0.08	0.08	-	-	-	-	-	0.08

Road & Infrastructure area	13.845	13.845	13.845	-	-	-	-	-	13.845
Garland drains				-	-	-	-	-	
Embankment	0.075	0.075	0.075	-	-	-	-	-	0.075
Green Belt	2	2	2	-	-	-	-	-	2.000
Water Reservoir				-	-	-	-	-	
UG entry	2	2	2	-	-	-	-	-	2.000
Total (excluding rights for UG mine) (1)	18	18	18	-	-	-	-	-	18
Undisturbed/UG mining right (2)	844	-	-	-	-	-	-	-	844.00
Grand Total (1+2)	862								862.00

(viii) Total geological reserve reported in the mine lease area is 98.5030 MT with 52.496 MT mineable reserve. Out of total mineable reserve of 52.596 MT, 42.946 MT are available for extraction. Percent of extraction is 43.5990%.

(ix) 4 seams with thickness ranging from 0.93 m to 5 m are workable. Grade of coal is G8 while gradient is 90 to 220.

(x) Method of mining operations envisages by Underground Mining: Longwall retreating method with caving by deploying DERDS and Road Headers for tunneling.

(xi) Life of mine is 30 years. (Including construction).

(xii) Transportation of coal has been proposed by series of conveyors in mine pit head, from surface to siding by Conveyer/Trucks and at sidings by Haulage trucks.

(xiii) 87.351 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980 for diversion of 87.351 ha of forest land for non-forestry purposes has been submitted dated 06.01.2023.

(xiv) Please mention any National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project. -Not applicable.

(xv) Wildlife conservation plan for schedule – I species has been submitted –Not Applicable

(xvi) The ground water level has been reported to be varying between 0.08 m bgl to 15.59 m bgl during pre-monsoon and between 0.60 m bgl to 10.60 m bgl during post-monsoon.

(xvii) Total water requirement for the project is 496 KLD. (436 KLD from mine seepage and 60 KLD from borewell.

(xviii) Application for obtaining the approval of the Central Ground Water Authority to be submitted.

(xix) No River/nalla is flowing within the boundary of lease. The nallah will be/not be diverted In consultation with the Water Resource Department of the State Government. -No Nala diversion is proposed.

(xx) No court cases, violation cases are pending against the project of the PP.

(xxi) The project does not involve violation of the EIA Notification, 2006 and amendment issued

thereunder. The coal production from the mine was started from the year onwards. No excess production of coal from the sanctioned capacity has been realized since the commencement of mining operations.

(xxii) The project involves no project affected families. R&R of the PAPs will be done as per prevailing laws.

(xxiii) Total cost of the project is Rs. 130300 lakhs. Cost of production is Rs 2800/- per tonne., CSR cost is Rs. 5/- per tonne, R&R cost if applicable. Environment Management Cost is: Capital Rs.10 crores; & Recurring 2.5 crores.

4. The Expert Appraisal Committee in in its 39th EAC meeting held on 12 -13 January, 2023, through Video Conferencing has recommended the proposal for grant of Terms of References (ToR). Based on the recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby grants approval to the Terms of References for **Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2 MPTA (rated capacity)/3.0 MTPA (Peak capacity) in the mine lease area of 862.00 Ha of M/S Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra),** for preparation of EIA/EMP reports with public consultations, under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto, subject to the compliance of the following terms and conditions as specified/notified in the standard ToR applicable for opencast coal mines, along with the additional conditions as under:-

(i) Public Consultation, including public hearing, shall be conducted through concerned SPCB in the concerned districts as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.

(ii) The PP shall submit the lake rejuvenation plan to conserve the existing water bodies in core zone as well as in Buffer Zone.

(iii) The PP shall submit the transportation related option study to optimize the transportation system through rail/road.

(iv) PP shall submit Letter of Intent from concerned State Government based on allocation of coal block from Ministry of Coal.

(v) PP to submit the Mining plan approved by the Ministry of Coal for the peak capacity of 3 MTPA.

(vi) Forest Clearance of total 87.351 ha for diversion for non-forestry activity shall be submitted.

(vii) PP should submit the real time aerial footage and video of the Mining lease area made through drone with a special focus on the area adjacent to the rivers.

(viii) PP shall not plan any non-essential infrastructure of mining operation on non-coal bearing forest area.

(ix) PP shall conduct detailed study the subsidence, its impact due to mining activity and propose mitigation/management measures.

(x) PP shall submit detailed project report for implementation of railway siding for evacuation of coal with its target date of completion. Forest Clearance shall be submitted if railway siding land comes under forest land.

(xi) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. 12 nos of Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.

(xii) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.

(xiii) PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.

(xiv) Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity shall be proposed with timeline and allotted fund with the approval of District Commissioner/collector. A need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.

(xv) Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.

(xvi) Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory.

(xvii) PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.

(xviii) PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.

(xix) PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers. Also, It should include with certified map with exact distance from any Wildlife Sanctuary.

(xx) Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.

4.1. This grant of Terms of References(ToR) for the said project is further subject to the general conditions as under

(i) All documents should be properly indexed, page numbered.

(ii) Period/date of data collection should be clearly indicated.

(iii) Authenticated English translation of all material provided in Regional languages.

(iv) After the preparation of the draft EIA-EMP Report as per the aforesaid TOR, the proponent shall get the Public Hearing conducted as prescribed in the EIA Notification 2006 and take necessary action for obtaining environmental clearance under the provisions of the EIA Notification 2006.

(v) The letter/application for EC should quote the Ministry's file No. and also attach a copy of the letter prescribing the ToR.

(vi) The copy of the letter received from the Ministry on the ToR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.

(vii) General Instructions for the preparation and presentation before the EAC of ToR/EC projects of Coal Sector should be incorporated/followed.

(viii) The aforesaid ToR has a validity of **Four** years only.

(ix) Grant of ToR does not necessarily mean grant of EC.

(x) Grant of ToR to the present project does not necessarily mean grant of TOR/EC to the captive/linked project.

(xi) Grant of ToR to the present project does not necessarily mean grant of approvals under the Forest (Conservation) Act, 1980 or the Wildlife (Protection) Act, 1972.

(xii) Grant of EC is also subject to circulars issued under the EIA Notification 2006, which are available on the Ministry's website: www.envfor.nic.in

5. Standard ToR: The EIA/EMP report should contain the information in accordance with provisions & stipulations as given in the standard ToR for Underground coal mine projects (please visit the following link to download the Standard ToR:
http://environmentclearance.nic.in/writereaddata/standardtorreference.pdf

6. You are required to submit the final EIA/EMP prepared as per TORs to the Ministry within 4 years as per this Ministry's Notification vide S.O 751 (E) dated 17th February, 2020 for considering the proposal for environmental clearance.

7. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India/National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization(s)/laboratories including their status of approvals etc. vide Notification of the MoEF dated 19th July, 2013.

This issues with the approval of the competent Authority

(Lalit Bokolia)
Director

Copy to:

1. The Principal Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg, Madam Cama Road, Mantralaya, Mumbai - 32 (Maharashtra)
2. The Additional PCCF (Central), Ministry of Environment Forest and Climate Change, Regional Office (Western Central Zone), Ground Floor, East Wing, New Secretariat Building Civil Lines, Nagpur-1 (Maharashtra)
3. The Chairman, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4thFloors, Sion, Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai - 2
4. The District Collector, **Nagpur**, Government of Maharashtra
5. Monitoring File 6. PARIVESH

(Lalit Bokolia)
Director

Annexure

A. Generic TOR for an Underground Coalmine project

(i) An EIA-EMP Report should be prepared for a peak capacity of …… **MTPA** over an area of …… ha addressing the impacts of the underground coalmine project including the aspects of mineral transportation and issues of impacts on hydrogeology, plan for conservation of flora/fauna and afforestation/plantation programme based on the generic structure specified in Appendix III of the EIA Notification 2006. Baseline data collection can be for any season except monsoon.

(ii) The EIA-EMP report should also cover the impacts and management plan for the project specific activities on the environment of the region, and the environmental quality – air, water, land, biotic community, etc. through collection of baseline data and information, generation of baseline data on impacts for ……. MTPA of coal production based on approval of project/Mining Plan.

(iii) A Study area map of the core zone and 10km area of the buffer zone (15 km of the buffer zone in case of ecologically sensitive areas) delineating the major topographical features such as the land use, drainage, locations of habitats, major construction including railways, roads, pipelines, major industries/mines and other polluting sources, which shall also indicate the migratory corridors of fauna, if any and the areas where endangered fauna and plants of medicinal and economic importance are found in the area.

(iv) Map showing the core zone along with 3-5 km of the buffer zone) delineating the agricultural land (irrigated and unirrigated, uncultivable land (as defined in the revenue records), forest areas (as per records) and grazing land and wasteland and water bodies.

(v) Contour map at 3m interval along with Site plan of the mine (lease/project area with about 3-5 km of the buffer zone) showing the various surface structures such as buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within/adjacent to the ML), green belt and undisturbed area and if any existing roads, drains/natural water bodies are to be left undisturbed along with details of natural drainage adjoining the lease/project and modification of thereof in terms of construction of embankments/bunds, proposed diversion/rechannelling of the water courses, etc., highways, passing through the lease/project area.

(vi) Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area. Impacts of project, if any on the landuse, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations. Extent of area under surface rights and under mining rights.

S.N.	ML/Project Land use	Area under Surface Rights (ha)	Area Under Mining Rights (ha)	Area under Both (ha)
1.	Agricultural land			
2.	Forest Land			
3.	Grazing Land			
4.	Settlements			
5.	Others (specify)			

Area Under Surface Rights

S.N.	Details	Area (ha)	Forest Land	Agr. land	Wasteland	Settlements	Others
1.	Buildings						
2.	Infrastructure						
3.	Roads						
4.	Others (specify)						
	TOTAL						

(vii) Study on the existing flora and fauna in the study area carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. The flora and fauna details should be furnished separately for the core zone and buffer zone. The report and the list should be authenticated by the concerned institution carrying out the study and the names of the species (scientific and common names) along with the classification under the Wild Life Protection Act, 1972 should be furnished.

(viii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working plan/scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps should also be included.

(ix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.

(x) Collection of one-season (non-monsoon) primary baseline data on environmental quality – air (PM_{10}, $PM_{2.5}$, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, AS, etc), noise, water (surface and groundwater), soil along with one-season met data.

(xi) Map of the study area (core and buffer zone) clearly delineating the location of various monitoring stations (air/water/soil and noise – each shown separately) superimposed with location of habitats, wind roses, other industries/mines, polluting sources. The number and location of the stations should be selected on the basis of the proposed impacts in the downwind/downstream/groundwater regime. One station should be in the upwind/upstream/non-impact non-polluting area as a control station. Wind roses to determine air pollutant dispersion and impacts thereof shall be determined. Monitoring should be as per CPCB guidelines and standards for air, water, noise notified under Environment Protection Rules. Parameters for water testing for both ground and surface water should be as per ISI standards and CPCB classification of surface water wherever applicable.

(xii) Impact of mining and water abstraction and mine water discharge in mine on the hydrogeology and groundwater regime within the core zone and 10km buffer zone including long–term modelling studies on the impact of mining on the groundwater regime. Details of rainwater harvesting and measures for recharge of groundwater should be reflected wherever the areas are declared dark/grey from groundwater development.

(xiii) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.

(xiv) Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users should be provided.

(xv) Impact of choice of mining method, technology, selected use of machinery - and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations.

(xvi) Impacts of mineral transportation – within and outside the lease/project. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, and their impacts on air quality should be shown in a flow chart with the specific points where fugitive emissions can arise and the specific pollution control/mitigative measures proposed to be put in place. Examine the adequacy of roads existing in the area and if new roads are proposed, the impact of their construction and use particularly if forestland is used.

(xvii) Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral and their impacts.

(xviii) Examine the number and efficiency of mobile/static water sprinkling system along the main mineral transportation road within the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality.

(xix) Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.

(xx) Conceptual Final Mine Closure Plan along with the fund requirement for the detailed activities proposed there under. Impacts of change in land use for mining operations and whether the land can be restored for agricultural use post mining.

(xxi) Greenbelt development should be undertaken particularly around the transport route and CHP. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.

(xxii) Details of cost of EMP (capital and recurring) in the project cost and for final mine closure plan and these include the specific costs (capital and recurring) of each pollution control/mitigative measures proposed in the project until the end of mine life and a statement that this is included in the project cost should be given

(xxiii) The Env. Management Plan should be integrated with measures for minimizing the use of natural resources - water, land, energy, raw materials/mineral, etc

(xxiv) Detailed project specific R&R Plan with data on the existing socio-economic status (including tribals, SC/ST) of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be provided.

(xxv) Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project

(xxvi) Corporate Environment Responsibility:

a) The Company must have a well laid down Environment Policy approved by the Board of Directors.

b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.

c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

(xxvii) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.

(xxviii) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated

(xxix) Status of any litigations/ court cases filed/pending in any Court/Tribunal on the project should be provided

(xxx) Details on sample test analysis of: Characteristics of coal: This should include details on grade and other characteristics such as ash content, and heavy metals including levels of Hg, As, Pb, Cr etc. should be given

(xxxi) Copies of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval, NOC from Flood and Irrigation Dept. (if req.), etc. should be provided wherever applicable

(xxxii) FORESTRY CLEARANCE: Details on the forest clearance the details should be given as per format

Total ML / /Project Area (ha)	Total Forest Land (ha)	Date of FC	Extent of forest land	Balance area for which FC is yet to be obtained	Status of appl. for diversion of forestland
		If more than one, provide details of each FC			

Linked with Chapter 1: Introduction _ Section 1.1 (Purpose of the Project)

ANNEXURE I A
VESTING ORDER

GOVERNMENT OF INDIA

MINISTRY OF COAL

OFFICE OF THE NOMINATED AUTHORITY

(Constituted under Section 6 of The Coal Mines (Special Provisions) Act, 2015)

Shastri Bhawan, New Delhi

VESTING ORDER

(under clause (b) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13 of the Coal Mines (Special Provisions) Rules 2014 read with clause (b) of sub-section (3) of Section 6 and sub-section (3) of Section 8 of the Coal Mines (Special Provisions) Act, 2015)

In re:	**Gondkhari Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**
Order no.:	NA-104/7/2021-NA
Date:	November 18, 2021
In favour of:	**Adani Power Maharashtra Limited,** incorporated in India under the Companies Act, 1956 with corporate identity number U40101GJ2007PLC050506, whose registered office is at Adani Corporate House, Shantigram, Near Vaishno Devi Circle, S. G. Highway, Khodiyar, Ahmedabad Gujarat 382422 (the "successful bidder")
For the purpose of:	Sale of coal, including sale to Affiliates and related parties, utilisation of coal for any purpose including but not limited to captive consumption, Coal Gasification, Coal Liquefaction and export of coal.

WHEREAS, the nominated authority has, in accordance with provisions of the Coal Mines (Special Provisions) Act, 2015 (the "Act") and the Coal Mines (Special Provisions) Rules 2014 (the "Rules") conducted the auction of the mine;

AND WHEREAS the successful bidder is eligible to receive this vesting order with respect to the mine including, inter-alia, -

(a) the coal bearing land acquired by the prior allottee and the lands, in or adjacent to the coal mines used for coal mining operations acquired by the prior allottee; and

Govt. of India
Min Coal
Nominated Authority

(b) any existing mine infrastructure as defined in clause (j) of sub-section (1) of section 3 of the Act;

AND WHEREAS the successful bidder has entered into a Coal Mine Development and Production Agreement dated September 23, 2021("CMDPA") (as amended) with the nominated authority in accordance with the provisions of sub-rule (5) of rule 13.

AND WHEREAS the successful bidder has furnished a performance bank guarantee dated October 27, 2021 for an amount equal to INR 43,69,93,809.00 (Indian Rupees Forty Three Crore Sixty Nine Lakh Ninety Three Thousand Eight Hundred Nine only) issued by Union Bank of India in accordance with the tender document and in accordance with the provisions of sub-section (6) of section 8 of the Act and sub-rule (4) of rule 13 of the rules.

NOW, THE NOMINATED AUTHORITY DOES ORDER:

1. On and from November 18, 2021 ("vesting date") and in accordance with the provisions of sub-section (4) of section 8 of the Act, with respect to the mine, the following shall stand fully and absolutely transferred and vested in the successful bidder, namely: -

(a) all the rights, title and interest of the prior allottee in and over the land and mine infrastructure free from all encumbrances;

(b) entitlement to a prospecting license, mining lease or prospecting license-cum-mining lease to be granted by the State Government with the terms and conditions of CMDPA forming a part of it on making an application;

(c) all statutory licences, permits, permissions, approvals or consents as per rules, required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 2**;

(d) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 3**;

(e) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the State Government, to



the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 4**;

(f) rights appurtenant to the approved mining plan of the prior allottee;

(g) any subsisting contract in relation to coal mining operations, to which the prior allottee was a party and which is assumed, adopted and continued by the successful bidder and listed in the **Annexure 5** shall stand novated (by virtue of a deemed consent from the relevant party(ies)), in accordance with the provisions of sub-section (1) of section 11 of the Act in favour of the successful bidder for the residual term or residual performance of such contract;

2. The successful bidder may seek any change in the terms and conditions attached to such licence, permit, permission, approval or consent by making an application in accordance with applicable laws;

3. Hereinafter, the successful bidder shall be entitled to take possession of the mine as specified in **Annexure 1** without let or hindrance;

4. This vesting order is liable to be cancelled in accordance with the provisions of sub-rule (6) of rule 13.

18/11/21

(By the Nominated Authority)

Govt. of India
M/o Coal
Nominated Authority

Annexures:

Annexure 1: Particulars of the mine

Part A – Description of the mine

Name of Coal Mine	Gondkhari
Coalfield	Kamptee
Latitude	21° 07' 57" N to 21° 10' 56" N (Provisional)
Longitude	78° 54' 45" E to 78° 56' 26" E (Provisional)
Villages	Gondkhairi, Kalambi, Wadhamna
Tehsil/ Taluka	Kalmeshwar, Nagpur, Nagpur Rural
District	Nagpur
State	Maharashtra

Part B – Description of Land in relation to the mine

Nil

Part C – Description of Mine Infrastructure in relation to the mine

Nil

Govt. of India
Min Coal
Nominated Authority

Annexure 2: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government which are being transferred along with this vesting order.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Approval of Mining Plan (Reference to Grant)	Ministry of Coal	No.13016/50/2008-CA-1	21.11.2008



Annexure 3: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government to be obtained on application by the successful bidder.

Not Applicable



Annexure 4: Particulars of statutory licences, permits, permissions, approvals or consents issued by the State Government to be obtained on application by the successful bidder.

Not Applicable

Annexure 5: Particulars of the contracts adopted by the successful bidder

The successful bidder does not intend to adopt and continue with any of the contracts of the prior allottee.

ANNEXURE II
APPROVAL MINE PLAN

Application No.
Gondkhari Coal MineMHMR019/APP00226/2022
Coal Controller Organization
A subordinate organization of
Ministry of Coal, Government of India

ShastriBhawan, New Delhi
2022-12-22

To
Adani Power Maharashtra Limited
Address:
Adani Power Maharashtra Limited State- Maharashtra District- Nagpur
Email: shanto.mukherjee@adani.com
Contact: 8370012214
Fax:

Subject: In-Principle Approval of Mining Plan and Mine Closure Plan (first Modification) forGondkhari Coal Mine of M/s Adani Power Maharashtra Limited

Sir,
I am directed to refer to your application for approval of Mining Plan and Mine Closure Plan for Gondkhari Coal Mine located in KAMPTEE Coal Field Submitted through application number APP00226 of Single Window Portal of Ministry of Coal for approval of the Central Government under Rule 22EOf MCR 1960 for a rated capacity of 2Mtpa Peak capacity 3.0000 Mtpa, Lease area862Ha and Project area862 Ha has been considered and in-Principle approval of the Central Government there on is here by conveyed under Section 5(2)(b) of the Mines & Minerals (Development & Regulation) Act 1957 subject to the following conditions:

1. The project proponent should ensure implementation of all observations made by internal committee during actual operation.
2. Project Proponent shall take all necessary precautions regarding safety of mine workings and persons deployed therein.
3. Mining lease of this block shall not encroach into any other adjacent coal block.
4. The cost of abandonment for carrying out the closure activities envisaged in the Mine closure plan is indicative. The actual cost for carrying out the activities at the time of final closure may be higher. The actual cost of abandonment will have to be borne by the project proponent for carrying out the closure activities.
5. The approval of the Mining Plan (Including Mine Closure Plan) is without prejudice to the requirement of approvals from competent /prescribed authority under the relevant rules/ regulations etc.
6. Approval of Mining plan is technical in nature, which is granted with a view to facilitating further developmental activities by the allocattee. This approval will have no effect on the penalty provisions of the agreement in case of nonachievement of Milestones.
7. Approval of Mining plan is technical in nature, which is granted with a view to facilitating further developmental activities by the allocattee. This approval will have no effect on the penalty provisions of the agreement in case of nonachievement of Milestones.
8. Evacuation route/ roads/ water bodies/other surface features/infrastructure outside the Geological Block/Project Area shall not be part of the Mining Plan (in line with para 1.6 of OM F.No. 34011/28/2019-CPAM dated 29.05.2020 of MoC for guidelines for Preparation, Formulation, Submission, Processing, Scrutiny, Approval and Revision of Mining Plan for coal and lignite blocks).
9. Name of manufacturer, make of equipment/HEMM, model name suggesting the name of the manufacturer, if mentioned anywhere in the mining plan, has not been considered for approval.
10. Underground mining with caving has been proposed beneath surface structures/ inhabitation. A scientific study, to predict subs dence/ its effect, has been proposed to be conducted before commencement of depillaring operation and

the mining plan). This shall be strictly implemented, along with other safety precautions.

11. Certain patches between panel and block boundary have been proposed to be mined during extraction of coal, based on the site conditions (refer para 3.1.13 of the Mining Plan). This shall be implemented taking all safety precautions and appropriate approvals.

Yours Faithfully

22/12/2022

(Joydeep Ghosh)

Deputy Assistant Coal Controller,

Coal Controller Organisation (A subordinate organization of MinistryofCoal)

Copy to:

1.Under Secretary,NA section,MoC

2.Under secretary, P &S section, MoC

In-Principle

Linked with Chapter 2: Project Description _ Section 2.6 (Proposed Schedule for Approval and Implementation)

ANNEXURE III (A)
COPY OF NOC OBTAINED FROM CGWA FOR GW WITHDRAWAL & DEWATERING

2885

सत्यमेव जयते

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Gondkhari Underground Coal Mine		
Project Address:	Villages - Gondkhairi, Nanda, Alesur, Kalambi, Karale, Surabardi, Pendhari, Waddhamna,, Tahsil - Kalmeshwar, Hingna And Nagpur (r), Dist - Nagpur		
Village:	Gondkhairi	Block:	Kalmeshwar
District:	Nagpur	State:	Maharashtra
Pin Code:			
Communication Address:	M/s Adani Power Maharashtra Limited, Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle,, S G Highway. Khodiyar, Ahmedabad,, , Ahmadabad, Gujarat - 382421		
Address of CGWB Regional Office :	Central Ground Water Board Central Region, N.s. Building, Civil Lines, Nagpur, Maharashtra - 440001		

1.	**NOC No.:**	CGWA/NOC/MIN/ORIG/2023/19155	2.	**Date of Issuence**	01/09/2023		
3.	Application No.:	21-4/9935/MH/MIN/2023	4.	Category: (GWRE 2022)	Safe		
5.	Project Status:	New Project	6.	NOC Type:	New		
7.	**Valid from:**	01/09/2023	8.	**Valid up to:**	31/08/2025		
9.	Ground Water Abstraction Permitted:						

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
40.00	14600.00			452.00	164980.00		

10. Details of ground water abstraction /Dewatering structures

	Total Existing No.:0						Total Proposed No.:4					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	0	0	0	0	0	0	2	0	0	0
Dewatering Structure*	0	0	0	0	0	0	0	0	0	0	2	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11.	Ground Water Abstraction/Restoration Charges paid (Rs.):	359160.00

12.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	1	0	1	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

पानी बचाये – जीवन बचाये
SAVE WATER - SAVE LIFE

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Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.

25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.

26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.

27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

CENTRAL GROUND WATER AUTHORITY

CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation
Ministry of Jal Shakti, Govt. of India

Receipt

(As per the MoJS guidelines dated 24.09.2020 vide SO No. 3289(E) and amendments dated 29.09.2023 vide SO No. 1509(E))
https://cgwa-noc.gov.in

Application No,:	21-4/9935/MH/MIN/2023	Date:01/09/2023
Name of Firm:	GONDKHARI UNDERGROUND COAL MINE	
AppType Category:	*Coal*	
Application Type:	*Mining*	
PAN/GSTIN No. of Firm/Individual:	*NA / NA*	

SN	Description	Amount (Rs.)
1.	Application Processing Fee	**10000.00**
2.	Ground Water Abstraction charges	**359160.00**
3.	Ground Water Restoration charges	**0**
4.	Environmental Compensation Charges (ECRGW) *(Date From to) Days-*	
5.	Penalty for non-Compliance of NOC conditions *Condition to be mentioned*	
6.	Adjustment Charges	
7.	Rebate	
8.	Charges for correction/modification in the existing issued No Objection Certificate	

S.No.	Description	Rate
(i)	Change in User ID	Rs. 5000
(ii)	Change in firm Name	Rs. 5000
(iii)	Extension of No Objection Certificate	Rs. 5000
(iv)	Issuance of duplicate No Objection Certificate	Rs. 5000
(v)	Issuance of corrigendum to No Objection Certificate	Rs. 5000
(vi)	Any other items/correction etc.	

Rs. Rupees Three Lakh Sixty Nine Thousand One Hundred Sixty Only	**369160.00**

CENTRAL GROUND WATER AUTHORITY

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This is an system generated invoice, hence, does not require ink signed.

Term and conditions:

i. All disputes are subject to Delhi Jurisdiction.
ii. Any complaint in regard to the rates will not be entertained.

Member-Secretary
CGWA, New Delhi

CENTRAL GROUND WATER AUTHORITY

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

ANNEXURE III (B)
APPLICATION FOR FOREST CLEARANCE

Form-A (Part-I): Diversion of Forest Land

Project Name:	Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 MTPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023	**Single Window Number:**	SW/103384/2022
		Proposal Number:	FP/MH/MIN/QRY/408247/2022
State:	MAHARASHTRA	**Current Status:**	[redacted]
Submission Date:	06/01/2023		

Common Application Form

Project Details

1. Details of Project

1.1. Name of the Project	Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 MTPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023
1.2. Project Proposal For	New
1.3. Project ID (Single Window Number)	SW/103384/2022
1.4. Description of Project	The Gondkhari Underground Coal Block in Kamptee Coalfield, in the State of Maharashtra has been allocated to M/s Adani Power Maharashtra Limited (APML) vide Letter No. NA-104/7/2021-NA dated 18th November 2021 by MoC, GoI.

2. Details of the Company/Organization/User Agency making application

2.1. Legal Status of the Company/Organization/User Agency	Private Limited
2.2. Name of the Company/ Organization/User agency	ADANI POWER MAHARASHTRA LIMITED

Registered address

2.3. Address	Adani Power Maharashtra Limited Adani Corporate House Shantigram, Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad
2.4. State	GUJARAT
2.5. District	AHMADABAD
2.6. Pin Code	382421
2.7. E-mail address	gondkhari@adani.com
2.8. Mobile number	7838651134

3. Details of the person making application

3.1. Name	Shanto Mukherjee
3.2. Designation	Vice President

Correspondence address

3.3. Address	Adani Power Maharashtra Limited Adani Corporate House Shantigram, Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad

Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad

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3.4. State	GUJARAT
3.5. District	AHMADABAD
3.6. Pin Code	382421
3.7. E-mail address	gondkhari@adani.com
3.8. Mobile number	9958543124

Project Location

4. Location of the Project or Activity

4.1. Upload KML	Main_kml
4.2. Whether the project/activity falling in the state/UT sharing international borders	NO
5. Shape of the Project	Non - Linear

Location Details

Toposheet No	State/UT	District	Sub District	Village	Plot/Survey/Khasra No.
F44M16	Maharashtra	NAGPUR	Hingna	Pendhari	
F44M16	Maharashtra	NAGPUR	Kalameshwar	Kalambi	
F44M16	Maharashtra	NAGPUR	Kalameshwar	Gondkhairi	Survey of India Top sheet No. 55K/16
F44M16	Maharashtra	NAGPUR	Hingna	Wadhamana (CT)	
F44M16	Maharashtra	NAGPUR	Kalameshwar	Sahuli	
F44M16	Maharashtra	NAGPUR	Kalameshwar	Karli	
F44M16	Maharashtra	NAGPUR	Nagpur (Rural)	Surabardi	

Remarks

N/A

6. Land Requirement (in Ha) of the project or activity

6.1. Non-Forest Land	
6.2. Non-Forest Land [A]	774.649
6.3. Forest Land [B]	87.351
6.4. Total Land [A+B]	862

6. Project/Activity Cost

6.1. Total Cost of the Project at current price level (in Lakhs)	130300 Amount in Words : **One Lakh Thirty Thousand Three Hundred Lakh(s) Only**

7. Employment likely to be generated

During construction phase

Permanent employment

7.1. No. of permanent employment (Nos) [A]	883
7.2. Period of employment (No. of days) [B]	7820
7.3. No. of man-days [X]=[A]*[B]	6834960

7.3. No. of man-days [X]=[A]*[B]	6834960

Temporary employment

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7.4. Total [X] +[Y]	6834960

7.5. During operational phase

Permanent employment

7.5.1. No. of permanent employment (Nos) [A]	863
7.5.2. Period of employment (No. of days) [B]	7920
7.5.3. No. of man-days [X]=[A]*[B]	6834960

Temporary employment

7.5.4. Total [X] +[Y]	6834960

Others

8. Whether Rehabilitation and Resettlement (R&R) involved?	NO
9. Whether project area involves shifting of watercourse/road/rail/Transmission line/water pipeline, etc. required?	NO
10. Whether any alternative site(s) examined or part thereof for the non-site-specific component?	Not applicable as the project or activity is site specific
11. Whether there is any Government Order or Policy/ Court order relevant or restricting to the site?	NO
12. Whether there is any litigation pending against the project and/or land in which the project is proposed to be set up?	NO
13. Whether the proposal involves violation of Act/Rule/Regulation/Notification of Central/State Government?	NO

Form-A (Part-I): Diversion of Forest Land

Project Details

1. Forest Clearance

1.1. State	MAHARASHTRA
1. Upload a copy of note containing justification for locating the Project 2. in forest land	Justification of Project.pdf
1.3. Project Category	Mining / Quarrying
1.4. Whether any proposal seeking prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required for this project has been submitted in the past?	No

Proposed Land

2. Details of Forestland proposed to be diverted (Village / Division / District Wise Breakup)

2.1. Total area of forestland proposed for diversion (ha.)	87.261
2.2. Total area of non- forestland required for this project (ha.)	774.549

2.3. Legal Status of forest land proposed for diversion

Area (ha)	Legal Status of Forest Land

Area (ha)	Legal Status of Forest Land
87.351	Revenue Forest

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2.3.1. Total Area (ha)	87.351
2.4. Total period for which the forestland is proposed to be diverted (No. of years)	24

KML Details

Division	Nagpur Division
No. of Patches	1
KML	970858_FC_KML_1672903420512_Lease limit.kml

Location Details

Toposheet No.	District	Village	Range	Forest land proposed for diversion (ha)	Non Forest Land (ha)
F44M16	Nagpur	Gondkhairi	Kalmeshwar	7.449	157.643
F44M16	Nagpur	Kalambi	Kalmeshwar	0	36.75
F44M16	Nagpur	Alesur	Kalmeshwar	0	7.31
F44M16	Nagpur	Nanda	Kalmeshwar	0	44.210
F44M16	Nagpur	Karli	Kalmeshwar	57.273	395.939
F44M16	Nagpur	Surabardi	Hingani	0	87.175
F44M16	Nagpur	Pendhari	Hingani	0	7.823
F44M16	Nagpur	Waddhamana	Hingani	22.638	37.699

Patch Details

Patch/ Segment ID	Forest Area (ha)	Non-Forest Area (ha)	Remarks if any
1	87.351	774.649	

Remarks Details

Total Patch-wise Forest Land in the division (ha)

2.5. Total Forest Land Area (ha)	87.351
2.6. Total Non Forest Land Area (ha)	774.649

Total KML-wise Forest Land in the division (ha.)

2.7. Total Forest Land Area (ha)	87.351
2.8. Total Non Forest Land Area (ha)	774.649
2.9. Total Area (ha)	862

3. Component Wise Break Up

Component	Forest Land Proposed for Diversion (ha)	Non-forest Land (ha)
Underground Mine (Surface area requirement)	87.351	744.649

4. Total Forest Land(ha)	87.351
5. Total Non Forest Land (ha)	744.649

6. Upload map of the forest land proposed to be diverted prepared by

6. Upload map of the forest land proposed to be diverted prepared by using DGPS or Total Station (pdf only)	14000 map.pdf

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Afforestation Details

7. Details of land identified for Compensatory Afforestation

7.1. Whether Compensatory Afforestation is applicable or not?	No

Others

8. Environmental clearance Details

8.1. Whether the Project requires Clearance under the Environment (Protection) Act 1986 (Environmental clearance)?	Yes
8.1.1. Status of Environmental Clearance	Application submitted
8.1.1.1. Proposal No	IA/MH/CMN/401870/2022
8.1.1.2. Date of application	05/01/2023
8.1.1.3. MoEFCC / SEIAA File Number	IA-J-11015/46/2022-IA-II(M)
8.1.1.4. Status of application [Submitted recently / ToR Granted / PH Conducted / Under appraisal]	Submitted recently

9. Wildlife clearance Details

9.1. Whether the Project or a part thereof is located in any Protected Area or their Eco sensitive zone?	No

Category Specific Details

11. Sector specific detail/attachments

11.1. Copy of approved mining plan along with approval letter	Mine Plan Test.pdf
11.2. Copy of map of the outer boundary of mining lease area (pdf only)	14000 map.pdf
11.3. Copy of the detailed land use plan in 1:4,000 scale prepared by using DGPS or Total Station (Kml only)	1747849_FC_copy_detailed_land_use_plan_1672983286283_KML for Upload test.kml
11.4. Copy of the prospecting licence and extension of the prospecting licence, if any	N/A
11.5. Copy of the approval accorded for MoEFCC for prospecting	N/A
11.6. Copy of note containing details of the plan for the transportation of the minerals proposed to be raised from the mining lease (pdf only)	Proposed use of the minerals to be raised from the mining lease.pdf

12. Period of validity of Mining Plan

12.1. From	22/12/2022
12.2. To	22/12/2052
13. Period of Mining Lease(Years)	30

14. Name of approving authority for the Mining plan	Ministry of Coal

15. Details of Prospecting undertaken to assess mineral reserves

15.1. Whether detailed prospecting to assess mineral reserves in the lease has been undertaken	No

16. Brief details of Prospecting activities undertaken in the mining lease

16.1. Details of bore holes drilled for prospecting

Forest Land		Non-Forest Land	
No. of Bore holes	Diameters(Inch)	No. of Bore holes	Diameters(Inch)
N/A	N/A	N/A	N/A

17. Mineral Reserves

Name of Mineral	Proved Reserves	Indicated Reserves	Inferred Reserves	Mineable Reserves	Remarks
Coal	98.717	98.717	98.717	52.486	

18. Estimated reserves in Forest / Non-Forest land if any

Name of Mineral	Estimated Reserve in Forest Land	Estimated Reserve in Non-Forest Land	Remarks
Coal	9.98	88.523	

19. Details of Letter of Intent (LoI) / Vesting order / Mining Lease

19.1. Date of issue of LoI/Vesting order/Minning Lease	18/11/2021
19.2. Period of validity of LoI / Vesting order (years and months)	N/A
19.3. Period of lease (years and months)	30/00
19.4. Date of expiry of lease	
19.5. Lease area (in ha) as per LoI/Vesting order/Mining Lease	852
19.6. Production capacity (in MTPA) as per LoI / Vesting Order / Mining lease, if any prescribed	3
19.7. Details of Lease renewal(s), if any	
19.8. Other information, if any	

20. Status of approval of Mining plan	Approved

21. Minerals to be mined

Name of Mineral	Classification	Production Capacity	Remarks
Coal	Major	3	Peak

22. Details of Total excavation (RoM) including Topsoil, Overburden, Mining waste, Rejects, etc.

22.1. Total excavation in MTPA	2
22.2. Total Excavation in M.Cu.m/Annum	5600
22.3. Stripping Ratio	2800.0000
22.4. Other information, if any	Stripping Ratio irrelevant for Underground Mine

23. Life of mine (years and months)

23.1. Life of the mine as per approved mining plan (in years and months)	24/00
23.2. Life of the mine as per total estimated reserves, if any (in years and months)	
23.3. Other information, if any	

24. Type and method of Mining Method

24.1. Type of mining	Underground
24.2. Method of mining	Mechanized
24.3. Other information, if any	

25. Type of blasting, if any, to be adopted

25.1. Type of blasting	High pull solid blasting only during construction period
25.2. Mitigation measures for control of blast induced vibrations	Controlled blasting with proper spacing and optimum charge
25.3. Other information, if any	

26. Whether it is proposed to install beneficiation plant/Coal washery within the mining lease area?	No
26.1. Capacity of beneficiation/washery (in MTPA)	N/A
26.2. Proposed process	N/A
26.3. Beneficiation/Washing Technology	N/A
26.4. Other information, if any	

27. Whether it is proposed to install crusher within the mining lease area?	No
27.1. No. Of crushers	N/A
27.2. Capacity of crushers	N/A N/A
27.3. Total Capacity of crushers	N/A N/A

28. Dumping strategy

Description	Area in Ha	Maximum height in m	Remarks
External dump	0.0001	0.0001	No external dump involved.
Internal dump	0.0001	0.0001	No internal dump involved.
Topsoil dump/ storage	0.0001	0.0001	No topsoil dump/storage involved.

29. Topsoil management

29.1. Total Topsoil excavated during the entire life of the mine (mm3)	0.0001
29.2. Utilization strategy of topsoil	0.0001
29.3. Other information, if any	No top soil involved in underground mining

30. Details of the Quarry/Mine Pit

30.1.	Total Quarry Area (ha.)	0.0001
30.2.	Area of final void (ha.)	0.0001
30.3.	Maximum Depth of final void (m)	0.0001
30.4.	Other information, if any	This is not applicable for Underground Mine. No Surface Quarry area & Void to be created.

31. Details of Transportation

31.1.	Mode of transportation upto pit head	Conveyor
31.2.	Mode of transportation from pit head to siding/loading	Rail/Road/Conveyor as per requirement of end user as the mine is commercial mine for sale of coal in open market/consumption of coal.
31.3.	Mode of transport from loading point to consumers	Rail/Road/Conveyor as per requirement of end user as the mine is commercial mine for sale of coal in open market/consumption of coal.
31.4.	Other information, if any	

32. Details of reclamation/post mining land use

32.1.	Plantation area (ha.)	15
32.2.	Water body (ha.)	0.08
32.3.	Public use (ha.)	1.91
32.4.	Other uses (ha.)	0.01

33. Copy of Additional Information, if any

Sr. No.	Document Name	Remark	Document
1	Transportation Plan	Sl. No. 4 Transportation Plan	Transportation Plan.pdf
2	Approved Mining Plan	Sl No. 5 Approved Mining Plan	Approved Mining Plan R1.pdf
3	Rehabilitation Plan	Sl. No. 6 Rehabilitation Plan	6. Rehabilitation Plan.pdf
4	Index Map	Sl No. 11 Index Map	Index Map.pdf
5	Area Statement	Sl. No. 8 Area Statement	8 Area Statement.pdf
6	Toposheet	Sl. No. 10 Toposheet	10 Toposheet.pdf
7	Land Use Plan	Sl. No. 9 Land Use Plan	9 Land Use Plan.pdf
8	Undertaking for FRA	Undertaking for FRA	FRA.pdf
9	Cost Benefit Details	Sl. No. 7 Cost Benefit Details	7 Cost Benefit Details.pdf
10	Undertaking NPV	Undertaking NPV	NPV-Undertaking.pdf
11	Cadastral/Geo-refrenced Map	Cadastral/Geo-referenced Map	CADASTRAL MAP 852ha-r.pdf
12	Subsidence Report	Final Subsidence Report	Subsidence Study Report.pdf
13	Undertaking R&R approval from MoT	Undertaking R&R approval from MoT	R&R-Approval from Ministry of Tribal Affairs.pdf
14	Vesting Order	Vesting Order/Allotment Order	Vesting Order_Gondkhari Coal Mine.pdf
15	Undertaking CA	Undertaking CA	CA- Undertaking.pdf
16	Justification of Project	Justification of Project	Justification of Project.pdf
17	Topo Map	Topo Map	TOPOSHEET MAP red.pdf
18	DGPS Report	DGPS Report	DGPS Report-852 Ha. R2.pdf

19	Land Schedule	Land Schedu	Land Schedule.pdf
20	1:4000 Map	1:4000 Map	1:4000 map.pdf

2898

Undertaking

☑ I hereby give undertaking that the data and information given in the application and enclosures are true to be best of my knowledge and belief and I am aware that if any part of the data and information is found to be false or misleading at any stage, the project will be rejected and clearance given if any to the project will be revoked at our risk and cost. In addition to the above, I hearby give undertaking that no activity/construction/expansion has been taken up

34.	Name	Shanto Mukherjee
35.	Designation	Vice President
36.	Company	ADANI POWER MAHARASHTRA LIMITED
37.	Address	Adani Power Maharashtra Limited Adani Corporate House Shantigram, Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad
38.	Date	06/01/2023

ANNEXURE III (C)
FOREST DIVERSION PROPOSAL RECOMMENDED BY PROJECT SCREENING COMMITTEE (II), MOEFCC, NEW DELHI

Proposal Timeline

2900

Proposal No.:	**FP/MH/MIN/QRY/408247/2022**
Project Name:	Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 MTPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023
State:	MAHARASHTRA
Proposal Submission Date:	06/01/2023
Area(in Ha):	87.351

S. No.	Activity	Activity Start date	Activity End date
1	Submitted	28/11/2022	06/01/2023
2	Processed by MS for Acceptance in PSC-I	06/01/2023	18/01/2023
3	Processed by UA due to EDS by MS after PSC-I	18/01/2023	19/01/2023
4	Processed by MS for Acceptance in PSC-I	19/01/2023	13/04/2023
5	Processed by UA due to EDS by MS after PSC-I	13/04/2023	13/04/2023
6	Processed by MS for Acceptance in PSC-I	13/04/2023	18/04/2023
7	Processed by DFO/CF/Nodal Officer after acceptance in PSC-I	18/04/2023	05/06/2023
8	Processed by MS for Recommendation in PSC-II	05/06/2023	19/06/2023
9	Processed by UA due to EDS by MS after PSC-II	19/06/2023	04/07/2023
10	Processed by MS for Recommendation in PSC-II	04/07/2023	30/08/2023
11	Processed by UA due to EDS by MS after PSC-II	30/08/2023	04/09/2023
12	Scheduled for PSC	04/09/2023	N/A

ANNEXURE III (D)
CORRESPONDANCE WITH CWLW & FOREST DEPARTMENT FOR CERTIFIED MAP

O/C

adani
Power

Ref: APML/GDK/2023/020

Dated:10.11.2023

To,
Deputy Conservator of Forest,
Near Government Press,
Zero Miles, Civil Lines
Nagpur 440 001, Maharashtra

Sub: Request for Certificate from PCCF regarding presence/absence of schedule-I species as per WPA 1972 & 2022 within mine lease and its 10 km radius of the Gondkhari Coal Block (UG) of 2 MTPA under Environmental Clearance proposal of M/s. Adani Power Maharashtra Limited (APML)

Ref: 1. Vesting order No. NA-104/7/2021-NA dated on 18th November 2021
2. Copy of MoM of EAC recommendation

Respected Sir,

Adani Power Maharashtra Limited (APML), a subsidiary of Adai Enterprises Ltd. has been declared as the successful bidder for Gondkhari Coal Block (867.0 Ha) in 12th tranche of auction of coal mines under the MMDR (1957) for commercial coal mining in the country (Vesting order is attached). M/s. Adani Power Maharashtra Limited intends to develop the coal mine at earliest and has initiated the process of obtaining various clearances, approvals and certificates as per 'Efficiency Parameters' of Ministry of Coal, Government of India and MoEF&CC, New Delhi.

For obtaining Environmental Clearance for Gondkhari Underground Coal Mine od production capacity of 2 MTPA/ 3 MTPA (Normative /Peak) in the mine lease area of 862.00 Ha of M/s. Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) and as per conditions given by Expert Appraisal Committee (EAC), MoEF&CC for Environmental Clearance which is reproduced as *"PP shall submit compliance of ToR specific conditions (xiii), (xvii) and (xix) with detail analysis and report with certificate from PCCF regarding absence of schedule - I specifies as per WPA 1972 and 2022".*

10/11/2023
आशा तिरोकि
नागपुर वनविभाग, नागपुर

10/11/2023

वनपाल [illegible]
नागपुर पोर्ट कार्यालय

10/11/23

Adani Power (Maharashtra) Ltd. "Adani Corporate House" Shantigram, Near Vaishno Devi Circle, S. G. Highway, Khodiyar, Ahmedabad 382 421, Gujarat India
CIN: U74140GJ2007PLC050260
Tel +91 79 2555 7555 Fax +91 79 2555 7177 info@adani.com www.adani.com

Registered Office: "Adani Corporate House", Shantigram, Near Vaishno Devi Circle, S. G. Highway, Khodiyar, Ahmedabad 382 421

2903

O/C

adani
Power

Ref: APML/GDK/2023/005 Dated: 15.02.2023

To,
Principal Chief Conservator of Forest (Wild Life),
3rd Floor Van Bhavan Ramgiri Road
Civil Lines Nagpur 440 001
Maharashtra

Sub: Request for No Objection Certificate (NOC) about presence/absence/proposed of any Eco-sensitive zone and area, wildlife sanctuary, national park, biosphere reserve, tiger reserves, elephant corridor within mine lease and its 10 km radius of the Gondkhari Coal block (UG) of 2 MTPA under forest diversion proposal of 87.351 ha forest land allotted to M/s Adani Power Maharashtra Limited (APML)

Ref: 1.Vesting order no. NA-104/7/2021-NA dated on 18th November 2021

2.Copy of MoM of EAC recommendations

Dear Sir,

Adani Power Maharashtra Limited (APML), a subsidiary of Adani Enterprises Ltd. has been declared as the successful bidder for Gondkhari coal block (862.0 Ha) in 11th tranche of auction of coal mines under the MMDR (1957) for commercial coal mining in the country. (Vesting order attached). M/s Adani Power Maharashtra Limited (APML) intends to develop the coal mine at earliest and has initiated the process of obtaining various clearances and approvals as per the 'Efficiency Parameters' of Ministry of Coal, Government of India.

17/2/2023

17/2/2023

17/02/2023
सहायक निरीक्षक
उपवन संरक्षक वनविभाग, चांदपूर

17/2/23

Adani Power Maharashtra Ltd
Plot No 165, 1st Bungalow,Amerta Manor
Ravindranath Tagore Marg, Civil Lines
Nagpur 440001
Maharashtra, India
CIN: U40101GJ2007PLC050506

Tel +91 712 256 3707
Fax +91 712 256 3707
info@adani.com
www.adanipower.com

For obtaining Forest Clearance approval pertaining to forest land of 87.351 ha and as per specific conditions given by Expert Appraisal Committee (EAC), MoEF&CC for Environmental Clearance which is reproduced as ***"PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers. Also, It should include with certified map with exact distance from any Wildlife Sanctuary."*** a NOC from your department is required about any Eco-sensitive zone and area, wildlife sanctuary, national park, biosphere reserve, tiger reserves, elephant corridor within mine lease and its 10 km radius of the Gondkhari Coal block.

Therefore, you are requested to accord the NOC about Eco-sensitive zone and area, wildlife sanctuary, national park, biosphere reserve, tiger reserves, elephant corridor within mine lease and its 10 km radius of the Gondkhari Coal block.

Thanking You,

Yours Sincerely,

Authorized Signatory

Adani Power Maharashtra Limited

Encl:

1. Copy of Vesting Order from Nominated Authority in favor of APML
2. Copy of MoM of EAC recommendations
3. Copy of Toposheet showing project area consisting of co-ordinates

Copy to:

1. Additional Principal Chief Conservator of Forests, Nagpur
2. Chief Conservator of Forests, Nagpur
3. Divisional Forest Officer, Nagpur

O/c

वन विभाग
प्रधान मुख्य वनसंरक्षक (वन बल प्रमुख) महाराष्ट्र राज्य, यांचे कार्यालय
O/o Principal Chief Conservator of Forests (HoFF), Maharashtra State
Phone No.- 0712-2560953 प्रधान मुख्य वनसंरक्षक (वन्यजीव) महाराष्ट्र राज्य,
E-mail - pccfwlngp@mahaforest.gov.in Principal Chief Conservator of Forest (Wildlife) Maharashtra State
Website – www.mahaforest.gov.in "Van Bhavan", 3rd Floor, Ramgiri Road, Civil Lines, Nagpur – 440 001

क्रमांक वक्ष-२३(२)/वजी/सर्वे/प्र.क्र. १८७/ ४५४९ /२०२२-२३, दिनांक २७/०२/२०२३

प्रति,
अपर प्रधान मुख्य वनसंरक्षक (वन्यजीव),
पूर्व नागपूर

विषय - Request for No Objection Certificate (NOC) about presence/absence/proposed of any Eco-Sensitive zon and area, wildlife sanctuary, National park, biosphere reserve, Tiger reserves, Elephant corridor within mine lease and its 10 km radius of the Gondkhari Coal block (UG) of 2 MTPA under forest diversion proposal of 87.351 ha. Forest land allotted to M/s Adani Power Maharashtra Limited (APML).

संदर्भ - Adani Power Maharashtra Limited, Plot No 165, 1st Bungalow, Amarta Manor Ravindranath Tagore Marg, Civil Lines Nagpur 440001 यांनी या कार्यालयास उद्देशून लिहीलेले त्यांचे कार्यालयीन पत्र क्र. APML/GDK/2023/005, दिनांक १५/०२/२०२३.

विषयांकित प्रकरणी संदर्भीय पत्रान्वये Adani Power Maharashtra Limited, Plot No 165, 1st Bungalow, Amarta Manor Ravindranath Tagore Marg, Civil Lines Nagpur 440001 यांचे दिनांक १५/०२/२०२३ रोजीचे पत्र या कार्यालयास प्राप्त झाले असून, ते यासोबत सहपत्रीत करुन पाठविण्यात येत आहे. (प्रत सहपत्रीत) संदर्भीय पत्रासोबत प्राप्त झालेल्या केंद्र शासनाचे दिनांक १३/०२/२०२३ रोजीचे पत्रात मुद्दा क्रमांक ६ मधील अनु.क्र. xix वर खालील अट नमूद आहे.

"PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco--Sensitive Zone and areas and further is no corridor of Elephants & Tigers. Also, It should include with certified map with exact distance from any Wildlife Sanctuary."

वरील अटीचे अनुपंगाने प्रकल्प यंत्रणेने नकाशा स्वाक्षांकित करुन मिळणेबाबत विनंती केलेली आहे. यासोबत प्रकल्प यंत्रणेने सादर केलेल्या ३ नकाशापैकी २ नकाशे यासोबत सहपत्रीत करुन पाठविण्यात येत आहेत. सदर नकाशाचे अनुपंगाने खात्री करुन १ नकाशा स्वाक्षांकित करुन या कार्यालयास सादर करावा.

सहपत्र- नकाशा (२ प्रतींत) (टपालद्वारे)

प्रत.स (वजी)(सं.व.मु.
वांधेकडून मान्य मसूदा

(कुशराज पंडित)
वनसंरक्षक (नियोजन व व्यवस्थापन-वन्यजीव)
प्रधान मुख्य वनसंरक्षक (वन्यजीव)
महाराष्ट्र राज्य, करीता

प्रतिलिपी : १. मुख्य वनसंरक्षक (प्रादेशिक), नागपूर यांना माहिती व योग्य त्या कार्यवाहीस अग्रेषित

२. Adani Power Maharashtra Limited, Plot No 165, 1st Bungalow, Amarta Manor Ravindranath Tagore Marg, Civil Lines Nagpur 440001 यांना माहिती व उचित कार्यवाहीस अग्रेषित.

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Power

Ref: APML/GDK/2023/014 Dated: 05.06.2023

To,
Additional Principal Chief Conservator of Forest (Wild Life),
Nagpur-East.
Civil Lines Nagpur 440 001
Maharashtra

Sub: Request for No Objection Certificate (NOC) about presence/absence/proposed of any Eco-sensitive zone and area, wildlife sanctuary, national park, biosphere reserve, tiger reserves, elephant corridor within mine lease and its 10 km radius of the Gondkhari Coal block (UG) of 2 MTPA under forest diversion proposal of 87.351 ha forest land allotted to M/s Adani Power Maharashtra Limited (APML) -Submission of 30 Km radius map showing ESZ from the Mine Lease Boundary.

Ref: APML/GDK/2023/005 Dated:15.02.2023.
Dear Sir,

Further reference to the subject cited above, please find the following documents as advised for your persual and consideration.

1. Map showing ESZ from 10 Km radius from Mine Lease Boundary.
2. Details of Flora and Fauna studied by reputed organisation (M/s Anacon Laboratories Pvt.Ltd, Nagpur) for core and buffer areas.
3. Digitized Map showing the proposed Mining Lease area.

Therefore, you are requested to accord the NOC about Eco-sensitive zone and area, wildlife sanctuary, national park, biosphere reserve, tiger reserves, elephant corridor within mine lease and its 10 km radius of the Gondkhari Coal block.

Adani Power Maharashtra Ltd
"Adani Corporate House"
Shantigram, Near Vaishno Devi Circle,
S. G. Highway, Khodiyar,
Ahmedabad-382421, Gujarat India
CIN : U40101GJ2007PLC050506

Tel +91 79 2656 7555
Fax +91 79 2555 7177
info@adani.com
www.adani.com

adani
Power

Thanking You,

Yours Sincerely,

Authorized Signatory
Adani Power Maharashtra Limited

Cc: 3 Copies
Chief Conservator of Forests - Nagpur

Encl:

1. Map showing ESZ from 10 Km radius of Mine Lease Boundary.
2. Details of Flora and Fauna
3. Digitized Map showing the proposed Mining Lease area

16/6/23
सहायक निरीक्षक
कुल उपसंरक्षक (प्रादेशिक)
नागपुर, वन्य कार्यालय

Adani Power Maharashtra Ltd
"Adani Corporate House"
Shantigram, Near Vaishno Devi Circle,
S. G. Highway, Khodiyar,
Ahmedabad-382421, Gujarat India
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info@adani.com
www.adani.com

2908

महाराष्ट्र शासन
वन विभाग

वनसंरक्षक (प्रादेशिक), नागपूर वनवृत्त, नागपूर यांचे कार्यालय

(जवीन प्रशासकिय इमारत, वन भवन, धनवटे नॅशनल कॉलेज समोर, नागपूर 440 001)
(Land Line No. 0712-2564569, Email-id : cfnagpur@mahaforest.gov.in)

क्र.कक्ष-10/जमीन/प्र.क्र. 1152/2023-24/ 861 दिनांक : २३ ऑगस्ट, 2023

प्रति,
अपर प्रधान मुख्य वनसंरक्षक (वन्यजीव), पुर्व,
नागपूर.

विषय:- Request for No Objection Certificate (NOC) about presence/absence/proposed of any Eco-Sensitive zone and area, wildlife sanctuary , National Park, biosphere reserve, Tiger reserve, Elephant corridor within mine lease and its 10 Km. radius of the Gondkhari Coal block (UG) of 2 MTPA under forest diversion proposal of 87.351 ha. Forest land allotted to M/s Adani Power Maharashtra Limited (APML).

संदर्भ:- 1) प्रधान मुख्य वनसंरक्षक (वन्यजीव), म.रा. नागपूर यांचे कडील पत्र क्र कक्ष-23(2)/वजी/सर्के/प्र.क्र.187/4549, दिनांक 27/02/2023.
2) आपले कडील पत्र क्र कक्ष-1 (ब)/सर्के/1294, दिनांक 08/03/2023.
3) या कार्यालयाचे पत्र क्र कक्ष-10/जमीन/प्र.क्र.1152/1332, दिनांक 22/06/2023.
4) उपवनसंरक्षक नागपूर वनविभाग, नागपूर यांचे कार्यालयाचे पत्र क्र कक्ष-11/वनसंवर्धन/631, दि.23/08/2023.

उपरोक्त संदर्भिय पत्रान्वये विषयांकित प्रकरणाच्या प्रस्तावासंबंधित केंद्र शासनाने दिनांक13/02/2023 रोजीचे पत्रात मुद्दा क्र 4 मधील अनुक्रमांक xix वर अट नमुद केली होती.

"PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-Sensitive Zone and areas and further is no corridor of Elephants & Tigers. Also, It should include with certified map with exact distance from any Wildlife Sanctuary."

वरिल अटींच्या अनुषंगाने आपले कडील संदर्भिय पत्र क्र 2 अन्वये नमुद 3 मुद्यांच्या अनुषंगाने मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांनी 3 प्रतित नकाशे सादर केलेले होते. तरी या कार्यालयाचे संदर्भिय पत्र क्र 3 अन्वये सदरचे नकाशे खात्री करून सांक्षाकित करून सादर करणेबाबत उपवनसंरक्षक नागपूर वनविभाग, नागपूर यांना कळविण्यात आलेले होते.

त्याअनुषंगाने उपवनसंरक्षक नागपूर वनविभाग, नागपूर यांनी संदर्भिय पत्र क्र 4 अन्वये 3 मुद्यांचे अनुषंगाने सादर केलेले नकाशे सांक्षाकित करून या कार्यालयास सादर केलेले असुन सदर नकाशाचे संस्करण करून 2 प्रतित नकाशे आपणाकडे सादर करण्यात येत आहे.

सहपत्र:- वरिलप्रमाणे

BZ
(डॉ.भारत सिंह हाडा)
वनसंरक्षक (प्रा),
नागपूर वनवृत्त, नागपूर

प्रतिलिपी:-उपवनसंरक्षक,नागपूर वनविभाग, नागपूर यांना माहितीस अग्रेषित.
प्रतिलीपी:- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांना माहितीस अग्रेषित.

24/8/23

294

land

ANNEXURE IV
LAND SUBSIDENCE STUDY REPORT

2910

Report No. IITKGP/BBM-SKP/2022/15

Project Report

SUBSIDENCE STUDY FOR GONDKHARI UNDERGROUND MINING PROJECT IN NAGPUR DISTRICT OF MAHARASHTRA

(Ref. Service Order no. 5703007101 dated 30.11.2022)

Submitted to

ADANI POWER MAHARASHTRA LTD.
GONDIA, MAHARASHTRA, INDIA

Principal Investigator:
Prof. B. B. Mandal

Co-Principal Investigator
Prof. S. K. Patel



Department of Mining Engineering

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

December 2022

DISCLAIMER

It is appropriate to mention here that neither the day-to-day mining operations would be under the control of the authors of this report nor it is possible to have any such control on the scientific execution of the method of working. The authors of this report would in no way be held responsible for any untoward incident, which might occur due to the implementation of the recommendations of this report. This report merely contains prediction of subsidence due to mining operations which is based on data supplied by the sponsor of the project. The modelling and analysis have been carried out using theoretically established methodology. Some essential geo-technical properties supplied by mine authority are used for modelling and interpretations of results. The uncertainty in these parameters, as expected in reality, may significantly change the prediction of structural behavior.

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1. INTRODUCTION

The Head-Underground Mining, Adani Enterprises Ltd.-Adani Natural Resources requested the Indian Institute of Technology Kharagpur (IIT Kharagpur) to conduct a Subsidence Study for Gondkhari underground mining project in Nagpur District of Maharashtra vide Service Order no. 5703007101 dated 30.11.2022. The project is part of Gondkhari coal block situated in Kamptee Coalfields, Maharashtra. In this block, nine numbers of coal seam are present viz. seam X, IX, VIII, VII, VI, V, IV, III, II, and I. Out of these coal seams, the seam VIII, V, III, and II are workable. Seam VIII is the topmost seam situated at a depth of cover 133-320.27m. The seams V, III, and II are situated at a depth cover ranging from 129.4-361.75m, 152.5-394.3m, and 169.5-414.4m respectively. The workable seams in the Gondkhari underground mining project are proposed to be extracted by Longwall technology of mining with caving.

Representatives from Adani Power Maharashtra Ltd. (APML) visited the IIT Kharagpur campus during December 2022 - Jan 2023 to deliberate on the mining plan and finalize the strategic location for the subsidence study (Figure 1). The discussion leads to the identification of important surface features, structures, villages, forests, waterbodies, roads, infrastructures, etc.



Figure 1: Visit of APML officials to IIT Kharagpur

1.1 Location

Gondkhari Block is a part of Kamptee Coalfield located in Gondkhairi, Nanda (Rithi), Alesur, Kalambi, Karale, Surabardi, Pendhari, Wadhamna villages of Nagpur District of Maharashtra state. The block is geologically located south-west of the Soaner-Khandala sub-basin and is spread over a total 8.62 sq. km area. It lies north of National Highway No.6 at a distance of 20

km from Nagpur city. The block falls in the command area of Western Coalfields Ltd. and is free of any mining activity except for surface quarrying for road metal (not seen as of date). The nearest mining activity is at a distance of 35 km in Saoner underground mines to the north-east of the block. The area can be found in Survey of India Topo sheet No. 55 K/16 (Latitude 21 07 57" N to 21 10' 56" N and Longitude 78 54' 45" E to 78 56' 26"E). The particulars of the adjacent blocks are as given below:

North: Kalambi Kalmeshwar

East: No coal block

South: Hingna Bazargaon

West: Hingna Bazargaon

The location of the study area and the boundary of the Gondkhari underground mining project is shown in Figure 2.

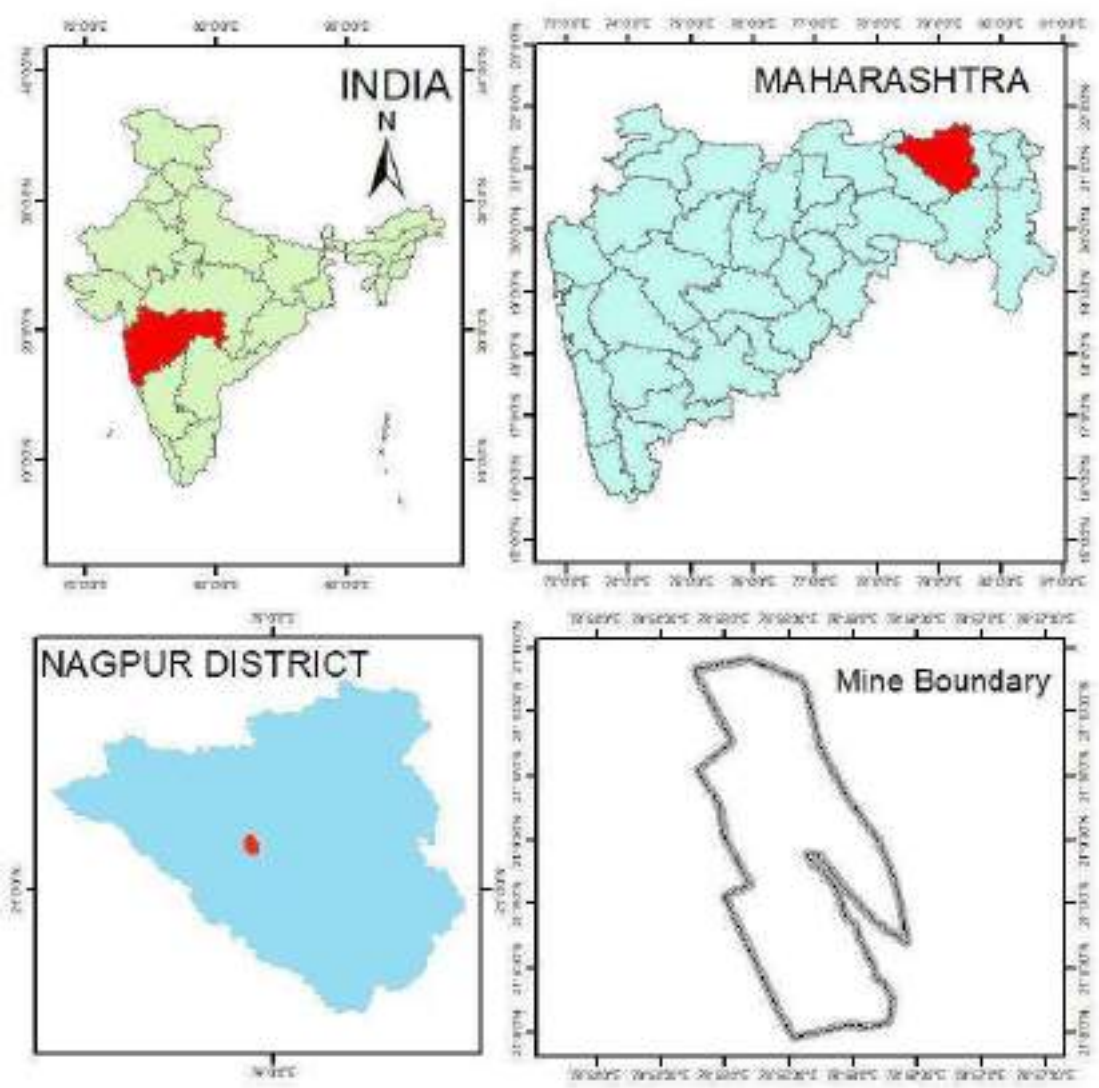


Figure 2: Location map of the study area with mine boundary

1.2 Communication

The block is approachable by an all-weather Zilla Parishad tar road starting from NH-6 and is located about 20 Km West of Nagpur city. It lies just North of NH-6. Kalmeshwar township is at a distance of about 8 Km towards the North of the block while Nagpur city is about 20 Km to the East. A tar road, which connects NH-6 and Kalmeshwar township is located about 5 Km west of the block and runs almost parallel to the west boundary of the block. Gondkhari, Waddhamna, and Kalambi are the other prominent villages in the vicinity of but outside the block. The Nearest Railway station is Kalmeswar which is at a distance of 10 Km. The nearest Airport is Nagpur which is at a distance of about 20 km from the block.

1.3 Climate

Based on the data collected from the Indian Meteorology Department, Nagpur, the area experiences a typical tropical climate. The summer season is from April to June with maximum temperatures reaching 48 °C during May and relative humidity falling to 20. Winters are moderate with the minimum temperatures dropping up to 8 °C. Monsoon generally extends from July to September and the average annual rainfall is around 1185 mm out of which the major precipitation is experienced between June and September.

1.4 Drainage

Flat-topped ridges with steep slopes are observed in the northern and southern parts of the block. The rest of the Gondkhari block has gentle undulating topography with a general slope towards the South and Southwest. The surface elevation varies from a minimum of 321 m above MSL (near CMKGK - 12 in the southern part) to a maximum of 385.00 m above MSL (in the Northwestern part). The drainage of the block is controlled by the south-westerly flowing seasonal nallas, which originate in the northern part and meander towards the western part of the block. The water bodies Surabardi and Karle reservoirs are located in the central-eastern and central-western parts of the block respectively. These are earthen dams, which are fed by rainwater and are known to hold water only seasonally other than this there is no river system in the vicinity of the block.

1.5 Important surface features within the project area

After the discussion between APML officials and IIT Kharagpur research team, the following important surface features were identified within and near the mine boundary (Figure 3),

a) Surabardi reservoir (eastern part of the project area)

b) Karle reservoir (central part of the project area)

c) National Highway No. 6 (southern part of the project area)

d) Ring road (passing through the central part of the project area)

e) Scattered patches of forest

f) National Academy of Petroleum and Explosives Safety and Testing Station

g) HT Lines

h) Suraburdi Resorts

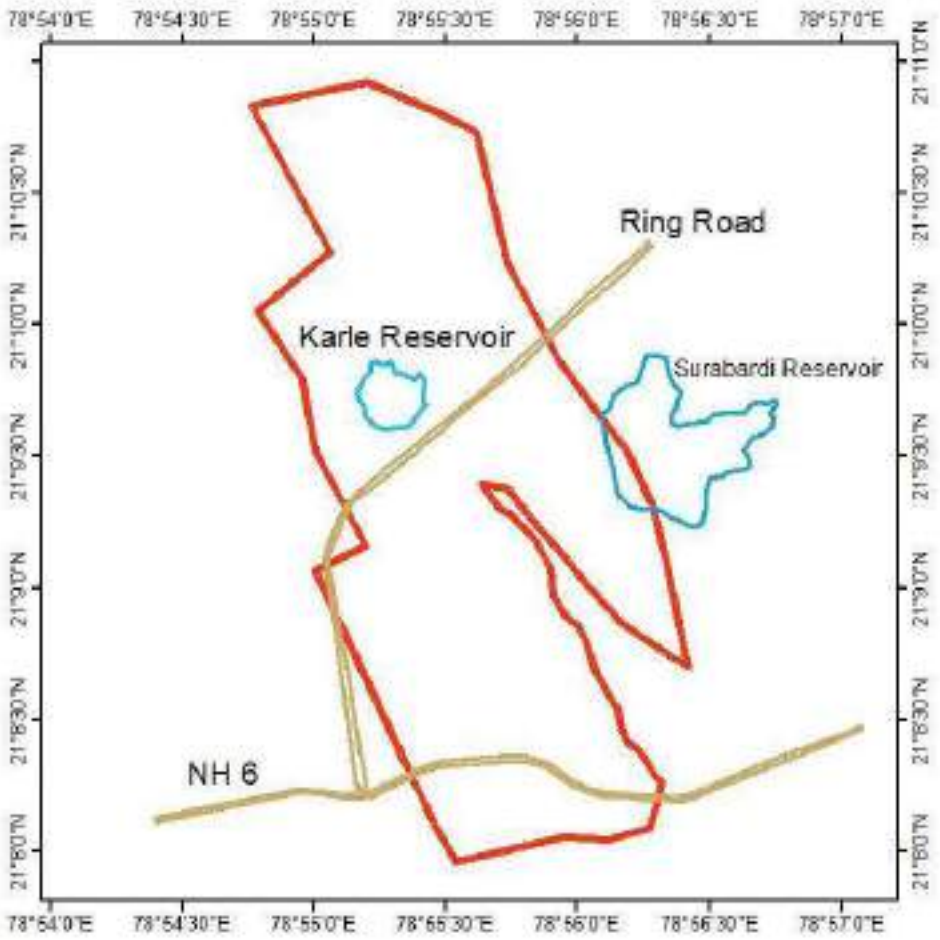


Figure 3: Important surface features in the project area

2. PURPOSE OF THIS STUDY

The subsidence prediction and subsidence management plan has been prepared for applying for environmental clearance. The prediction of different subsidence parameters is desired to estimate the land damage due to the extraction of coal seams, and forest land that needs to be acquired and to provide buffer zones from settlements and provide a definite plan of action for mitigation of the subsidence effect.

3. GEOLOGY

The Gondkhari block is covered by a thick layer of Deccan trap followed by a blanket of Kamthis. Except for the Deccan Trap, none of the formations are exposed on the surface of the block. Based on the drilling data generated by various exploration agencies in the past and the recent promotional drilling carried out by MECL the following generalized geological succession has been updated for the Kamptee coalfield (Table 1).

Table 1: Stratigraphic Succession of Kamptee Coalfields

Age	**Formation**	**Thickness Range (m)**	**Lithology**
Recent to Sub Recent	Alluvium	1.00-53.20	Black cotton soil and sandy soil with pebbles
Unconformity			
Eocene to Cretaceous	Deccan Trap	0.25-107.00	Basalt
Eocene	Lametas	0.85-25.95	Cherly limestone and sandstone
Unconformity			
Upper Permian	Kamthi	Nil-225.30	Yellowish brown medium to coarse, grained ferruginous sandstones with occasional shale/clay bands.
Unconformity (Overlap)			
Middle Permian	Moturs	1.22-348.00	Thick variegated clays, greenish white sandstones with occasional shale/carb shale bands.
Lower Permian	Barakars	15.35-284.40	Fine to coarse grained sandstone, sandy shale and carbonaceous shale and coal seams
Upper carboniferous	Talchirs	3.75-117.80	Greenish shale and siltstone.
Unconformity (Overlap)			
Archaeans	Metamorphics		Gneisses and schists

3.1 Strike and Dip of Strata

The general strike of the beds in the block is NNW-SSE with a westerly dip. The seam gradient generally varies from 1 in 2.5 to 1 in 6.5 (i.e., dip of about 9° - 22°). The gradient is steep in the west-central part whereas it is comparatively flat in the south eastern & northern parts of the block.

3.2 Pattern of Faulting

The major faults have a trend of NW-SE i.e., sub-parallel to the strike of beds whereas the minor faults are oblique faults. In total there are nine faults in the block. The fault F1-F1 is located in the eastern part of the block and marks the boundary of reserves estimation. The remaining faults F2 and F4 to F9 are spread throughout the block. F3 marks partly the western boundary in the SW part. Due to the thick cover of the Deccan trap and the presence of overlapping Kamthis none of the faults are traceable on the surface.

3.3 Coal seam

The presence of all the correlatable coal seams viz. seam X, IX, VIII, VII, VI, V, IV, Ill, II & I has been established by drilling in Gondkhari Block. The stratigraphic co-relation of different coal seams along with parting between the seams as encountered in different boreholes has been carried out. Out of ten seams only four seams viz. Seams VIII, V, Ill & II are persistent and have attained workable thickness throughout the block. Seams X & IX though impersistent have attained workable thickness in patches. Remaining seams viz. VII, VI, IV & I are impersistent and have not attained any workable thickness throughout the block. Range of occurrence of the seam with actual thickness and parting is given below in Table 2.

Table 2: Sequence of Coal Seam-Gondkhari Block

Seam	No. of full intersections	Stratigraphic thickness (m)		Effective thickness (m)	
		Min.	Max.	Min.	Max.
X	23	0.05 (MKH-44)	1.40 (CMKGK-1)	0.05	1.40
Parting		6.22 (MKH-16)	11.50 (CMKGK-25)	-	-
IX	22	0.06 (MKH-16)	1.40 (CMKGK-9)	0.06	1.17
Parting		12.16 (CMKGK-2)	20.50 (CMKGK-7)	-	-
VIII	30	1.40 (CMKGK-7)	3.98 (CMKGK-25)	1.40	3.98
Parting		8.24 (CMKGK-25)	20.68 (CMKGK-12)	-	-
VII	30	0.05 (MKH-50)	0.75 (CMKGK-12)	0.05	0.75
Parting		0.85 (CMKGK-6)	11.24 (CMKGK-18)	-	-
VI	36	0.03 (CMKGK-34)	0.53 (CMKGK-6)	0.03	0.45
Parting		11.72 (MKH-40)	22.82 (CMKGK-1)	-	-
V	41	1.17 (CMKGK-5)	4.12 (CMKGK-2)	0.50	3.22
Parting		11.06 (CMKGK-8)	23.87 (CMKGK-26)	-	-
IV	28	0.03 (MKH-16)	0.46 (MKH-37)	0.03	0.46
Parting		2.00 (CMKGK-11)	17.02 (CMKGK-8)	-	-
III	42	1.93 (MKH-26)	5.00 (CMKGK-13)	1.93	5.00
Parting		9.61 (MKH-26)	16.00 (CMKGK-26)	-	-
II	38	0.30 (CMKGK-35)	2.55 (MKH-37)	0.30	2.45
Parting		20.34 (MKH-18)	30.54 (CMKGK-16)	-	-
I	3	0.09 (MKH-18)	0.11 (CMKGK-16)	0.09	0.11

4. METHOD OF WORKING

The workable seams are proposed to be extracted by mechanized Longwall (retreating) method of mining with caving. The life of the mine is 30 Years including the construction period. The coal seams in the block are divided into three Districts viz. District 1, District 2 & District 3 as per the occurrence of the F2 fault and the F4 fault. The coal seam adopts the descending mining sequence, where the upper coal seam is mined first, and then the lower coal seam is mined. If a particular seam is encountered in multiple Districts, the mining sequence for that particular seam would be District 1, District 2, and District 3. It is planned to extract the coal reserves by Mechanised Road header and PSLW and the coal evacuation is through a series of Conveyor systems up to the surface.

5. PERIOD AND LOCATION OF PREDICTION

The period for the prediction of subsidence is 24 years and the strategic location of the sections for subsidence analysis as discussed with APML officials is shown in Figure 4. In total 6 strategic sections are selected to cover all important surface features and predict subsidence with different stage depillaring plans (Figure 5 - Figure 9). The cross-section profile at these strategic locations as prepared by APML is shown in Figure 10.

Table 3: Period of prediction

Stage-I	5 years
Stage-II	10 years
Stage-III	15 years
Stage-IV	20 years
Stage-V	24 years

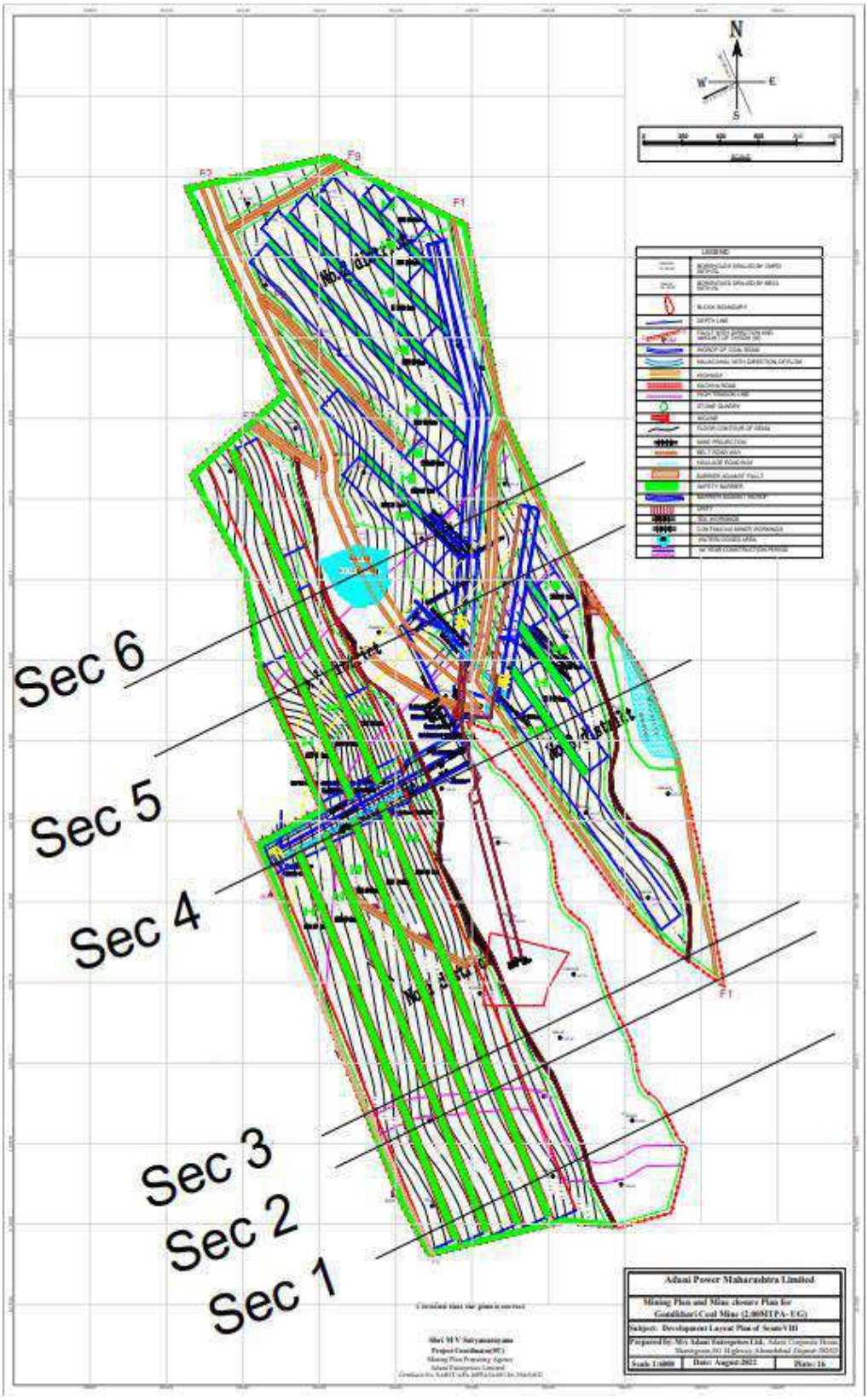


Figure 4: Strategic sections for subsidence analysis

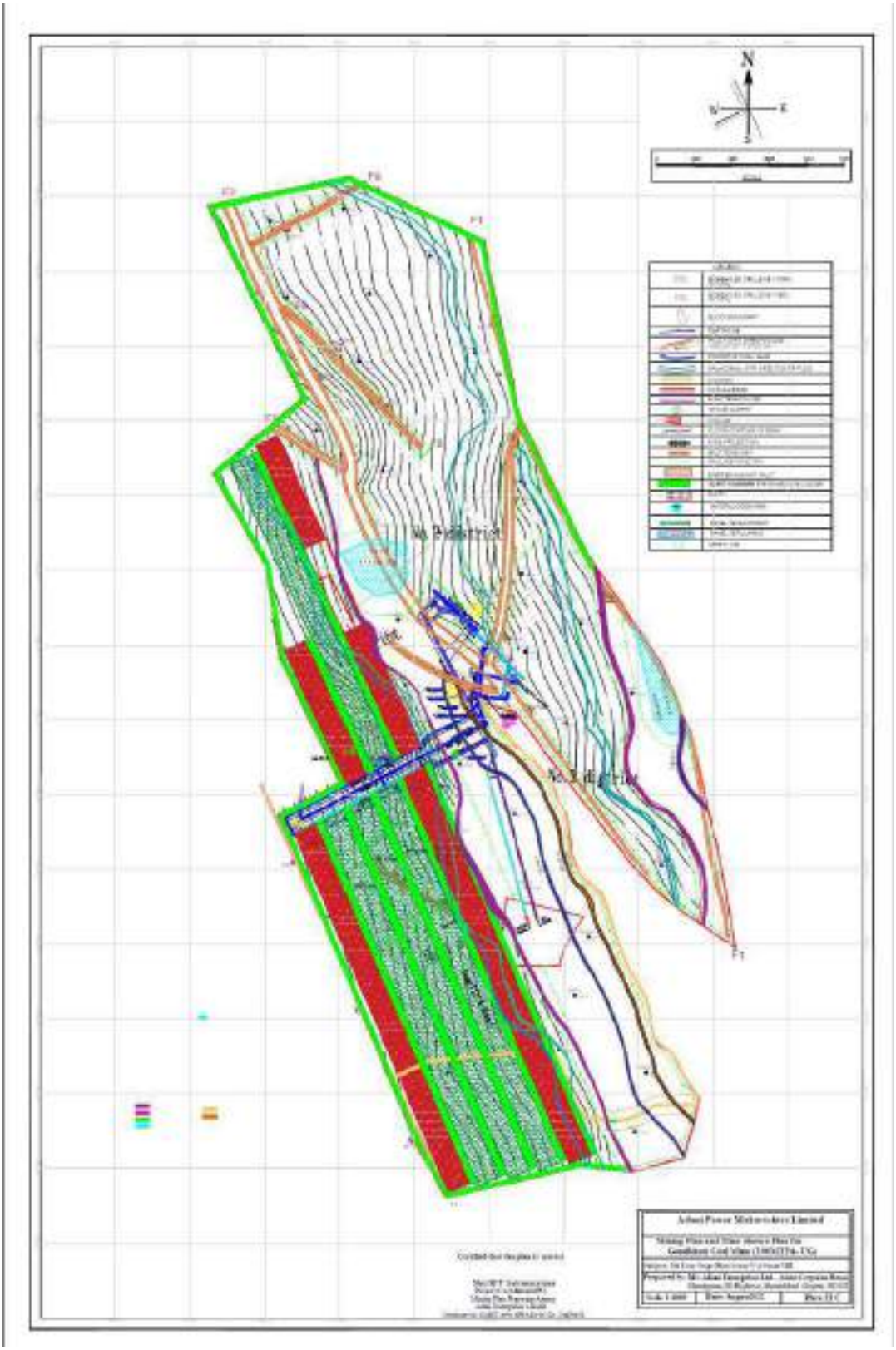


Figure 5: Depillaring area (5 Years)

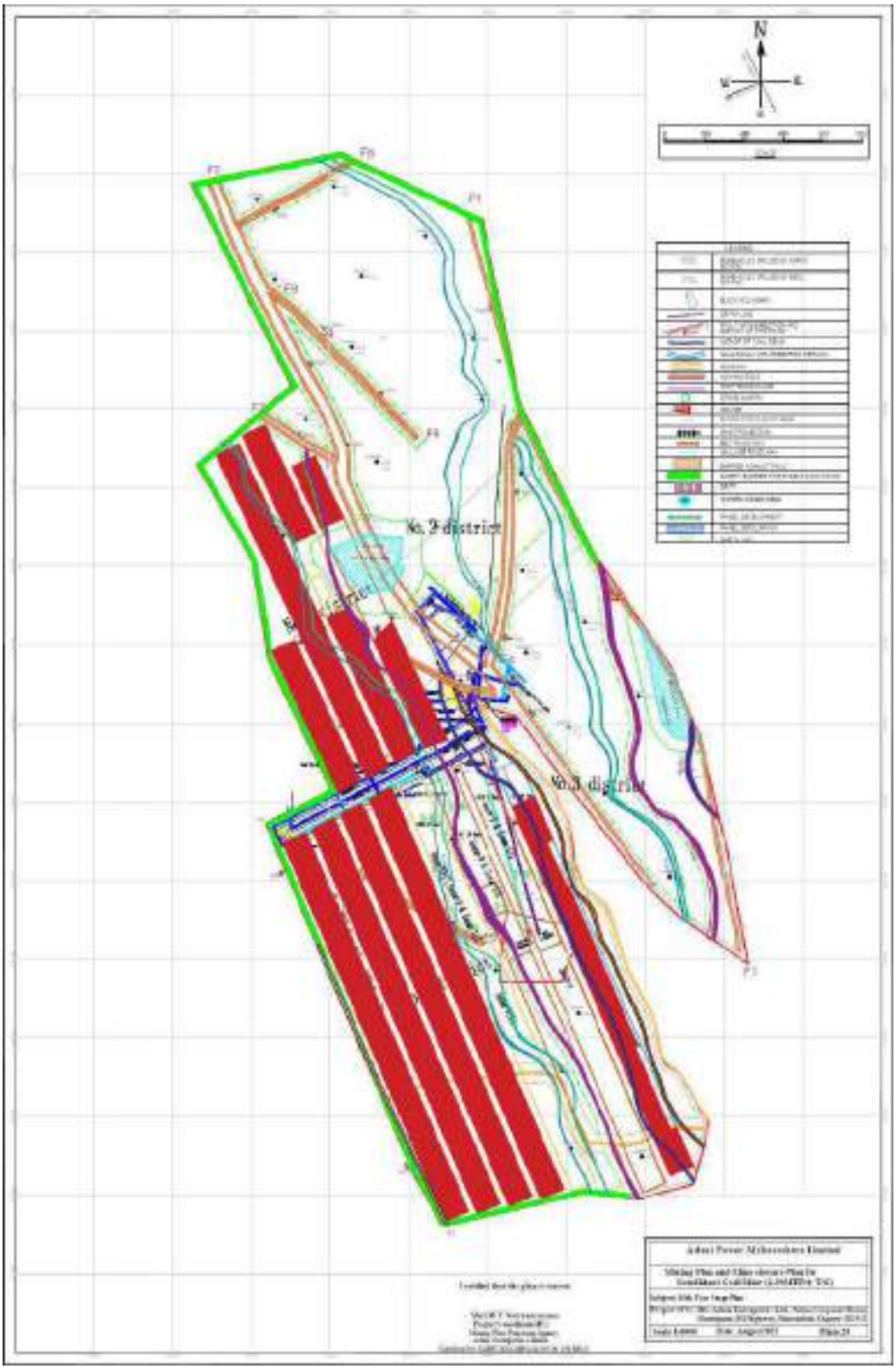


Figure 6: Depillaring area (10 Years)

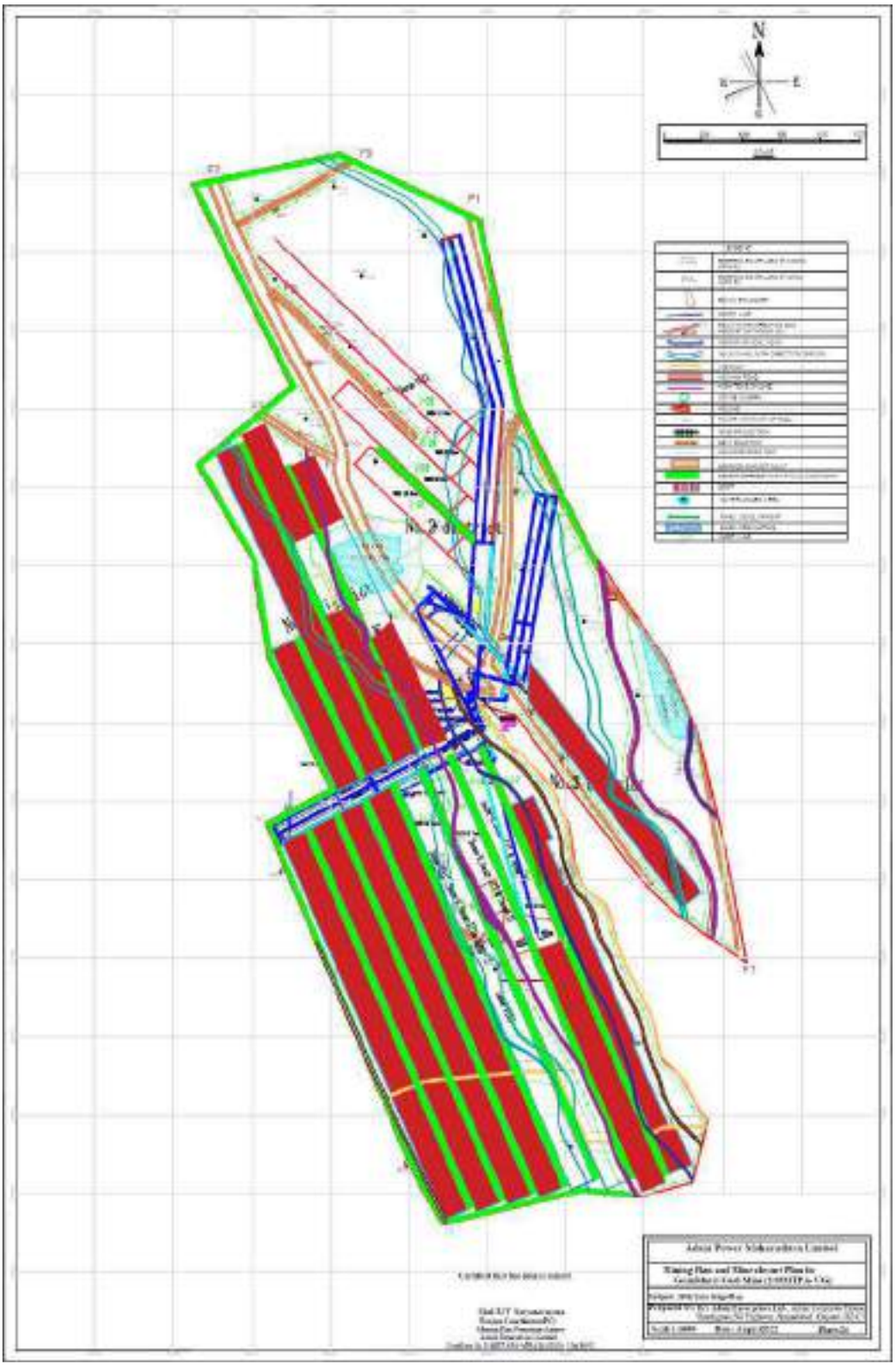


Figure 7: Depillaring area (15 Years)



Figure 8: Depillaring area (20 Years)

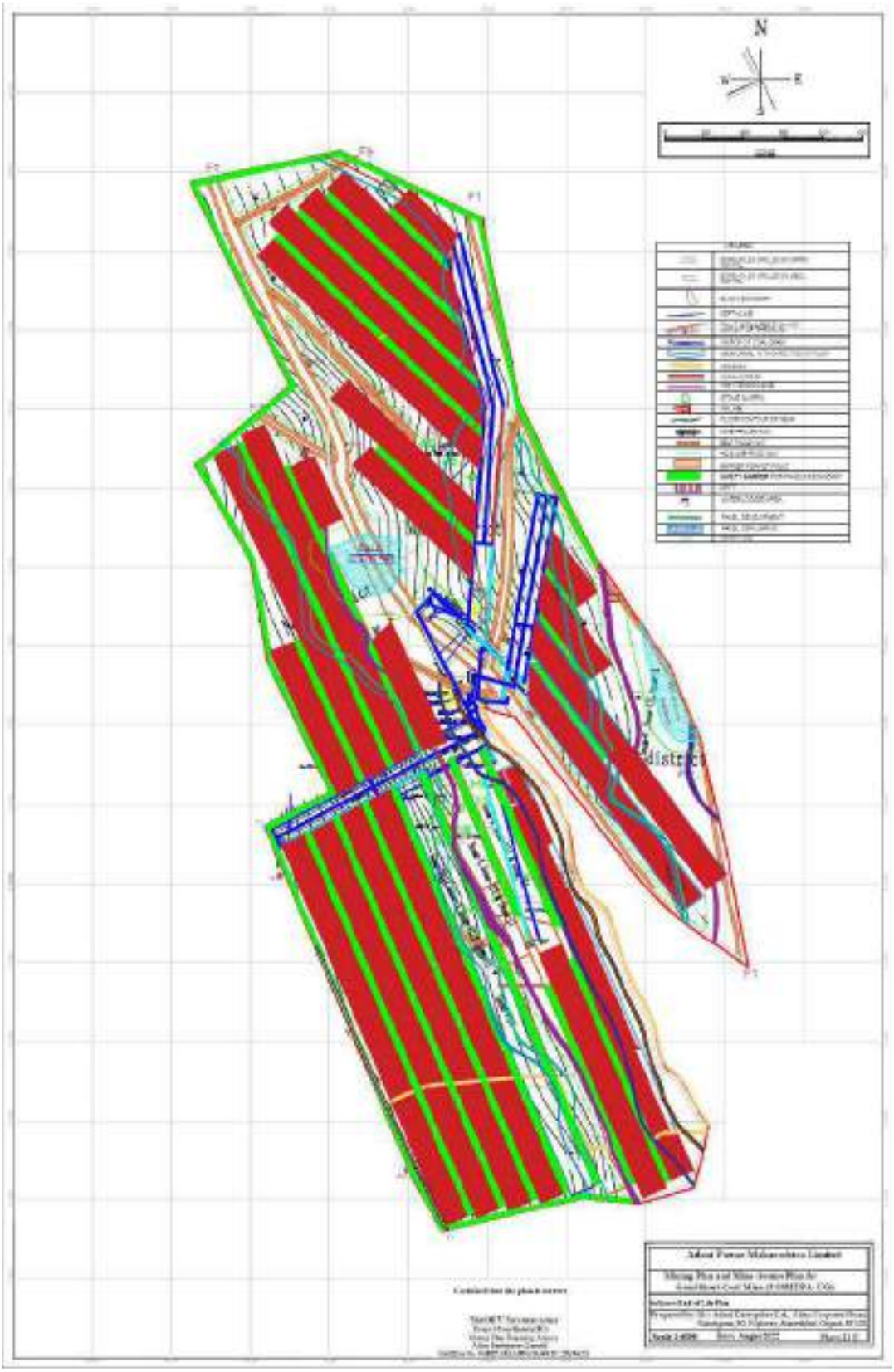


Figure 9: Depillaring area (24 Years)

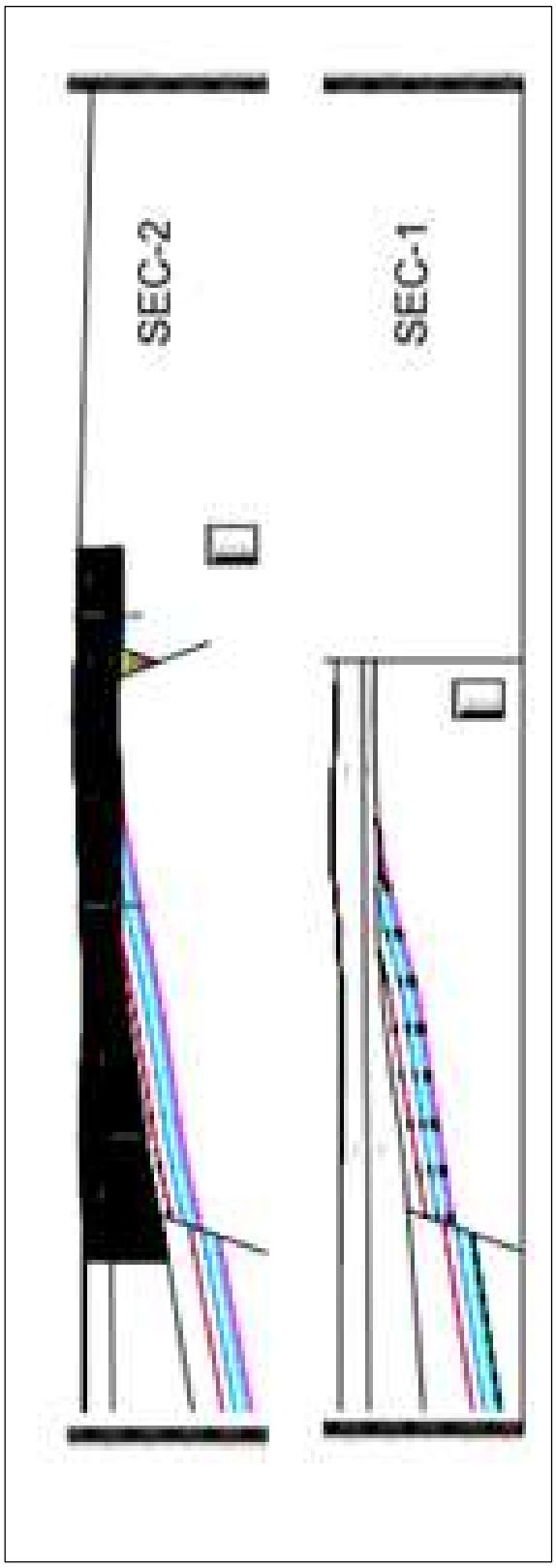


Figure 10a: Strategic sections for subsidence analysis

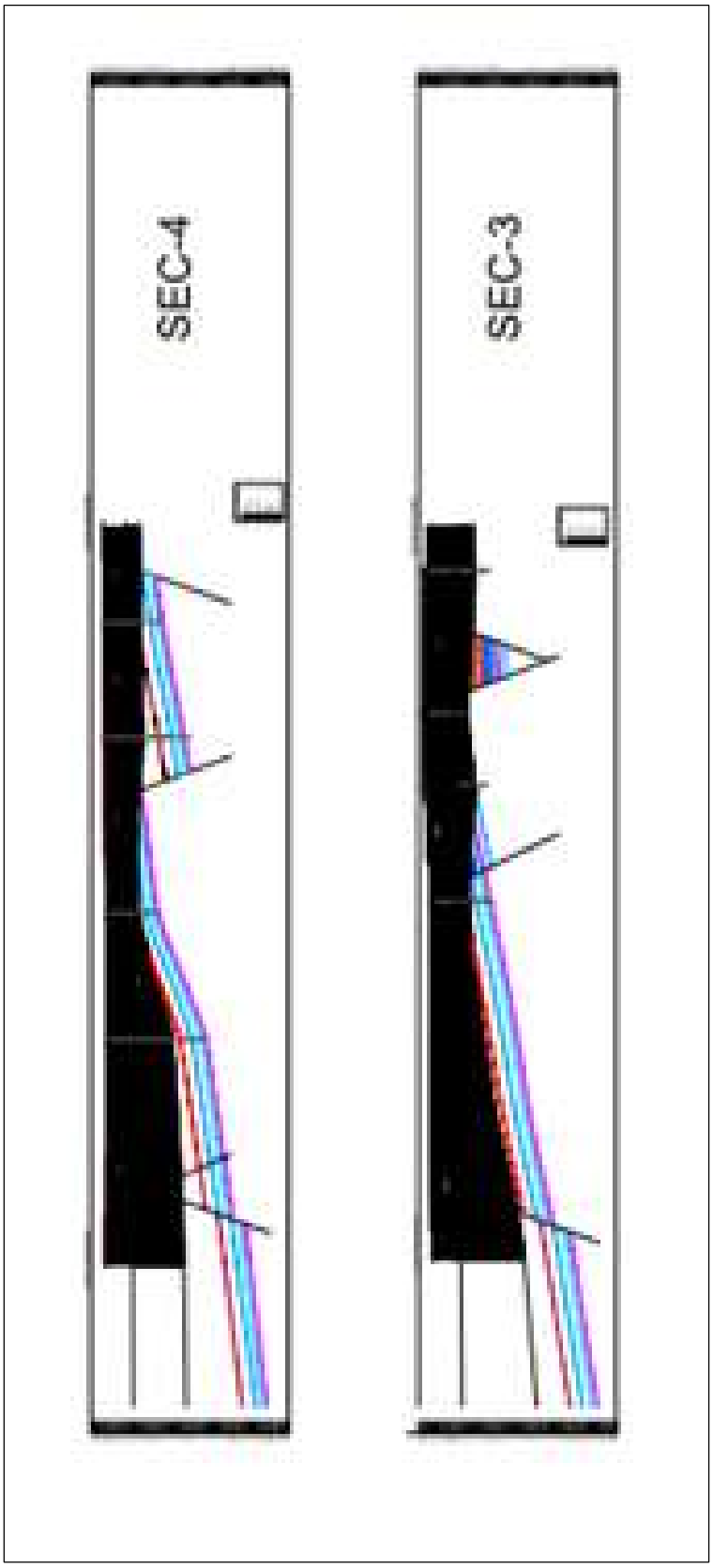


Figure 10b: Strategic sections for subsidence analysis

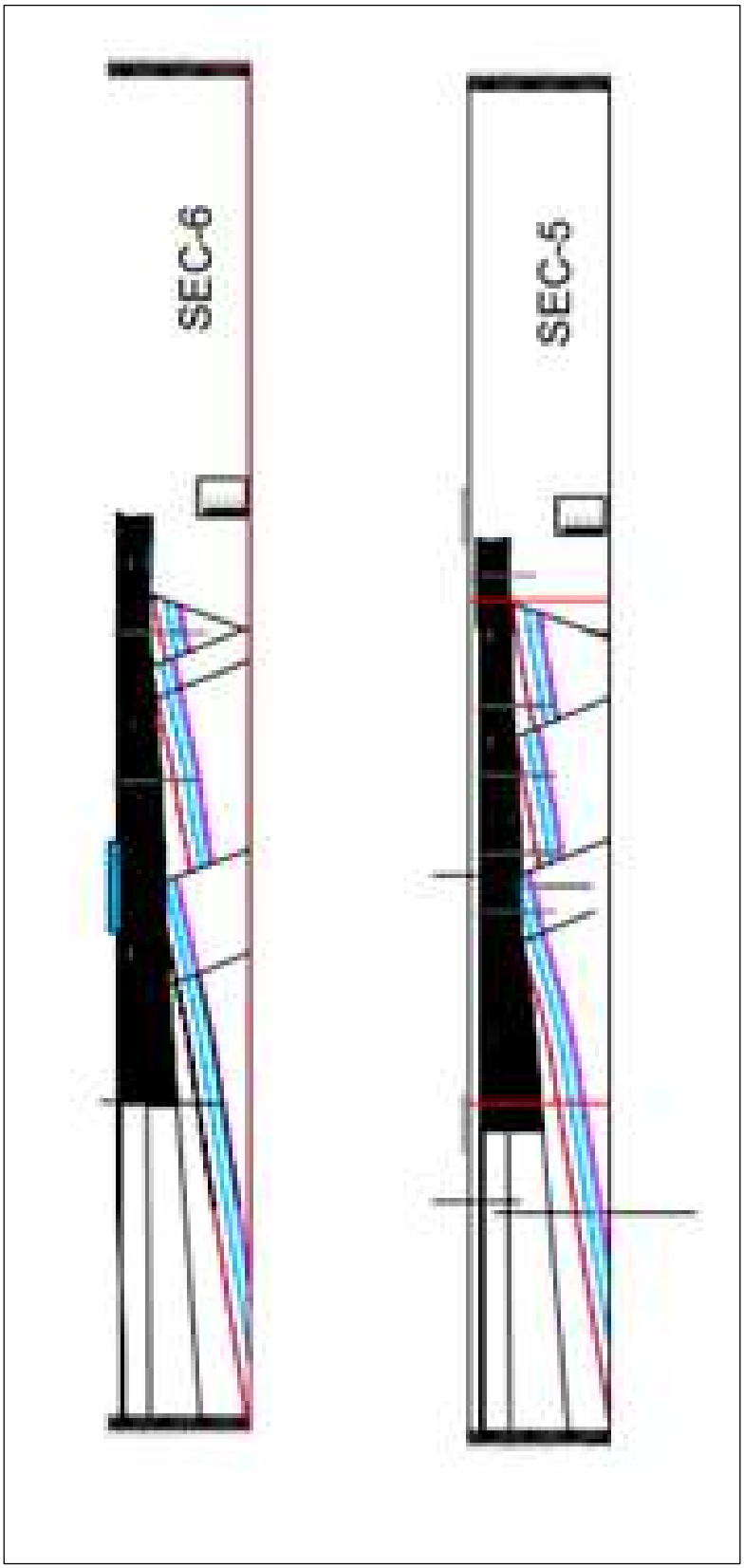


Figure 10c: Strategic sections for subsidence analysis

6. FEM MODELLING FOR SUBSIDENCE PREDICTION

6.1 Introduction

The subsidence prediction due to the extraction of seams VIII, V, III, and II in the Gondkhari underground mining project is performed by the finite element modeling (FEM) technique. The subsidence analysis is performed for 6 strategic sections (Figure 10). This excavation sequence is in line with the approved Mining Plan, as provided by AEL. A similar extraction sequence was adopted in the FEM modeling for the subsidence analysis.

6.2 Rock mass properties

From the lithology of the boreholes MKB-01, MKB-02, MKB-03, and MKB-04 the major types of rocks identified are basalt, sandstone and coal. The average elastic properties used in the analysis are shown in Table 4.

Table 4: Rock mass properties used for the numerical analysis

Rock	Unit weight (MN/m^3)	ν	E(GPa)	Tensile strength (Mpa)	C (Mpa)	Ø (°)
Basalt	0.0276	0.25	15.03	9.57	16.7	41
Sandstone Top	0.0188	0.21	0.44	1.25	1.27	47
Sandstone Bottom	0.0198	0.19	1.57	0.57	3.246	42.53
Coal	0.124	0.17	1.63	0.842	2.4	47

6.3 In-situ stress

The in-situ stress values were taken from the hydraulic-fracturing stress measurements done from 02.02.2022 to 12.02.2022 (18 hydraulic injection tests) in the boreholes MGB-1, MGB-02, MGB-03, and MGB-04 located at the Gondkhari UG coal block. The horizontal and vertical stress values as obtained from the above-mentioned study are Tabulated in Table 5, Table 6, Table 7, and Table 8.

Table 5: Stress Field Analysis MGB-01 According to Hubbert and Willis Approach

Test Depth (m)	Vertical Stress (MPa)	Minor Horizontal Stress (MPa)	Major Horizontal Stress (MPa)
55.5	1.28	3.37	6.54
117.0	2.71	2.51	4.18
170.9	3.95	3.73	7.0
219.9	5.09	5.84	11.28
270.3	6.25	7.16	13.49

Table 6: Stress Field Analysis MGB-02 According to Hubbert and Willis Approach

Test Depth (m)	Vertical Stress (MPa)	Minor Horizontal Stress (MPa)	Major Horizontal Stress (MPa)
49.05	1.14	3.96	7.71
96.10	2.22	4.21	9.51
195.0	4.51	4.65	9.26
228.5	5.29	9.1	17.44

Table 7: Stress Field Analysis MGB-03 According to Hubbert and Willis Approach

Test Depth (m)	Vertical Stress (MPa)	Minor Horizontal Stress (MPa)	Major Horizontal Stress (MPa)
60.3	1.40	5.24	10.13
115.5	2.67	5.58	11.07
200.1	4.63	4.83	9.84
254.5	5.89	5.8	11.7

Table 8: Stress Field Analysis MGB-04 According to Hubbert and Willis Approach

Test Depth (m)	Vertical Stress (MPa)	Minor Horizontal Stress (MPa)	Major Horizontal Stress (MPa)
59.0	1.37	6.33	12.48
95.0	2.20	2.03	4.29
196.5	4.55	7.31	13.08
228.0	5.28	8.58	12.96
250.0	5.79	5.76	10.86

6.4 Prediction Technique

The FEM model was used to predict the subsidence of the coal block as mining is planned to progress with time. The sections at 6 strategic locations were provided by the AEL officials delineating the thickness and depth from the surface of different rock layers and coal seams. The obtained sections were modeled and the boundaries were extended by a suitable distance to remove the boundary effects. After feeding the material properties and in-situ stress values, the model was run for in-situ conditions (no excavation). Thereafter the coal seams were simulated to have been extracted sequentially from different seams as per the 5, 10, 15, 20, and 24 years stage plan received by IIT Kharagpur.

7. RESULTS

7.1 Predicted subsidence

The subsidence values as predicted from the FEM model for different periods at different strategic location is shown in Table 9.

Table 9: Maximum subsidence values (m)

Section	5 years	10 years	15 years	20 years	24 years
1	0.193	0.330	0.354	0.366	0.366
2	0.338	0.407	0.531	0.547	0.547
3	1.194	1.470	1.948	2.025	2.025
4	1.403	1.879	2.147	2.152	2.158
5	0.648	1.013	1.103	1.104	1.104
6	0.264	0.410	0.411	0.413	0.413

7.1.1 Subsidence profile at the ground surface after five years

For better visualization of the subsidence at the ground surface, this section of the report shows the deformed boundaries at selected strategic locations at the end of 5 years, 10 years, 15 years, 20 years, and 24 years.

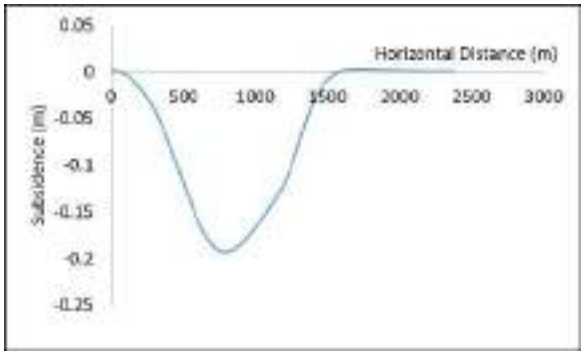


Figure 11: Section 1 subsidence profile

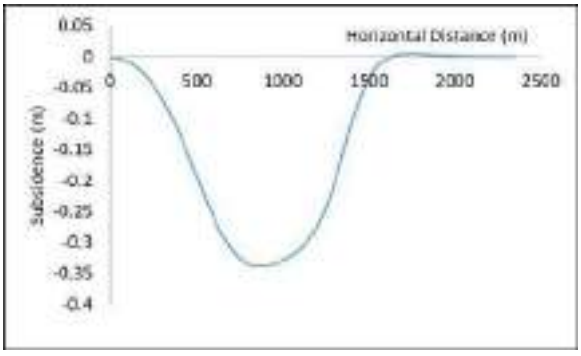


Figure 12: Section 2 subsidence profile

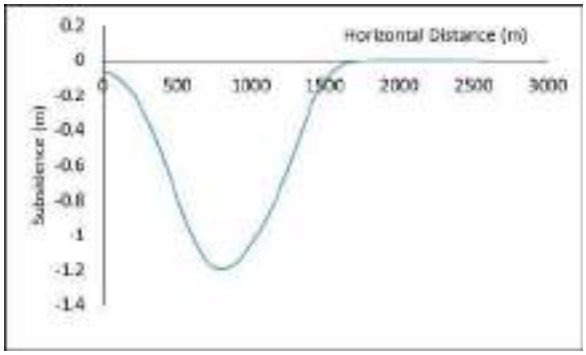


Figure 13: Section 3 subsidence profile

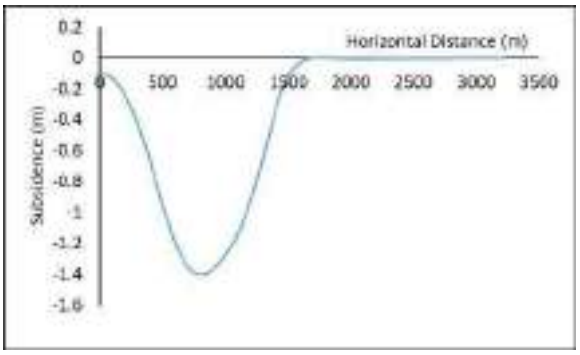


Figure 14: Section 4 subsidence profile

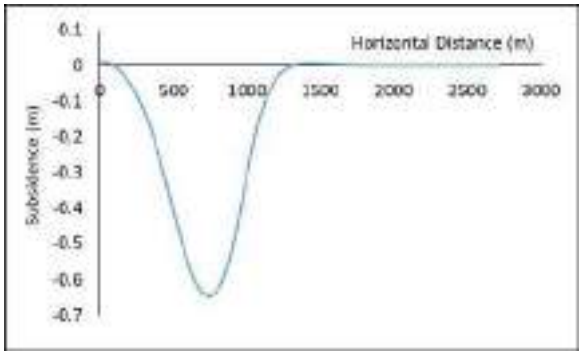


Figure 15: Section 5 subsidence profile

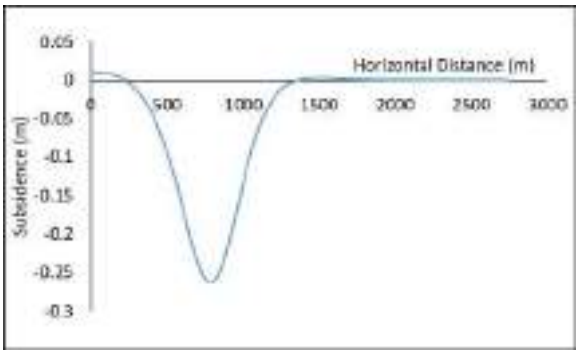


Figure 16: Section 6 subsidence profile

7.1.2 Subsidence profile at the ground surface after ten years

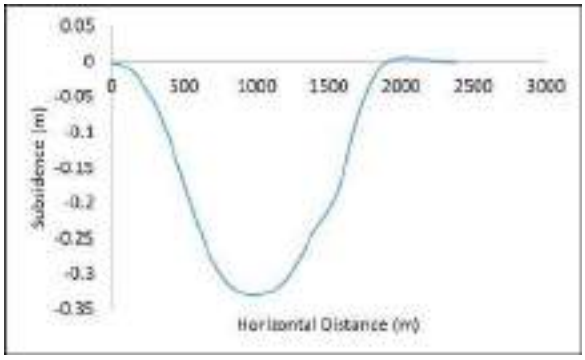


Figure 17: Section 1 subsidence profile

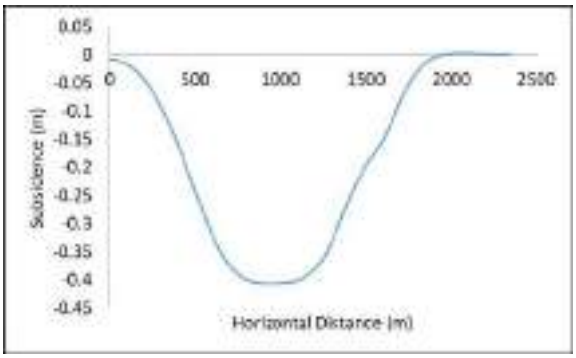


Figure 18: Section 2 subsidence profile

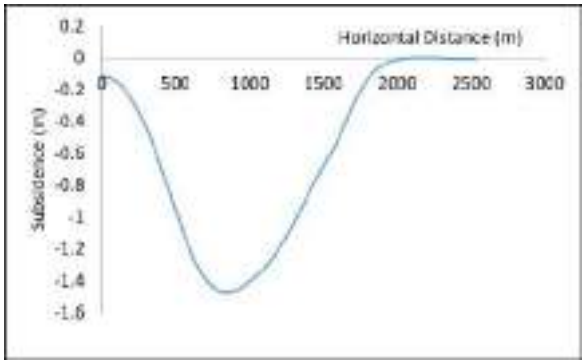


Figure 19: Section 3 subsidence profile

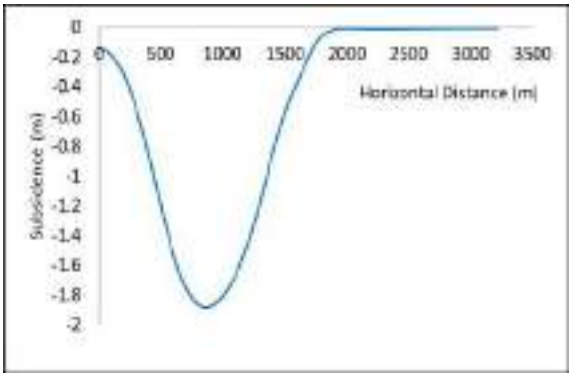


Figure 20: Section 4 subsidence profile

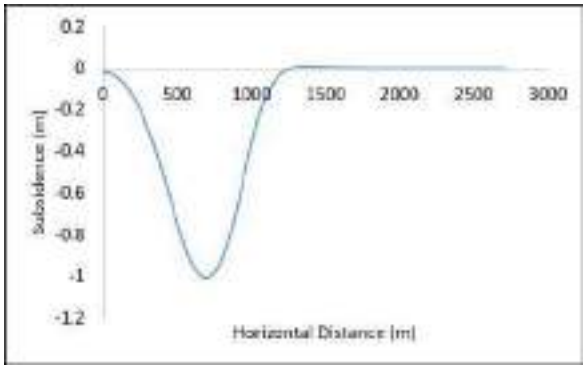


Figure 21: Section 5 subsidence profile

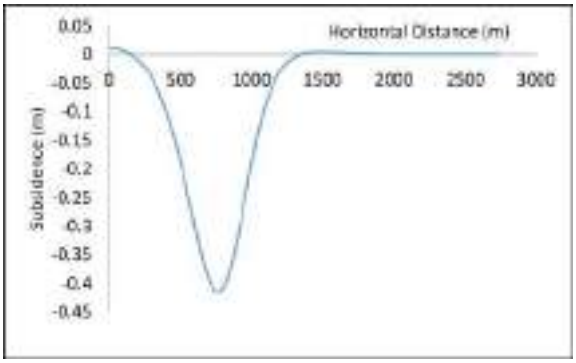


Figure 22: Section 6 subsidence profile

7.1.3 Subsidence profile at the ground surface after fifteen years

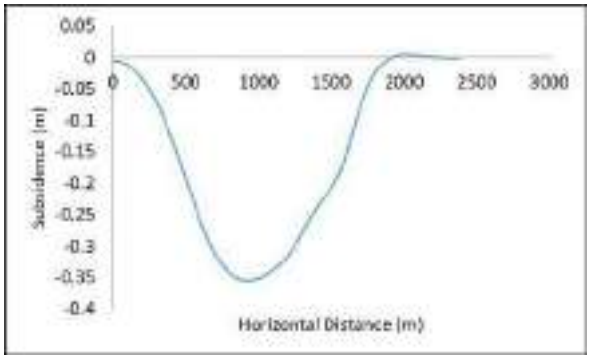


Figure 23: Section 1 subsidence profile

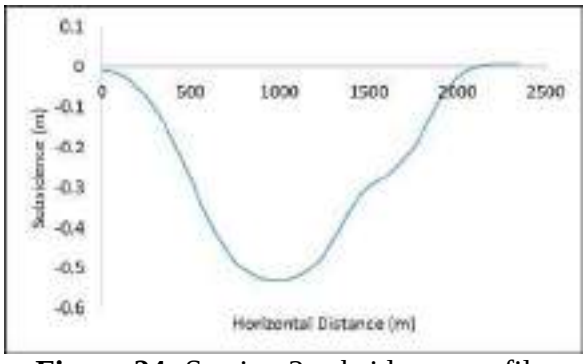


Figure 24: Section 2 subsidence profile

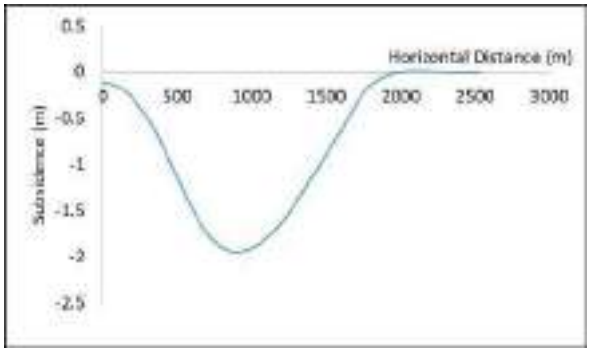


Figure 25: Section 3 subsidence profile

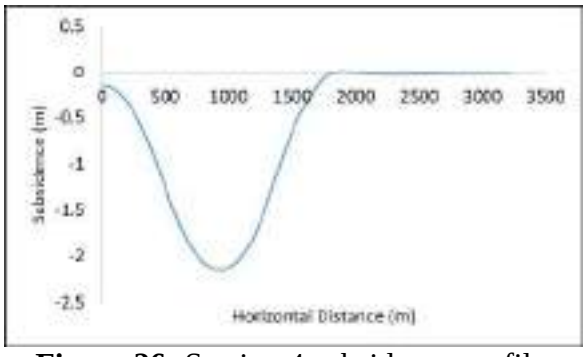


Figure 26: Section 4 subsidence profile

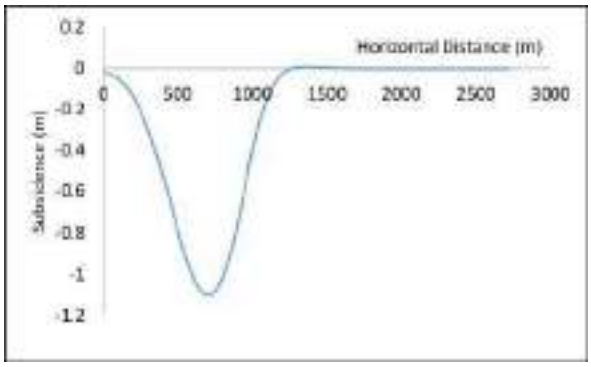


Figure 27: Section 5 subsidence profile

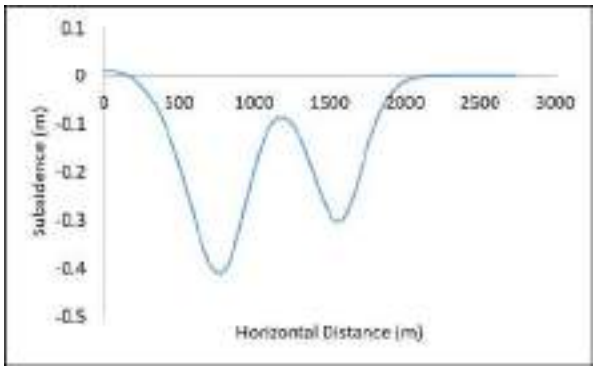


Figure 28: Section 6 subsidence profile

7.1.4 Subsidence profile at the ground surface after twenty years

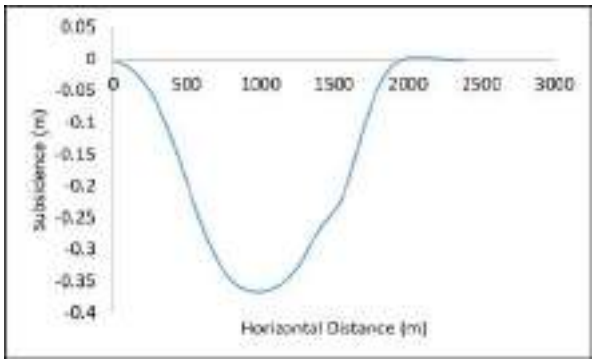


Figure 29: Section 1 subsidence profile

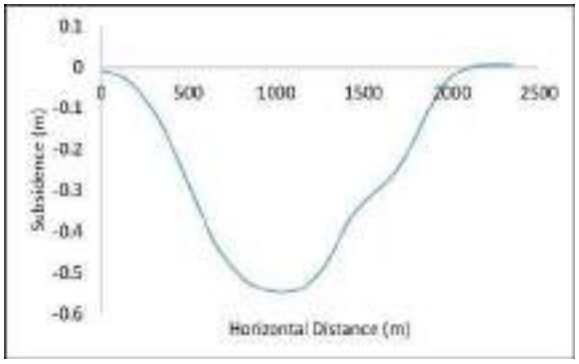


Figure 30: Section 2 subsidence profile

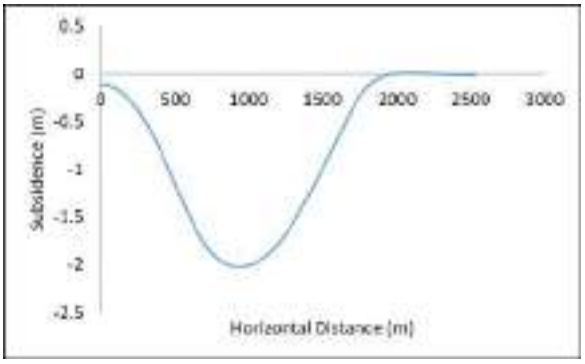


Figure 31: Section 3 subsidence profile

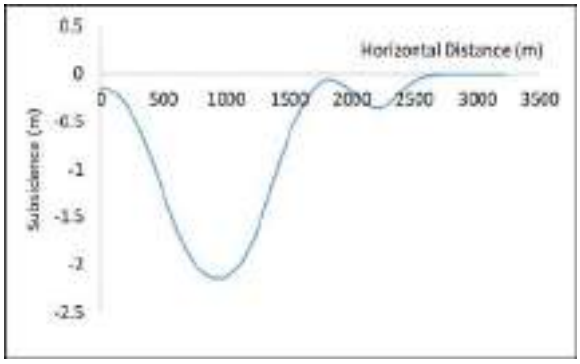


Figure 32: Section 4 subsidence profile

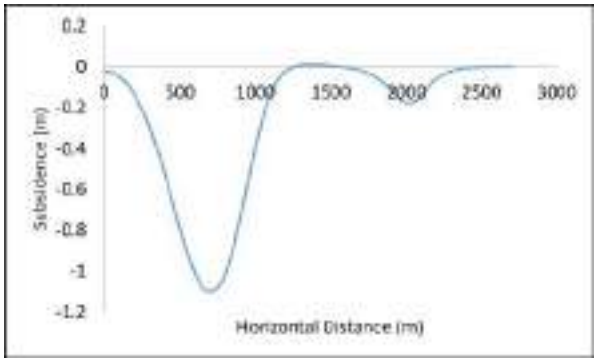


Figure 33: Section 5 subsidence profile

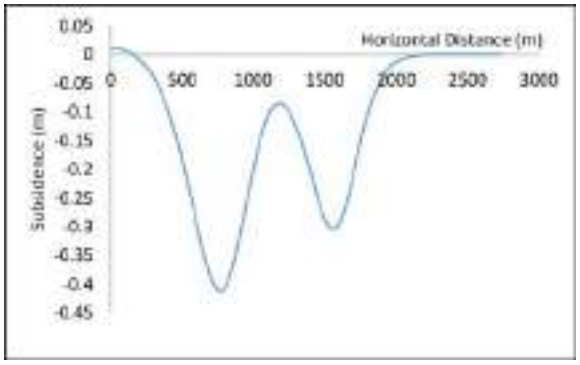


Figure 34: Section 6 subsidence profile

7.1.5 Subsidence profile at the ground surface at the end of mine life

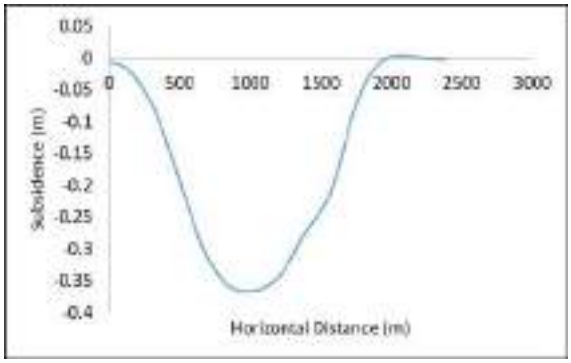


Figure 35: Section 1 subsidence profile

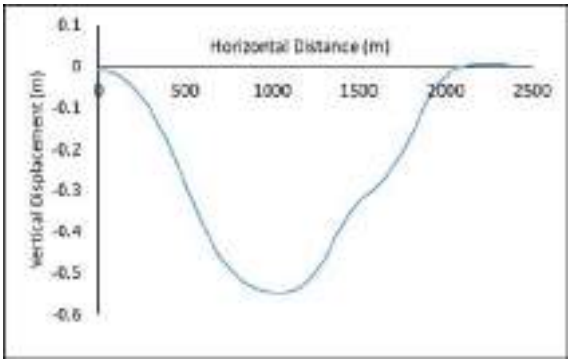


Figure 36: Section 2 subsidence profile

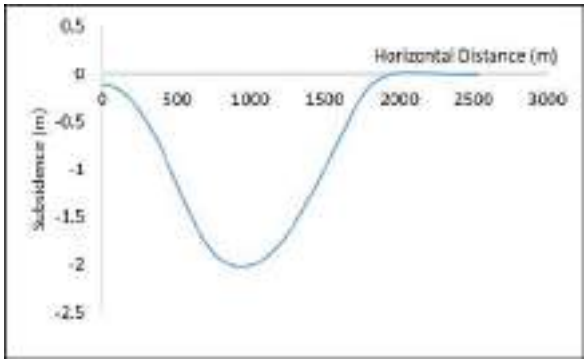


Figure 37: Section 3 subsidence profile

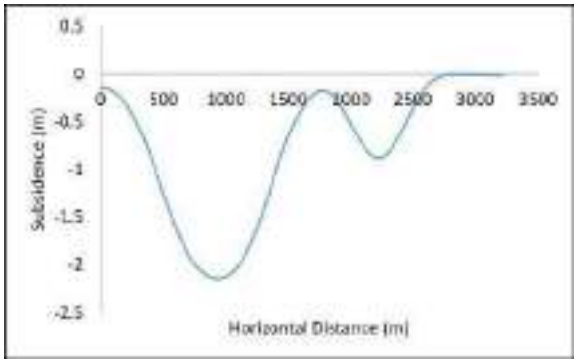


Figure 38: Section 4 subsidence profile

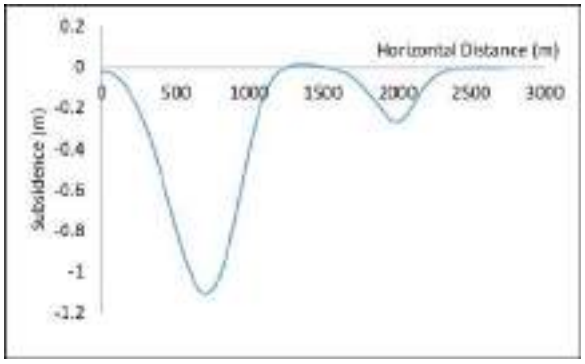


Figure 39: Section 5 subsidence profile

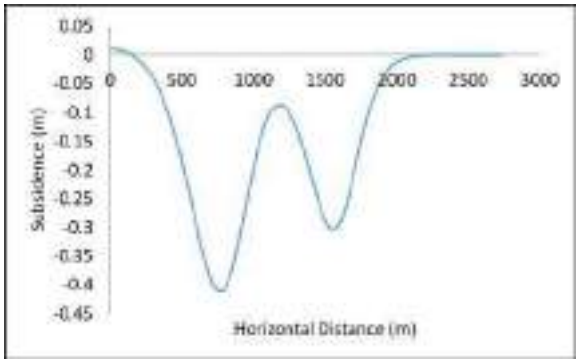


Figure 40: Section 6 subsidence profile

7.2 Tensile strain

The maximum predicted tensile strain on the ground surface along the different cross-sections is given below in Table 10. The maximum tensile strains are in agreement with the maximum predicted subsidence. Predicted tensile strain values were found to be highest along section 4.

Table 10: Tensile strain in mm/m

Section	5 years	10 years	15 years	20 years	24 years
1	0.079	0.175	0.181	0.197	0.197
2	0.154	0.183	0.270	0.288	0.288
3	0.369	0.585	0.822	0.868	0.868
4	0.626	0.924	1.087	1.102	1.160
5	0.321	0.579	0.639	0.645	0.656
6	0.132	0.233	0.284	0.295	0.298

7.3 Crack width

It is well established from the coal mining practices that cracks may occur under the condition of high tension and weak rock. The prediction of crack width is associated with a high degree of uncertainty. However, in the present study, the study area has a top layer of basalt and due to high strength, the crack width is not of much concern in such materials.

7.4 Vertical displacement contours

7.4.1 Displacement contours at the end of five years

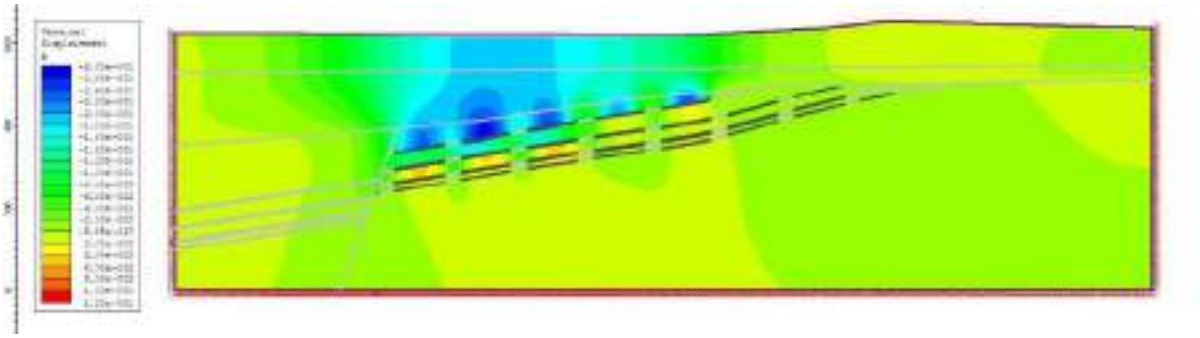


Figure 41: Displacement contour of Section 1

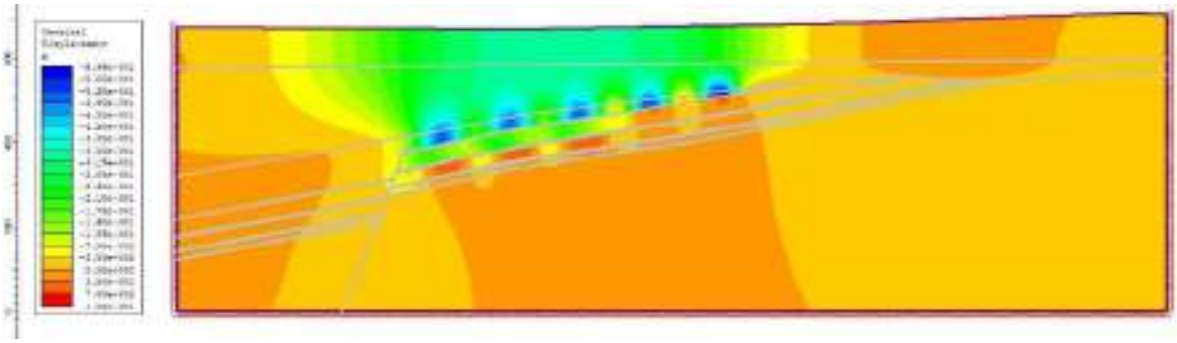


Figure 42: Displacement contour of Section 2

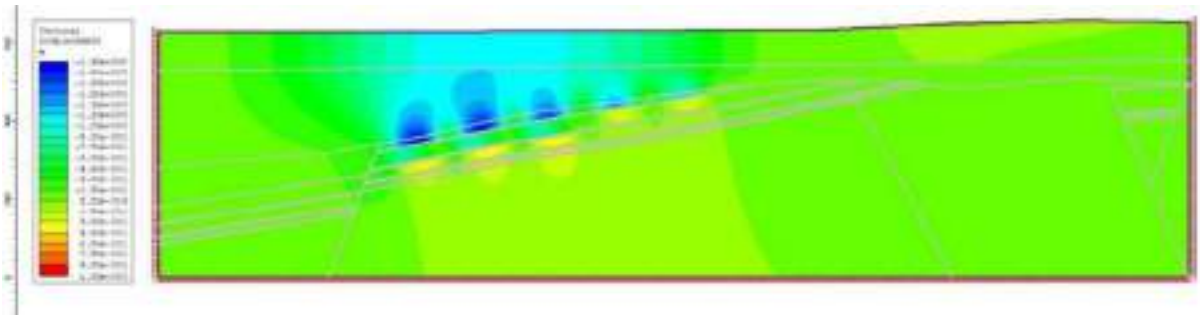


Figure 43: Displacement contour of Section 3

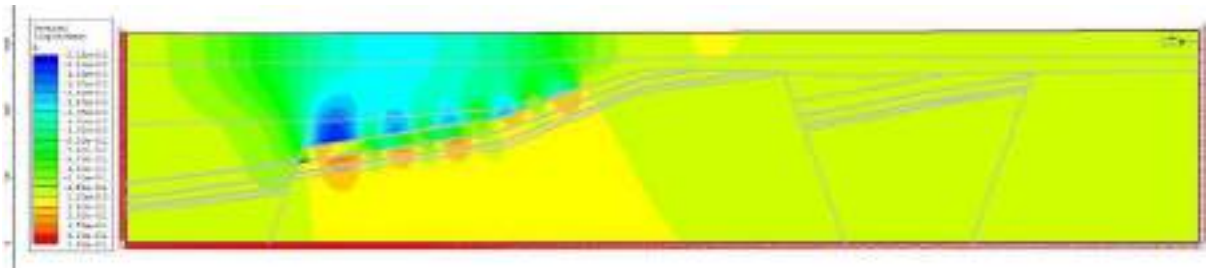


Figure 44: Displacement contour of Section 4

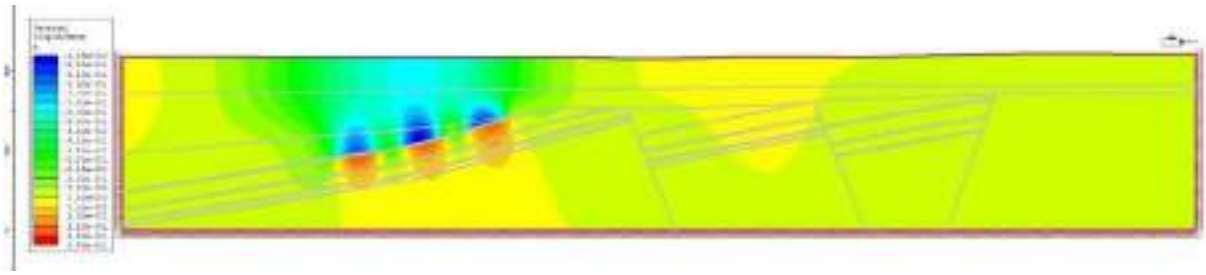


Figure 45: Displacement contour of Section 5

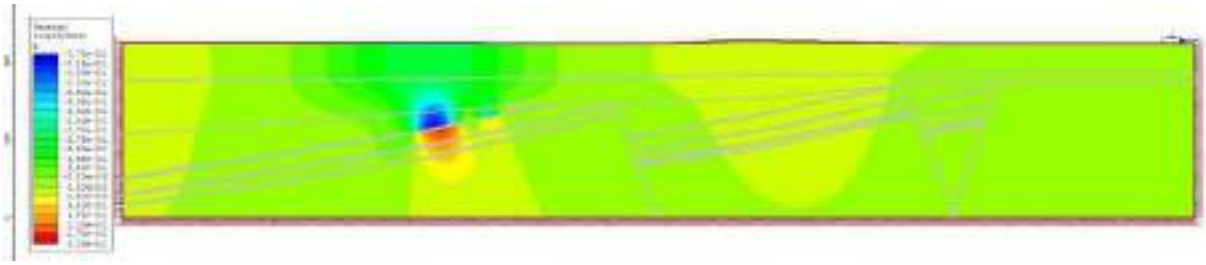


Figure 46: Displacement contour of Section 6

7.4.2 Displacement contours at the end of ten years

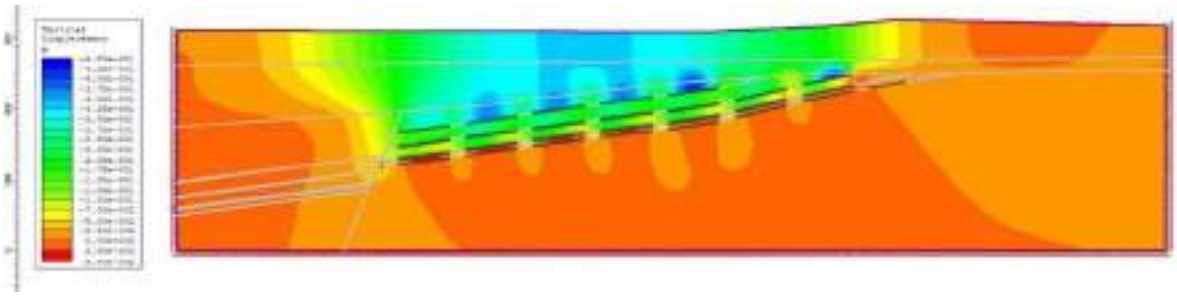


Figure 47: Displacement contour of Section 1

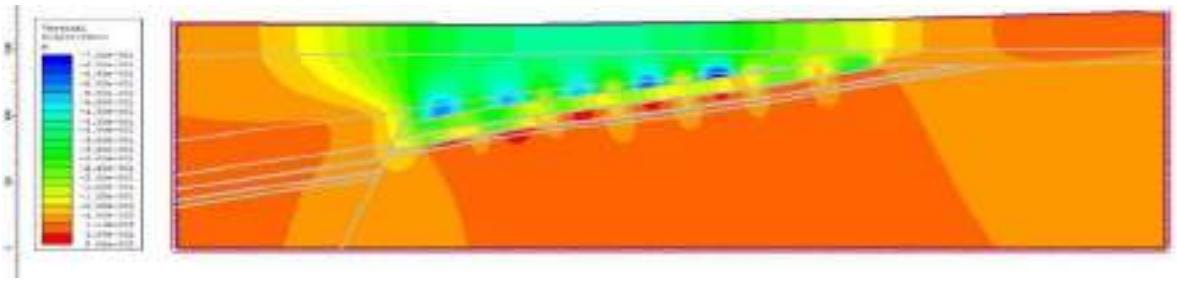


Figure 48: Displacement contour of Section 2

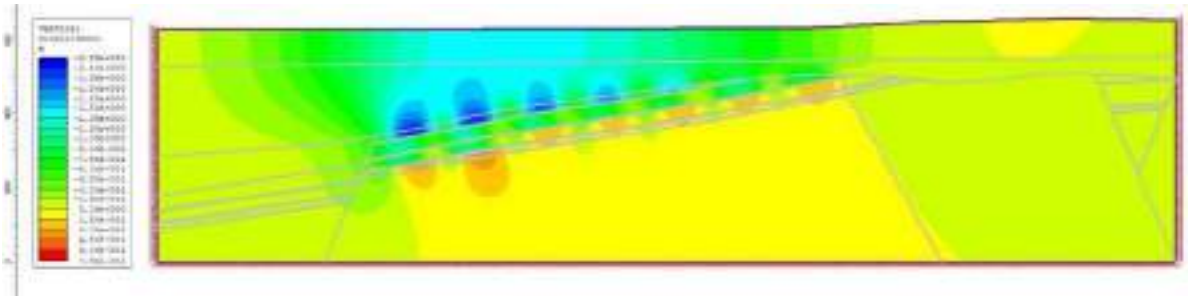


Figure 49: Displacement contour of Section 3



Figure 50: Displacement contour of Section 4

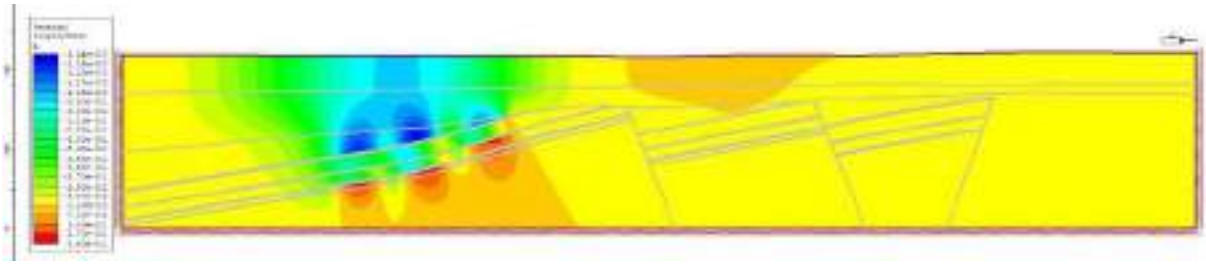


Figure 51: Displacement contour of Section 5

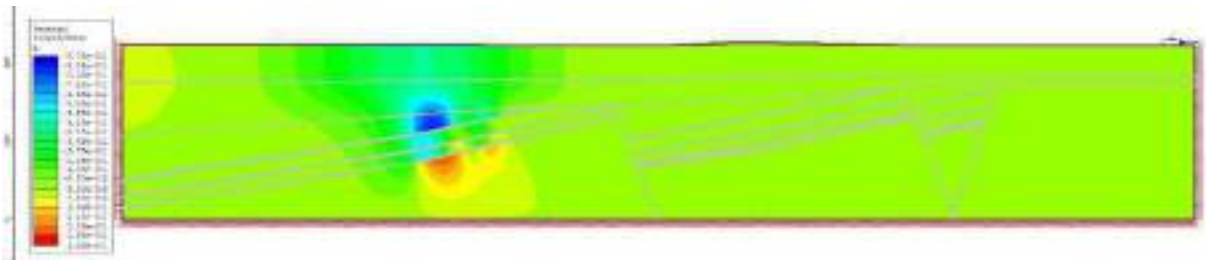


Figure 52: Displacement contour of Section 6

7.4.3 Displacement contours at the end of fifteen years

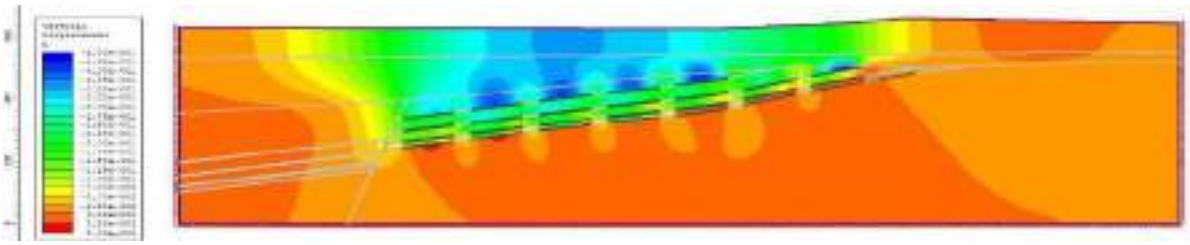


Figure 53: Displacement contour of Section 1

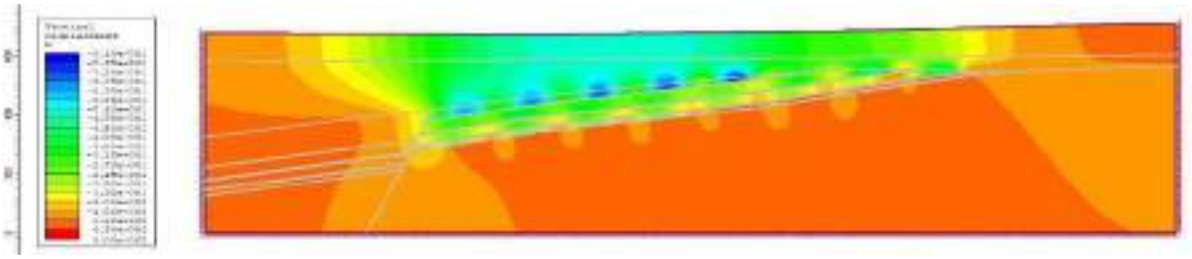


Figure 54: Displacement contour of Section 2

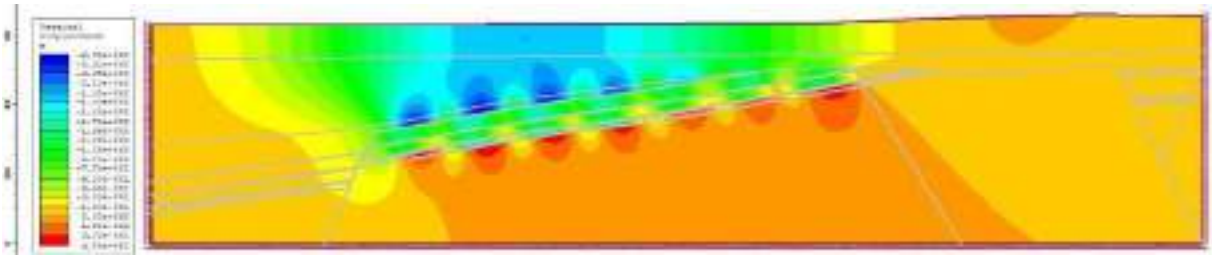


Figure 55: Displacement contour of Section 3

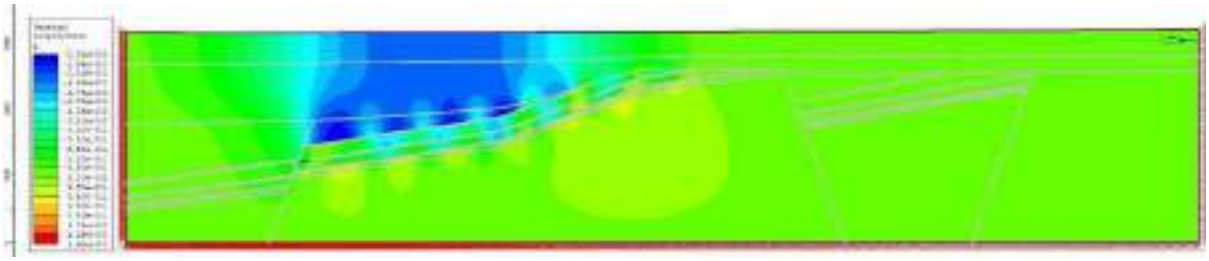


Figure 56: Displacement contour of Section 4

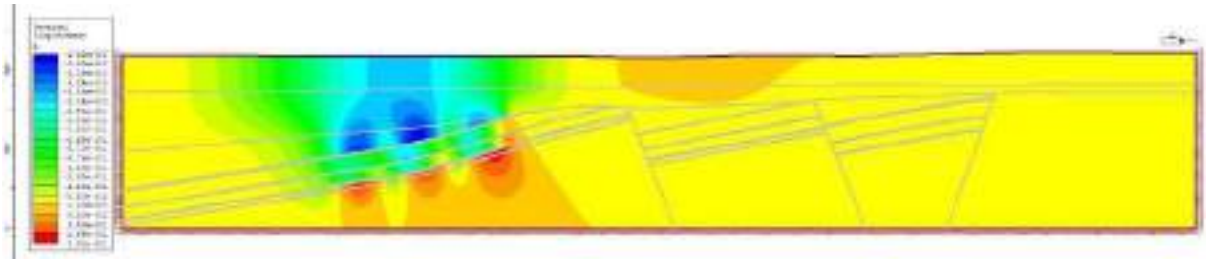


Figure 57: Displacement contour of Section 5

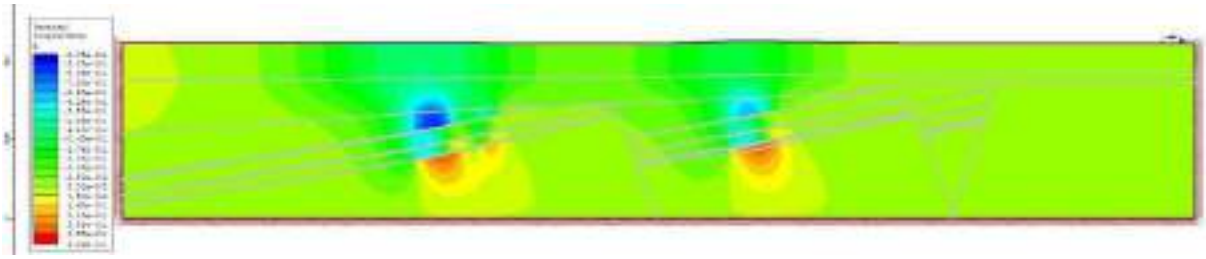


Figure 58: Displacement contour of Section 6

7.4.4 Displacement contours at the end of 20 years

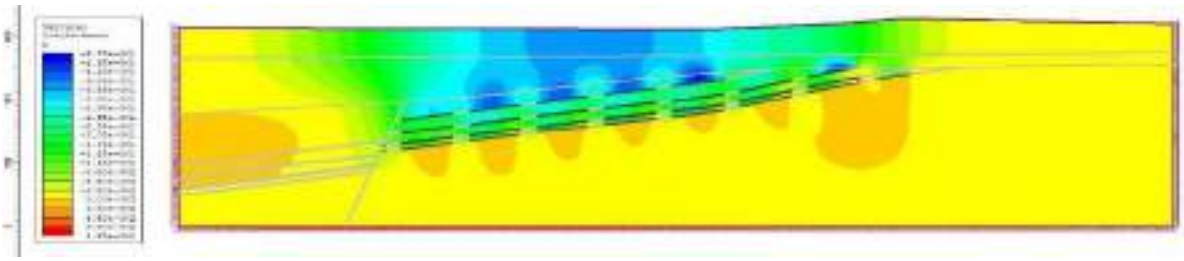


Figure 59: Displacement contour of Section 1

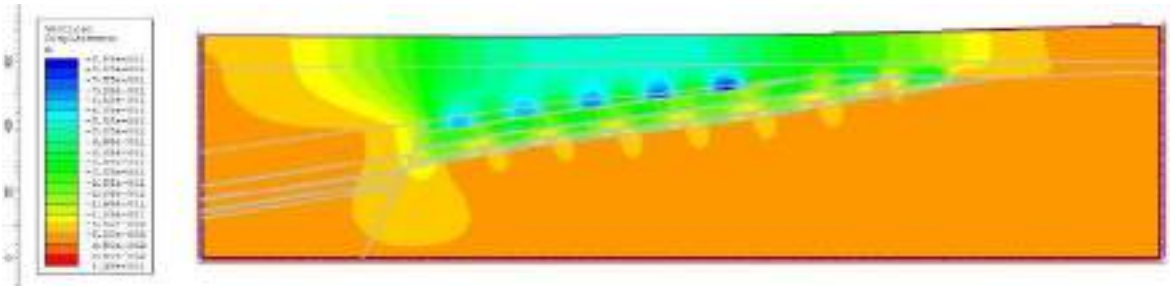


Figure 60: Displacement contour of Section 2

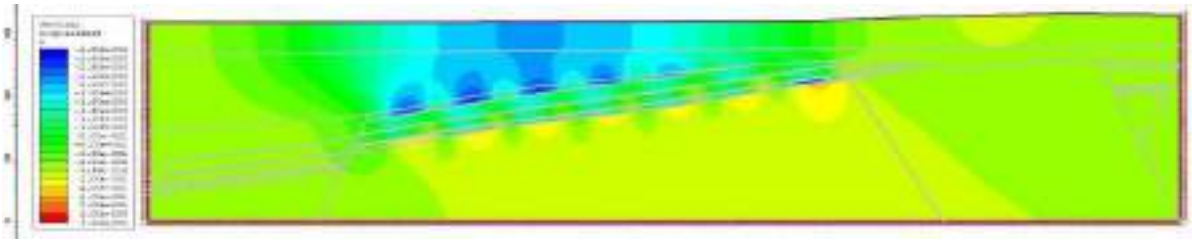


Figure 61: Displacement contour of Section 3

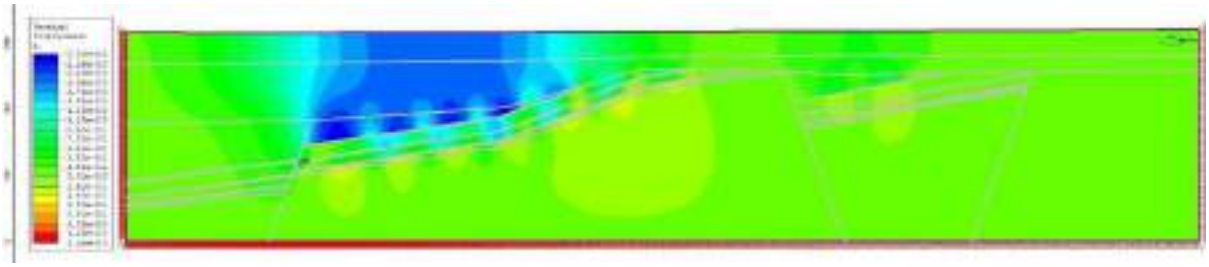


Figure 62: Displacement contour of Section 4

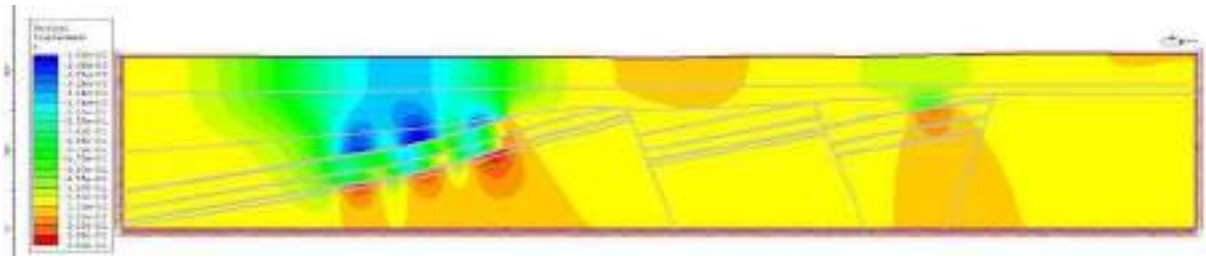


Figure 63: Displacement contour of Section 5

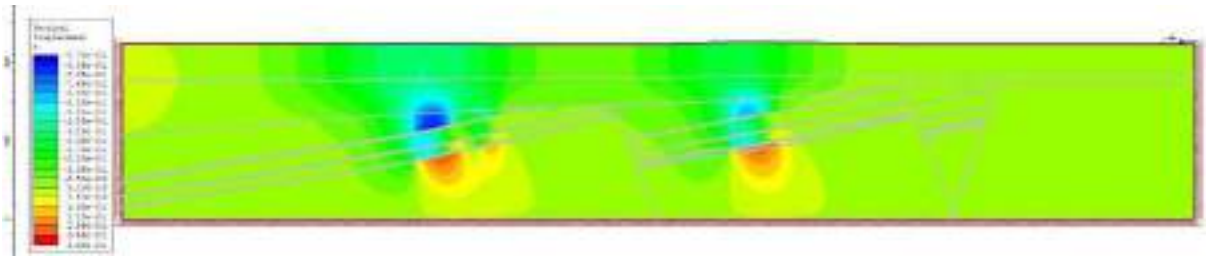


Figure 64: Displacement contour of Section 6

7.4.5 Displacement contours at the end of mine life (24 years)

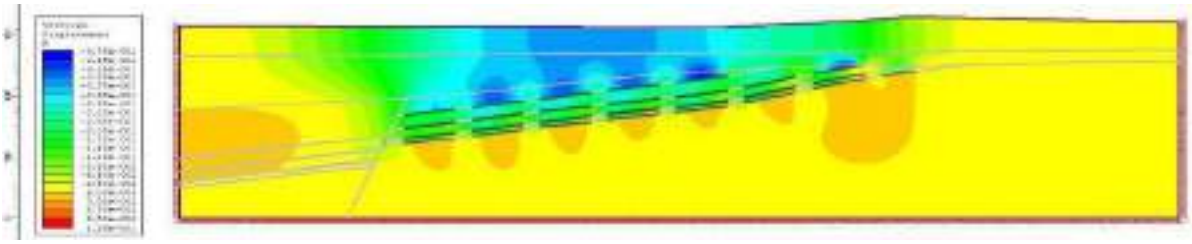


Figure 65: Displacement contour of Section 1

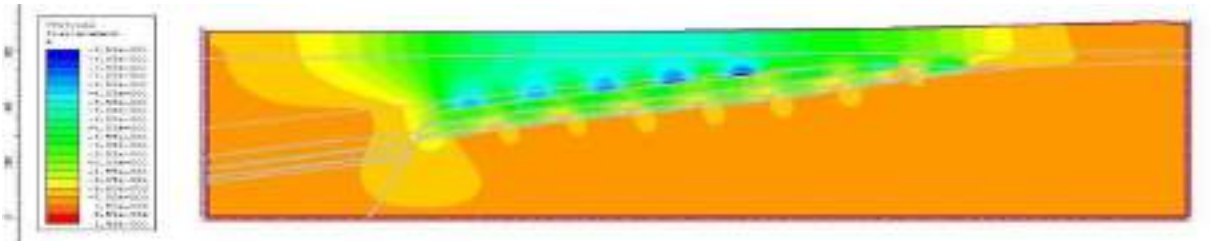


Figure 66: Displacement contour of Section 2

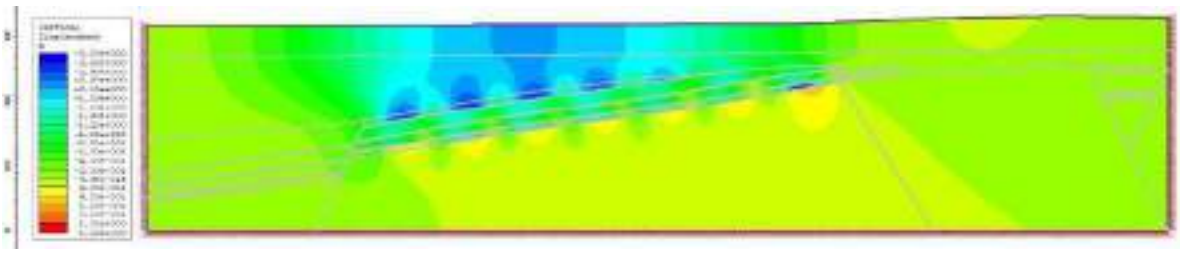


Figure 67: Displacement contour of Section 3

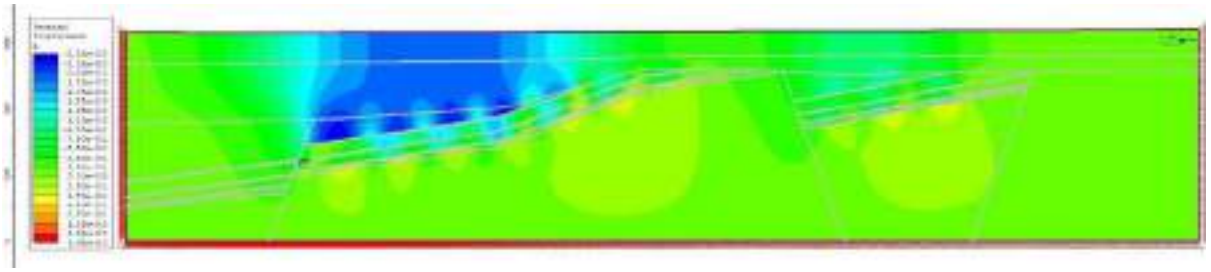


Figure 68: Displacement contour of Section 4

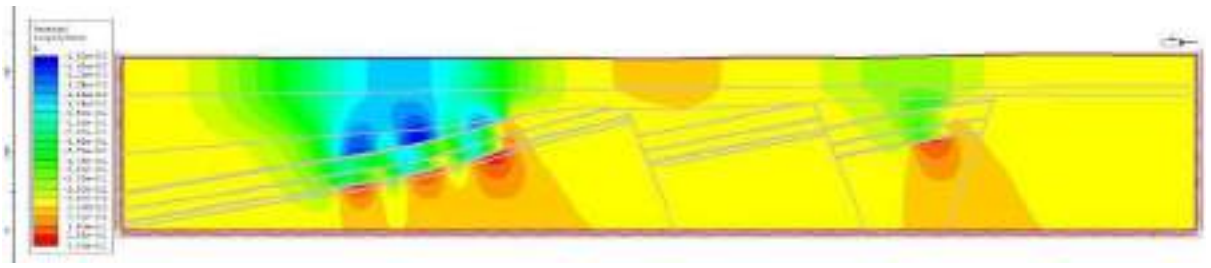


Figure 69: Displacement contour of Section 5

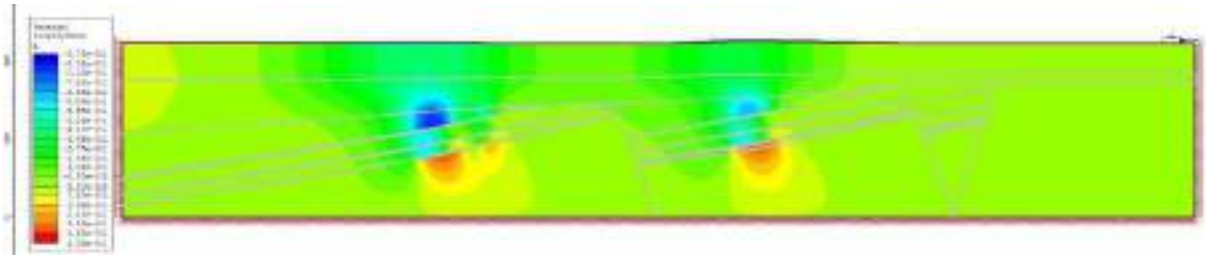


Figure 70: Displacement contour of Section 6

8. DISCUSSION

Figure 11 through 40 shows the subsidence troughs formed at the end of each time block at different strategic sections. Figure 41 through 70 shows the vertical displacement contours at these strategic locations. The maximum predicted subsidence along Section 1 is at the end of 20 years (0.366 m) which corresponds to a tensile strain of 0.197 mm/m. Thereafter both subsidence and horizontal tensile strain remain constant. Along section 2, the maximum predicted subsidence is again observed at the end of 20 years (0.547 m) which corresponds to a horizontal tensile strain of 0.288 mm/m. Along section 3, maximum subsidence is predicted to be 2.025 m at the end of 20 years and the corresponding maximum horizontal tensile strain is 0.868 mm/m. Along Section 4, the maximum predicted subsidence is 2.158 m and the maximum predicted tensile strain is 1.160 mm/m at the end of 24 years. For section 5, the maximum predicted subsidence is 1.104 m and the maximum predicted horizontal tensile strain is 0.656 mm/m. Finally, the maximum predicted subsidence along Section 6 is 0.413 m at the end of 20 years. The corresponding maximum horizontal tensile strain is 0.298 mm/m.

The effect of subsidence on structures present on the surface needs careful examination. Therefore, multiple cross-sections were taken to cover all important surface features. Based on the results of this scientific study, the subsequent discussion is done.

1. ***Karle reservoir:*** -To avoid damage to the Karle reservoir, no extraction is proposed below it. Additionally, strong fault barriers are provided below the reservoir. Section 6 passes through the Karle reservoir and the maximum subsidence along this section is 0.413 m on the west of Karle reservoir. There will not be any effect of subsidence on the reservoir, however, care should be taken to observe cracks near water bodies due to the progression of mining.
2. ***Surabardi reservoir*****: -** To avoid damage to the Karle reservoir, no extraction is proposed below it. Section 6 passes through the Surabardi reservoir and the maximum predicted

subsidence along this section is 0.413 m which is observed in District 1. The point of maximum subsidence and horizontal tensile strain is away from the reservoir therefore, it can be said that there will not be any effect of subsidence on the reservoir, however, care should be taken to observe cracks near water bodies due to the progression of mining.

3. ***Forest Area*: -** There are multiple small scattered forest patches in the project area. However, mining has been planned below the entire forest land. The largest magnitude of predicted subsidence is 2.158 m corresponding to a tensile strain of 1.160 mm/m along section 4. This will be considered as the maximum subsidence and tensile strain induced due to mining activity below the forest area. However, no significant subsidence is envisaged in the forest area.

4. ***Roads:* -** There are two important roads passing on the block i.e., the Ring Road and NH-6. Section 1 and Section 2 is along NH-6 and Section 4 and Section 5 is along the Ring Road. The maximum subsidence along the Ring Road will be considered as 2.158 m and the maximum tensile strain will be considered as 1.160 mm/m. The maximum subsidence and horizontal tensile strain along NH-6 will be considered as 0.547 m and 0.288 mm/m respectively.

5. ***Important structures:* -** Explosive testing organisation is present in District 1 of the project area. The maximum subsidence at the end of 24 years will be considered as the maximum predicted subsidence along Section 3. The magnitude of maximum subsidence and tensile strain is 2.025 m and 0.868 mm/m respectively.

Regular observation and inspection are key ideas for getting a prior indication of any changes that might occur on the surface due to mining. Precaution should be taken regularly to fill the cracks, if any, and restore the land to its original position. The findings of this study suggest that due to the presence of the Basalt layer at the top, the maximum magnitude of subsidence is about 2 m and the magnitude of tensile strain is around 1 mm/m, and the mining in this region can be considered safe.

9. CONCLUSION

The elastic plain-strain FE staged modeling technique was followed for this study. It was found that neither the magnitude of subsidence nor the tensile strain anywhere due to the proposed mining plan was found to be hazardous in regard to subsidence on the surface. The subsidence, tensile strain, and critical features along different sections are given in Table 11.

Table 11: Subsidence, tensile strain, and critical features along different sections

Section	Critical surface	Predicted values	5 years	10 years	15 years	20 years	24 years
1	NH-6	Subsidence (m)	0.193	0.330	0.354	0.366	0.366
		Tensile strain	0.079	0.170	0.181	0.197	0.197
2	NH-6	Subsidence (m)	0.338	0.407	0.531	0.547	0.547
		Tensile strain	0.154	0.183	0.270	0.288	0.288
3	Explosive testing organisation	Subsidence (m)	1.194	1.470	1.948	2.025	2.025
		Tensile strain	0.369	0.585	0.822	0.868	0.868
4	Surabardi reservoir, Ring road	Subsidence (m)	1.403	1.879	2.147	2.152	2.158
		Tensile strain	0.626	0.924	1.087	1.102	1.160
5	Ring road	Subsidence (m)	0.648	1.013	1.103	1.104	1.104
		Tensile strain	0.321	0.579	0.639	0.645	0.656
6	Karle reservoir	Subsidence (m)	0.264	0.410	0.411	0.413	0.413
		Tensile strain	0.132	0.233	0.284	0.295	0.298

10. SUBSIDENCE MANAGEMENT PLAN

The following subsidence management plan is being proposed for Gondkhari underground mining project.

1. Visible cracks, if any, should be regularly filled and the land should be restored to its original position.
2. No working has been proposed directly under any of the waterbodies. However, continuous vigil should be kept for likely cracks near water bodies as a precautionary measure.

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REFERENCES:

1. Peng, S., & Zhang, J. (2007). Engineering geology for underground rocks. Springer Science & Business Media.
2. Anon. (1999). Subsidence studies for development of models with special reference to multi-seam mining in India. Coal S&T Project Report, Central Mining Research Institute,126p.
3. Sheorey, P.R., John Loui P., Singh K.B. and Singh S.K. (2000). Ground subsidence observations and a modified influence function method for complete subsidence prediction. International Journal of Rock Mechanics & Mining Sciences, 37, pp 801-818.
4. Saxena, N.C. (2003). Subsidence Management Handbook, Scientific Publisher, Jodhpur, India, pp88.
5. Anon. (1991). Surface subsidence in mining areas. Coal S&T Project Report, Central Mining Research Institute, 435p.

ANNEXURE IV (A)
LAND SUBSIDENCE (3D Modeling) STUDY REPORT BY CIMFR, DHANBAD

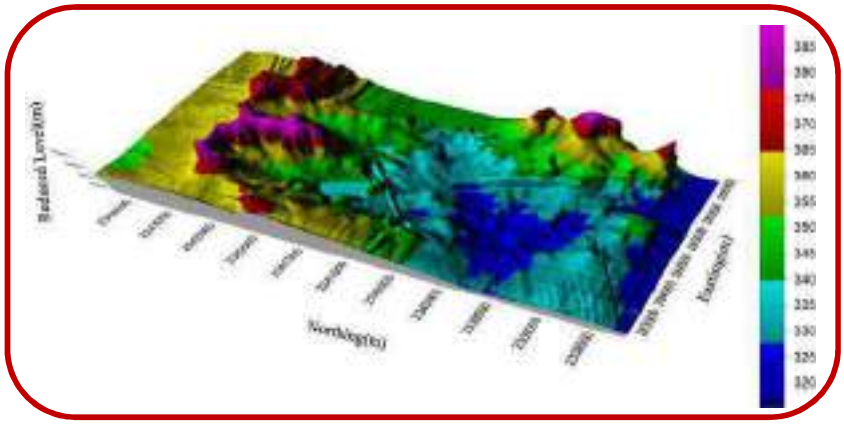
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रिपोर्ट/ REPORT

ऑन/on

सीम्स VIII, V, III और II का प्रस्तावित निष्कर्षण पद्धति के कारण सतह पर भूधसान का भविष्यवाणी के लिए संख्यात्मक मॉडलिंग पर सलाह और गंदखरा कोयला ब्लॉक, महाराष्ट्र के लिए बेसाल्ट का स्थिति का आकलन

ADVICE ON NUMERICAL MODELLING FOR PREDICTION OF SUBSIDENCE ON SURFACE DUE TO PROPOSED EXTRACTION METHODOLOGY OF SEAMS VIII, V, III AND II AND ASSESSMENT OF CONDITION OF BASALT FOR GONDHKHARI COAL BLOCK, MAHARASHTRA



April, 2023

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Project No. CNP/5162/2022-23

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EXECUTIVE SUMMARY

The Gondkhari coal block, situated around 20 km from Nagpur, is in Kamptee coalfield in the state of Maharashtra. The block is mostly occupied by agricultural land while at ridges and elevated areas are covered with bushes and forest plantations. The basalt sill of thickness 78-100 m is located above seam VIII. There are 10 seams in this coal block out of which four seams namely VIII, V, III and II are persistent and have potential thickness. Hence, depillaring has been proposed by M/s Adani Power Maharashtra Ltd. (APML) to extract coal from four workable seams only. A total of 69 panels are proposed to be extracted by longwall method of mining with caving. The depth of panels lies between 123.8 m and 371 m. The per cent of extraction in the panel was taken as 85 for subsidence calculation. Important surface structures over the coal block are National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts.

Three-dimensional subsidence prediction modelling using influence function method was used to predict the subsidence movements. Subsidence, compressive strain and tensile strain were predicted after 3, 5, 10, 15, 20 and 25 years since the commencement of depillaring with caving. All the proposed 69 panels in four seams are to be depillared in 25 years. The following conclusion and recommendations are proposed for workings in Gondkhari coal block:

1) The predicted maximum subsidence and tensile strain due to extraction of coal from VIII, V and III seams after twenty-five years are 1160 mm, and 2.95 mm/m respectively.
2) The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface
3) Suitable drainage, if necessary, should be made to avoid logging of water in the centre of subsidence troughs as it would affect the surface topography.
4) The rate of face advance of each panel should be continuous and constant.

5) Subsidence should be monitored especially for the panels located in the vicinity of the surface structures during extraction to assess the actual impact as well as for the safety perspective.

1.0 INTRODUCTION

The Gondkhari coal block forms a part of Kamptee coalfield, Maharashtra, defined by latitudes 21°08'01" & 21°11'00" and Longitudes 78°54'53" & 78°56'19". It is situated in the north of the National Highway No. 6 at a distance of 20 km from Nagpur. The total explored area of coal block is about 11.3 sq. km. out of which the coal bearing area is about 9.7 sq. km. Important surface structures over the coal block are National Highway road, high tension lines, permanent and temporary settlements, nalla, major roads etc. The block is mostly occupied by agricultural land while at ridges and elevated areas are covered with bushes and revenue forest land in parts

The coal block is entirely concealed under a thick cover of detrail mantle. The basalt sill of thickness 78-100 m is located above seam VIII. There are nine faults within the block. There are 10 seams in this coal block out of which four seams namely VIII, V, III and II are persistent and have potential thickness. Two other seams i.e., X and IX have only patchy development in the block. The remaining seams (VII, VI, IV and I) are not of workable thickness. Hence, depillaring has been proposed from four workable seams only. The shallowest and deepest occurrence of potential seams is 129.40m for seam V and 414.4m for seam II respectively.

M/s Adani Power Maharashtra Ltd. (APML) approached CSIR-CIMFR, Dhanbad, to conduct subsidence prediction study pertaining to Gondkhari coal block of Kamptee coalfield. The scope of study would cover maximum extraction of coal ensuring surface strain due to subsidence within permissible limit owing to presence of surface structures. Study also envelopes the assessment of basalt on subsidence. Subsidence prediction has been done using modified influence function method for all the proposed panels of four seams covering remedial measures.

2.0 GEOLOGY

The Kamptee coalfield is a horseshoe shaped basin aligned NW-SE direction covering an area of about 135sq. km. The Gondhairi block is geologically located south-west of Soaner-Khandala sub basin of the Kamptee coalfield. It is entirely concealed under a thick cover of detrail mantle. Deccan traps are restricted to the western part of the coalfield and are exposed as small hillocks and ridges in the western part of Saoner-Khandala sub basin. It is generally seen that the thickness of Deccan trap increases further westwards. The rest of the coalfield is

devoid of the formation. The block exhibits the presence of nine faults. The major faults have a tend of NW-SE i.e. sub parallel to the strike of beds of beds whereas the minor faults are oblique faults. The strike of the beds in the block is NNW-SSE with westerly dip. The seam gradient generally varies from 1 in 2.5 to 1 in 6.5. The immediate roof of seam VIII mainly consists of sand stone. The predominant rock type up to 3 m on the roof is sandstone. The stratigraphic sequence of Kamptee coalfield and the thickness of the formations are given in Table 1.

Table 1: Stratigraphic sequence of Kamptee coalfield

Age	Formation	Thickness range (m)	Lithology
Recent to Sub Recent	Alluvium	1.00-53.20	Black cotton soil and sandy soil with pebbles
----------Unconformity----------			
Eocene to Cretaceous	Deccan trap	0.25-107.00	Basalt
Eocene	Lametas	0.85-25.95	Cherty limestone and sandstone
----------Unconformity----------			
Upper Permian	Kamthi	Nil-225.30	Yellowish brown medium to coarse grained ferrugious sandstones with occasional shale/clay bands.
----------Unconformity (Overlap)----------			
Middle Permian	Moturs	1.22-348.00	Thick variegated clays, greenish white sandstones with occasional shale/crab shale bands.
Lower Permian	Barakars	15.35-284.40	Fine to coarse grained sandstone, sandy shale and crab shale and coal seams.
Upper carboniferous	Talchirs	3.75-117.80	Greenish shale and siltstone.
----------Unconformity (Overlap)----------			
Archaeans	Metamorphics		Gneisses and schists

3.0 GEO-MINING DETAILS OF EXTRACTION

The Gondkhari coal block is having ten number of seams out of which four seams namely VIII, V, III and II are persistent and have potential thickness. Two other seams i.e., X and IX have only patchy development in the block. The remaining seams (VII, VI, IV and I) are not

of workable thickness. Hence, depillaring has been proposed from four workable seams only. The shallowest and deepest occurrence of potential seams is 129.40 m for seam V and 414.4 m for seam II respectively. Important surface structures over the coal block are National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts.

The panels are numbered alphabetically to locate its position in the block (Fig. 1). Coal will be extracted from four seams and the proposed panels are superimposed; hence the numbers are given to each panel with reference to seam as detailed in Table 2a and Table 2b. The inputs related to the depth of each panel of all the proposed seams were taken by reducing the seam thickness from the difference of surface contour and seam floor contour. Average depth of each panel was taken for predictive model. Width of each panel was taken as 120 m for all seams.

The coal will be extracted by longwall method of mining with caving. Percentage of extraction of panel is proposed as 85 per cent. The depth of panels lies between 123.8 m and 371 m. Height of extraction varied from 1.2 m to 4.6 m. Full seam thickness of each panel was considered as actual height of extraction in subsidence predictive model, which was based on the seam folio plan. There is a thick and hard layer of basalt from near surface. Thus, numerical modelling was carried out to assess the stability of basalt layer.

4.0 BASALT STABILITY ASSESSMENT

A two-dimensional simulation study assuming plane strain condition is taken up here for assessment of the occurrence of subsidence on the surface and the conditions of the basalt sill due to the proposed extraction by longwall method with caving in the seams VIII, V, III and II. Numerical modelling is conducted using Finite Difference software, FLAC3D of ITASCA Consulting Group Inc., Minnesota, USA (Itasca, 2016). The 2-dimensional geometries are simulated along the section having a maximum number of panels/maximum extraction span as per the layout shown in Fig. 1. The beds are formed from the boreholes MGB-02 and MGB-03 which are near the maximum number of panels/maximum extraction span as per the layout shown in Fig. 1. The proposed dimensions of the panels as mentioned in section 3 are simulated. The physico-mechanical properties parameters for the models are given in Table 3.

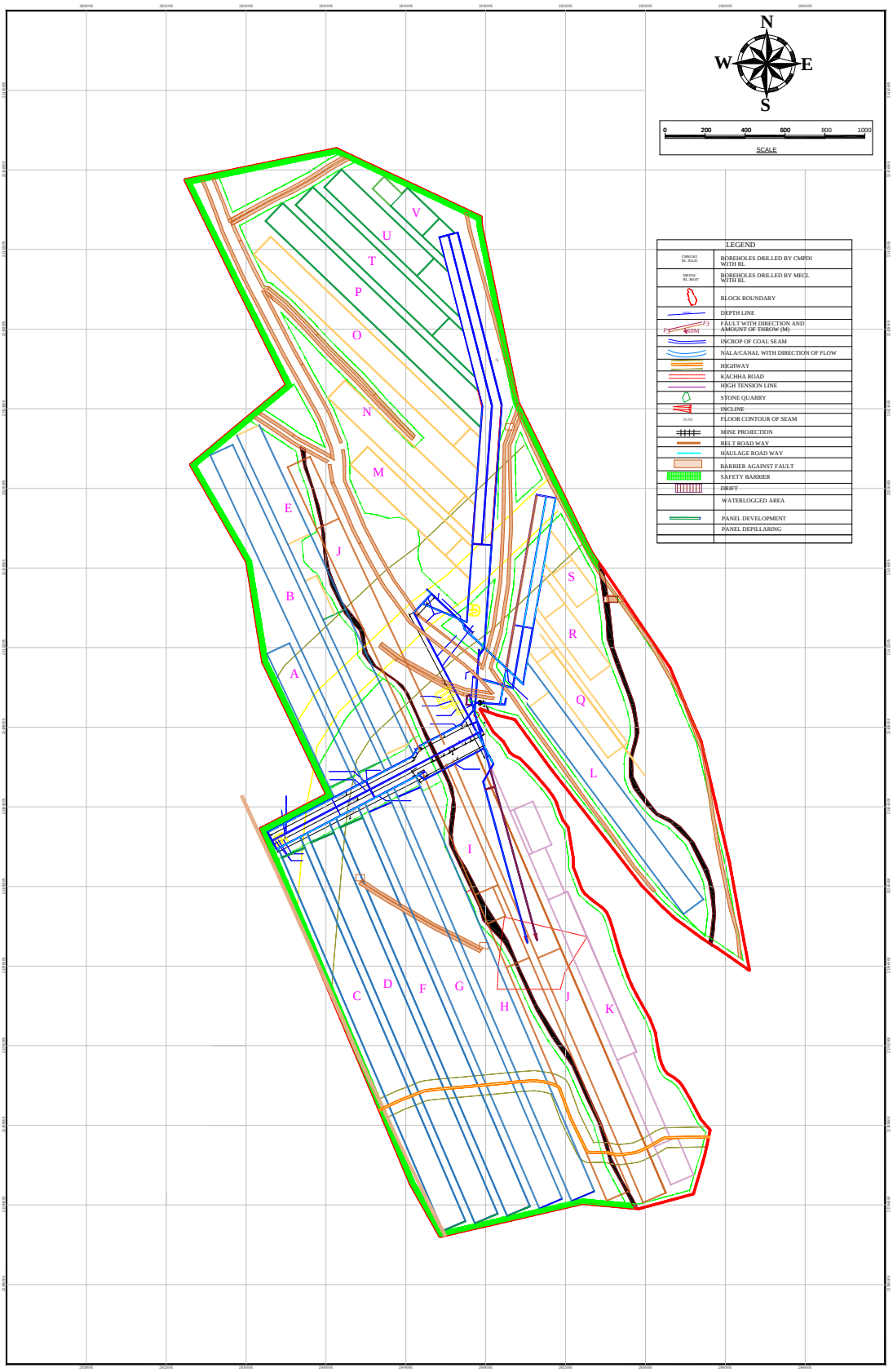


Fig. 1: Numbering of panels

Table 2a: Inputs of each panel for subsidence prediction

Year	Seam	Panel	Seam thickness (m)	Average depth (m)
3	VIII	A	3.0	261.5
		B	3.0	248.5
		C	1.8	300.7
		D	2.0	274.0
		E	2.1	203.9
		F	2.0	248.5
	V	C	3.2	340.8
5	VIII	G	1.6	219.9
		H	1.9	178.6
	V	D	3.5	315.0
		F	3.5	290.5
10	V	A	2.7	300.8
		B	2.6	289.9
		E	2.0	244.5
		G	3.1	262.4
		H	3.5	220.5
		I	3.0	168.0
		J	2.9	123.8
		J1	1.8	189.2
	III	A	3.5	331.0
		C	4.0	371.0
		D	4.0	348.5
15	VIII	L	2.7	179.8
	III	B	3.0	334.0
		E	3.0	271.5
		F	4.2	323.3
		G	4.2	292.8
		H	4.3	251.7
		I	4.5	197.5
		J	3.8	150.4
		J1	3.1	213.4
		K	3.0	144.0
	II	C	1.3	238.0
		D	1.3	238.0
		H	1.2	-
		I	1.2	-
		J	1.2	-

Table 2b: Inputs of each panel for subsidence prediction

Year	Seam	Panel	Seam thickness (m)	Average depth (m)
20	VIII	M	2.6	211.4
		N	2.4	237.6
		O	2.4	229.1
		P	1.7	211.3
		Q	2.9	160.1
		R	3.0	147.7
		S	3.0	131.0
		T	1.9	208.3
		U	2.0	192.2
		V	2.0	169.0
	V	L	2.2	221.8
		M	2.2	256.8
		N	1.8	276.2
		O	1.8	267.6
		Q	2.3	196.7
		R	2.2	184.0
		S	2.0	173.0
		T	2.5	247.2
	III	L	3.8	248.2
		Q	2.9	233.6
25	V	P	2.6	249.9
		U	2.7	225.5
		V	2.8	190.6
	III	M	3.2	282.3
		N	3.1	304.4
		O	3.0	292.5
		P	3.2	279.3
		R	3.4	213.8
		S	3.1	202.4
		T	3.0	274.2
		U	3.0	251.2
		V	3.4	214.6

Table 3: Rock properties used for numerical studies

Bed No	Rock type	Bed Th (m)	Wt. Dens (Kg/m^3)	Wt. UCS (MPa)	Wt. Tens St (MPa)	Wt. E (GPa)	PR	Wt. RMR
1	Soil + Mudstone + Claystone	6.50	2000.00			0.30	0.10	-
2	Basalt+Vesicular Basalt+Claystone	66.50	2699.16	84.44	9.41	16.04	0.39	63.73
3	Fg to Mg Sst	6.00	1926.04	7.14	0.84	0.76	0.20	34.58
4	Shaly Sst	2.00	1889.00	14.58	1.94	1.35	0.10	41.00
5	Fg to Mgsst	4.00	1912.00	7.53	0.56	1.66	0.36	41.00
6	Mg to Cg to VCg Sst	63.00	2022.86	8.54	1.02	1.93	0.26	44.90
7	Clay stone	3.00	2287.00	21.21	1.70	1.87	0.25	52.00
8	Mg to Cg to VCg Sst	21.05	1984.87	8.28	1.92	2.33	0.29	35.43
9	Coal/Shaly coal, **VIII Seam**	2.70	1382.00	10.14	1.49	2.00	0.25	33.00
10	Mgsst+Ical of Shale and sst	4.53	2041.86	9.85	1.35	1.17	0.27	45.98
11	Mg to Cgsst	9.57	1866.37	6.39	0.74	1.58	0.27	36.82
12	Ical of Shale and Sst	8.45	2084.61	23.79	3.44	2.37	0.17	52.00
13	Mg to Cgsst with coal streak	14.08	2031.57	9.72	1.35	1.65	0.31	42.09
14	Shaly coal/carb sh+Coal, **V Seam**	3.68	1192.43	5.62	0.46	2.11	0.25	34.00
15	Ical of sh and sst	2.75	2042.20	20.57	2.91	2.38	0.19	47.91
16	Mg to Cgsst with coal streak	19.39	2075.23	10.10	1.51	2.10	0.41	50.12
17	Ical of sh and sst	0.95	2033.01	15.41	2.57	1.84	0.17	47.55
18	Cgsst with coal streak	1.60	2129.00	6.48	1.19	1.25	0.36	43.00
19	Coal, **III Seam**	4.48	1127.00	14.13	1.13	2.00	0.25	45.00
20	Cg to Mgsst with coal streak	13.90	2155.52	13.97	1.87	3.35	0.37	54.68
21	Coal, **II Seam**	1.65	1211.00	9.88	0.79	2.00	0.25	32.00
22	Ical of sh and sst	1.11	2185.00	16.76	2.47	2.79	0.12	42.00
23	Vfg sst	3.00	2200.00	11.61	2.32	1.65	0.32	44.00
24	Fine to Mg Sst	5.70	1912.00	14.27	1.14	1.66	0.32	41.00

Bed Th: Bed Thickness; Wt. Dens: Weighted density; Wt UCS: Weighted uniaxial Compressive strength; Wt Tens St: Weighted Tensile Strength; Wt E: Weighted Young's Modulus; PR: Poisson's Ratio; Wt RMR: Weighted Rock Mass Rating; Vfg sst: Very fine grained sandstone; Fg to Mg Sst: Fine grained to medium grained sandstone; Mg to Cg Sst: Medium grained to coarse grained sandstone; Mg to Cg to VCg Sst: Medium grained to coarse grained to Very coarse grained sandstone; Shaly Sst: Shaly sandstone; Ical of Shale and sst: Intercalation of shale and sandstone; Carb sh: Carbonaceous shale

4.1 *In-Situ* Stresses

The in-situ stresses are influential factors to assess the stability of an underground structure. To get detailed information on the in-situ stress field components at Gondkhari coal block, mine management entrusted Mesy (India) Pvt. Ltd. for conducting hydro-fracturing tests for the determination of in-situ stress. Mesy (India) Pvt. Ltd. conducted Hydro-fracturing tests in

four boreholes MGB-01, MGB-02, MGB-03 and MGB-04 and provided the summarized combined calculations for all the four boreholes for stress-depth relations within the depth ranges tested between 49.05– 270.3 m as given below:

$S_h = (4.11 \pm 0.56) + (0.01 \pm 0.004)$ x (z [m] – 49.05) MPa (1)

$S_H = (8.32 \pm 0.72) + (0.01 \pm 0.005)$ x (z [m] – 49.05) MPa (2)

Where, S_h and S_H are the minor and major horizontal principal stresses and z is the depth of cover. The vertical principal stress S_v was calculated for overburden by assuming a mean overburden rock mass density of 2.33 ± 0.09 g/cm^3:

$S_v = 0.0231$ x z (m), with $\rho_{mean} = 2.31 \pm 0.09$ g/cm^3

The results of the in-situ stress estimation demonstrated the stress situation is characterized by $S_v \leq S_h \leq S_H$. The mean direction of S_H is found to be along NW-SE direction [N (141 ± 10) degrees].

4.2 Rock Mass Properties

Scaling/conversion of the physico-mechanical properties of the laboratory test of the intact rock (Table 1) to the rock mass is essential for the successful simulation of the working. Sheorey's failure criterion is used to obtain the rock mass properties from the intact rock properties. This criterion is defined as follows:

$$\pm_{1m} = \pm_{cm}\left(1+\frac{\pm_{3m}}{\pm_{tm}}\right)^{b_m} \quad (3)$$

$$\left.\begin{aligned} \pm_{cm} &= \pm_{ci} e^{\left(\frac{RMR-100}{20}\right)} \\ \pm_{tm} &= \pm_{ti} e^{\frac{(RMR-100)}{27}} \\ b_m &= b^{\frac{RMR}{100}} \end{aligned}\right\} \quad (4)$$

where σ_{1m} is the tri-axial strength of the rock mass (MPa); σ_{3m} is the confining stress of the rock (MPa) mass; σ_{ci} is the compressive strength of the intact rock (MPa); σ_{ti} is the tensile strength of the intact rock (MPa); b=0.51 is the exponent in the failure criterion, which controls the curvature of the triaxial curve; σ_{cm} is the compressive strength of the rock mass (MPa); σ_{tm} is the tensile strength of the rock mass (MPa) and *RMR* is the Bieniawski's Rock

Mass Rating. In the above equations, the subscript *i* and *m* stand for the intact rock and the rock mass respectively.

The intact rock strength τ (MPa) can be expressed by the Eq. (5) where τ_{sm} (MPa) is the rock mass shear strength, μ_{0m} is the cohesion of the rock mass, and ϕ_{0m} is the coefficients of internal friction angle of the rock mass respectively.

$$\tau = \tau_{sm}\left(1+\frac{\sigma}{\sigma_{tm}}\right)^{c_m} \tag{5}$$

Where,

$$\tau_{sm} = \left\{\left(\sigma_{cm}\sigma_{tm}\frac{b_m^{b_m}}{\left(1+b_m\right)^{1+b_m}}\right)^{1/2}\right\} \tag{6}$$

$$\mu_{om} = \frac{\tau_{sm}^2\left(1+b_m\right)^2-\sigma_{tm}^2}{2\tau_{sm}\sigma_{tm}\left(1+b_m\right)} \tag{7}$$

$$c_m = \mu_{0m}^{0.9}\frac{\sigma_{tm}}{\tau_{sm}}$$
$$\mu_{0m} = \tan¤_{0m} \tag{8}$$

To use this non-linear failure criterion in FLAC3D, the equivalent Mohr-Coulomb parameters, i.e. cohesion and internal friction angle of the rock mass, are calculated from the best fit line of the failure envelope through linear regression.

4.3 Modelling Procedure

The method of modelling generally involves (i) generation of grid (ii) discretization of the model, (iii) selection of an appropriate constitutive model for material behaviour, (iv) incorporation of material properties, gravity, in-situ stresses, and boundary conditions, (v) solution to the equilibrium of initial elastic model to generate the in-situ stresses in the model (vi) change the model to Mohr-Coulomb tension model (vii) formation of longwall panels by driving gate roads (viii) extraction of panels seam wise in descending order (ix) assessing the model behaviour like stability, displacement, etc.

4.4 Modelling Results

The grid of the model, in-situ conditions and vertical displacement after extraction of coal seams VIII, V, III and II are shown in Figs. 2, 3, and 4 respectively. The predicted subsidence/vertical displacement on the surface is 3.37 m as shown in Fig. 4. The resulting tensile strain will be greater than 3 mm/m which may damage the surface.

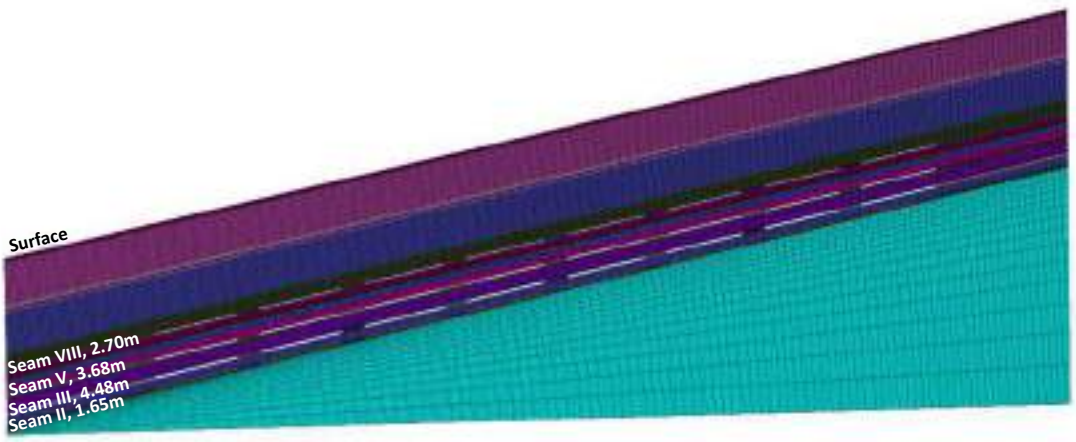


Fig. 2: Grid used in numerical modelling

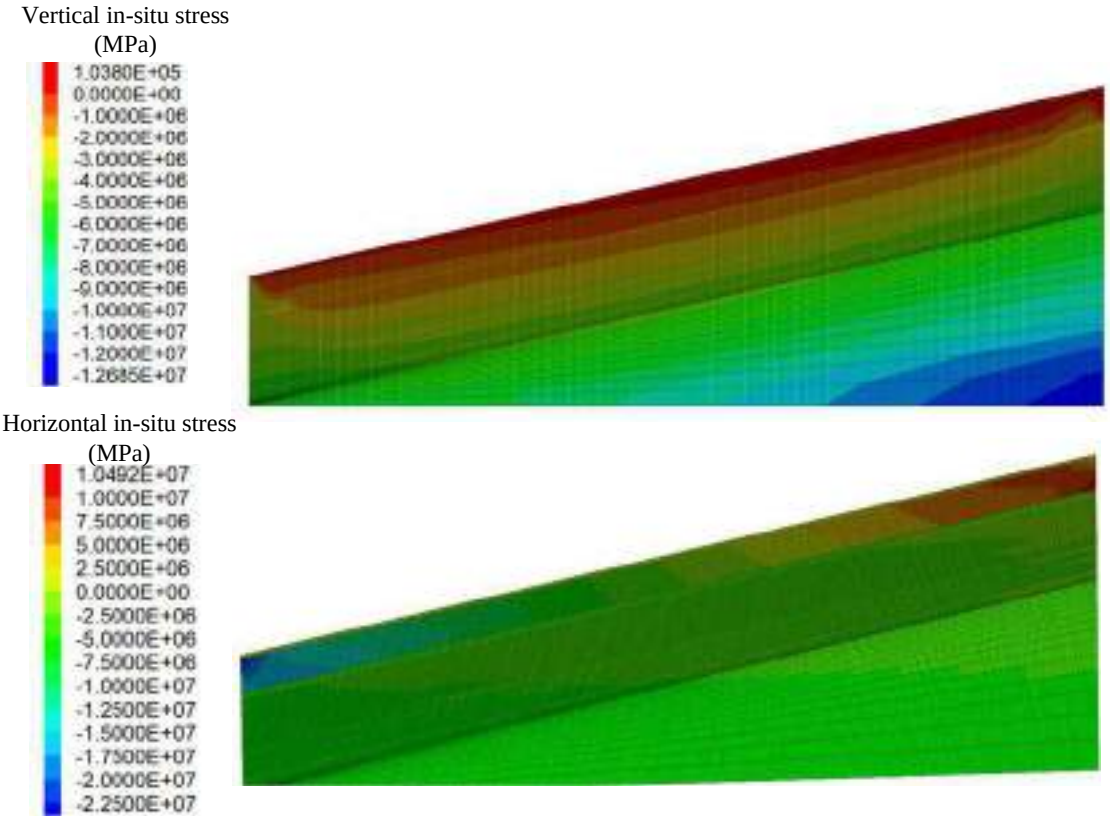


Fig. 3: Vertical and horizontal in-situ stress condition before mining

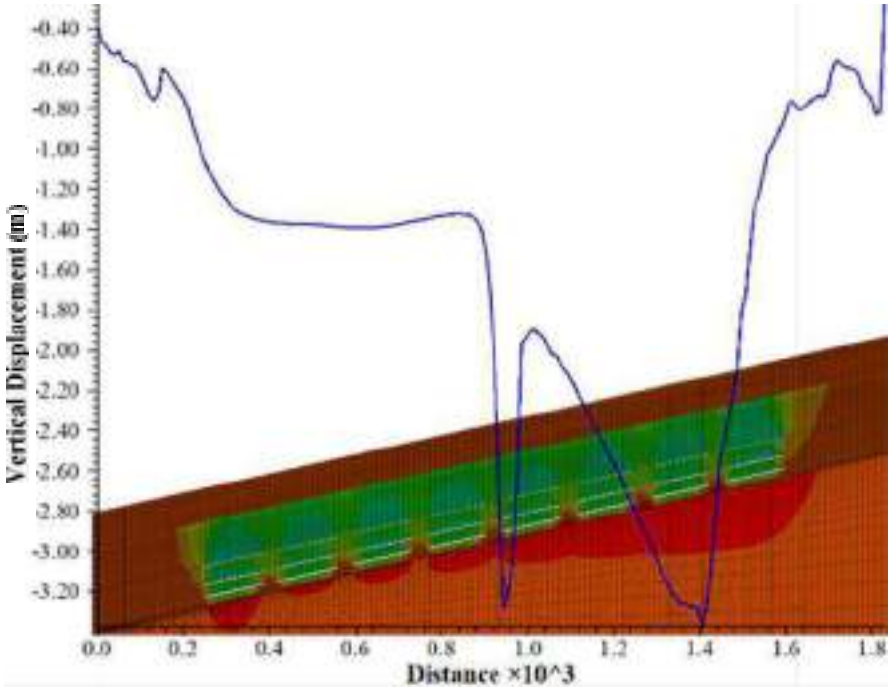


Fig. 4: Vertical displacement (m) on the surface after mining of coal seams VIII, V, III and II

Based on numerical modelling exercises, the extraction of all four coal seams viz. seam VIII, V, III and II for the proposed panel size by longwall with caving method may induce fracture in the basalt. Therefore, the basalt may not remain intact or withstand stresses and may eventually cave. This may be due to the comparatively low Young's Modulus and low compressive and tensile strengths of overlying roof rock including basalt.

5.0 ALLOWABLE LIMIT OF SUBSIDENCE MOVEMENTS

As per statutory guidelines, the subsidence and associated slope and strains over any extraction panel should be limited to certain recommended values for the protection of various surface features and structures (Saxena, 2003). Some of the recommended maximum values for various surface features and structures are as follows:

a) *Single- storeyed, multi-storeyed and kutcha building*: strain < 3 mm/m

b) *Surface water bodies*: strain < 3 mm/m

c) *Forest land*: maximum tensile strain of 20 mm/m and width of tensile crack of 200-300 mm

6.0 SUBSIDENCE PREDICTION

In the current scientific study, the main objective is to predict the subsidence movements caused due to extraction of proposed panels and its impact at the surface due to multi seam

mining. Subsidence prediction is done with the help of three-dimensional subsidence prediction model using modified influence function method at surface as the outcome of numerical modelling indicated failure of basalt layer. Modified influence function method can predict the three-dimensional subsidence trough with slopes and strains at any point on the trough quite accurately (Anon., 1999). This method has also been validated from subsidence observations of various Indian coalfields (Anon., 1999 and Sheorey et al., 2000). Calculation approach is outlined in Annexure-I.

7.0 METHODOLOGY

The methodology adopted for the subsidence prediction covers influence function method. The principle of influence function method is explained in the above references. Subsidence movements due to the extraction of proposed panels of VIII, V, III and II seams with caving at the Gondkhari coal block have been modelled considering the multi-seam mining condition and subsidence movements have also been computed. The values of subsidence, compressive and tensile strains and slope are obtained at each grid point on the surface due to extraction of the proposed panels.

8.0 ASSUMPTIONS

1) Subsidence investigations have already been conducted with caving in different Indian coalfields. The subsidence factor of 0.69 and 0.81 has been taken in the prediction model against maximum possible subsidence for single-seam and multi-seam extraction at Gondkhari coal block.
2) A Non-Effective Width (NEW) observed in Indian coalfields ranged between 0.3 and 1.17 based on scientific subsidence investigations conducted by mind tank i.e., Central Institute of Mining and Fuel Research (CIMFR) in different coalfields (Anon. 1991). The value of NEW in multi-seam workings was found to be as low as 0.3. Hence, NEW of 0.5 and 0.30 times the depth of extraction has been taken in the model for single-seam and multi-seam condition respectively.
3) The angle of draw is taken as 20^{o} (single-seam) and 25^{o} (multi-seam) on positive side in modeling for the proposed panels.
4) A grid of 20 m spacing in X and Y directions is employed for subsidence prediction.
5) All the input parameters considered for the current study are applicable to this particular problem alone and therefore, should not be generalized for other mine in the same area.

9.0 RESULTS

9.1 Predicted Maximum Subsidence and Strain

The seam-wise subsidence prediction at the surface has been done under multi-seam working condition. The value of maximum subsidence is predicted at each grid point with the help of three-dimensional subsidence prediction modeling using modified influence function method for all the proposed panels. The strain value exceeded the safe limit of 3 mm/m on considering the geo-mining parameters proposed by management for coal extraction from four seams in the Gondkhari coal block. Keeping in view the safety of surface structures, the dimension of few panels was reduced from 120 m to 110 m and 100 m to control the surface strain within safe limit of 3 mm/m. The maximum subsidence of 1160 mm was predicted at the surface at the end of mine life due to extraction of panels with revised dimensions. Maximum predicted subsidence and tensile strain after 3, 5, 10, 15, 20 and 25 years is deciphered in Table 4. The maximum cumulative subsidence, compressive strain and tensile strain at the surface after 25 years i.e., end of the mine life, is anticipated to be 1160 mm and 2.95 mm/m respectively. This outcome is based on modified panel dimensions.

Table 4: Predicted maximum subsidence and tensile strain

Year	Maximum subsidence (mm)	Maximum tensile strain (mm/m)
Up to 3	298	0.96
Up to 5	519	1.88
Up to 10	911	2.45
Up to 15	911	2.45
Up to 20	1160	2.95
Up to 25	1160	2.95

9.2 Subsidence Contour

Results of three-dimensional subsidence prediction modeling using influence function method are shown in the form of subsidence contours. Anticipated subsidence contour at the surface after 3, 5, 10, 15, 20 and 25 years is shown in Fig. 5, 6, 7, 8, 9 and 10 respectively.

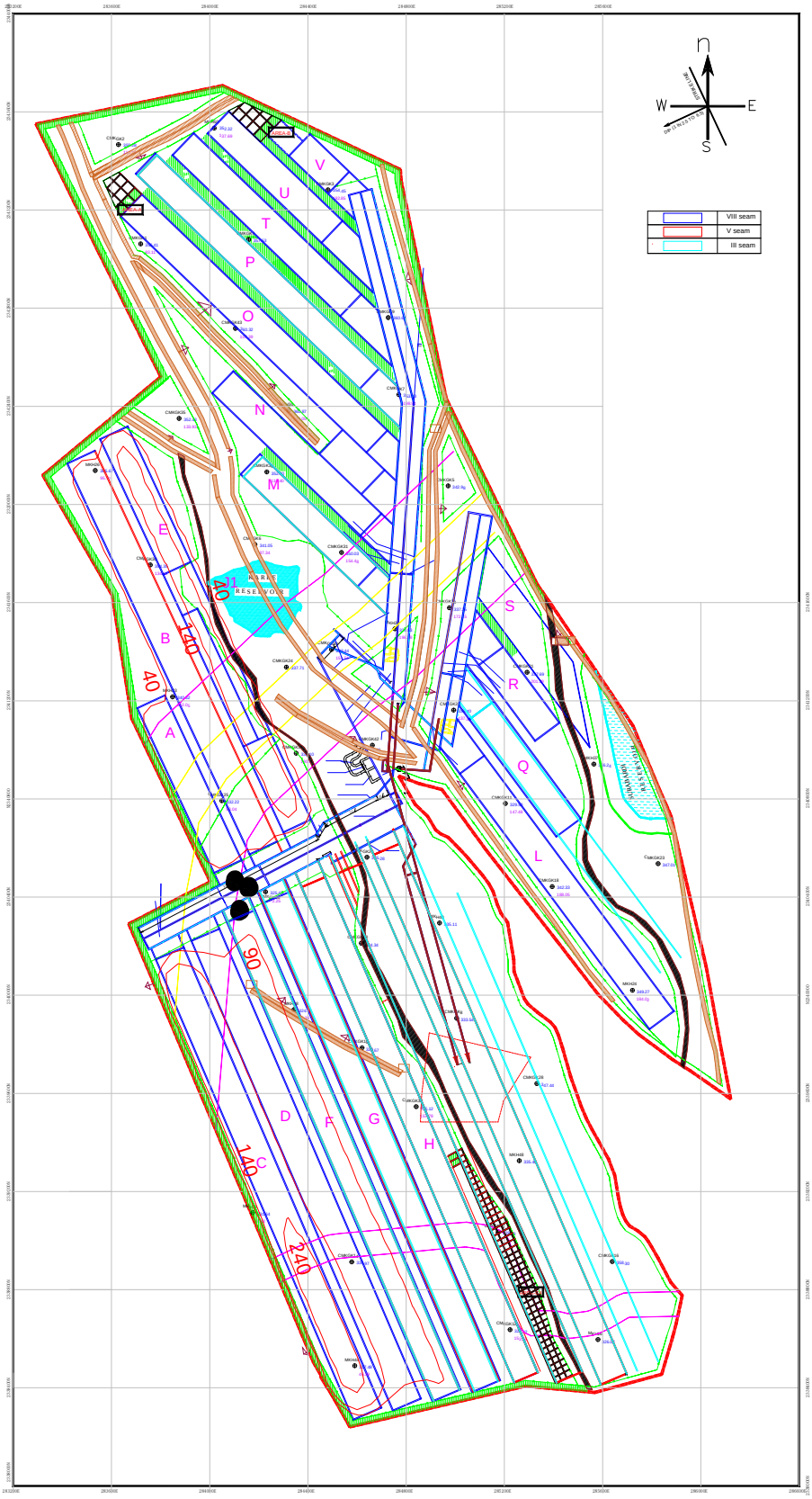


Fig. 5: Anticipated subsidence contour (mm) after 3 years

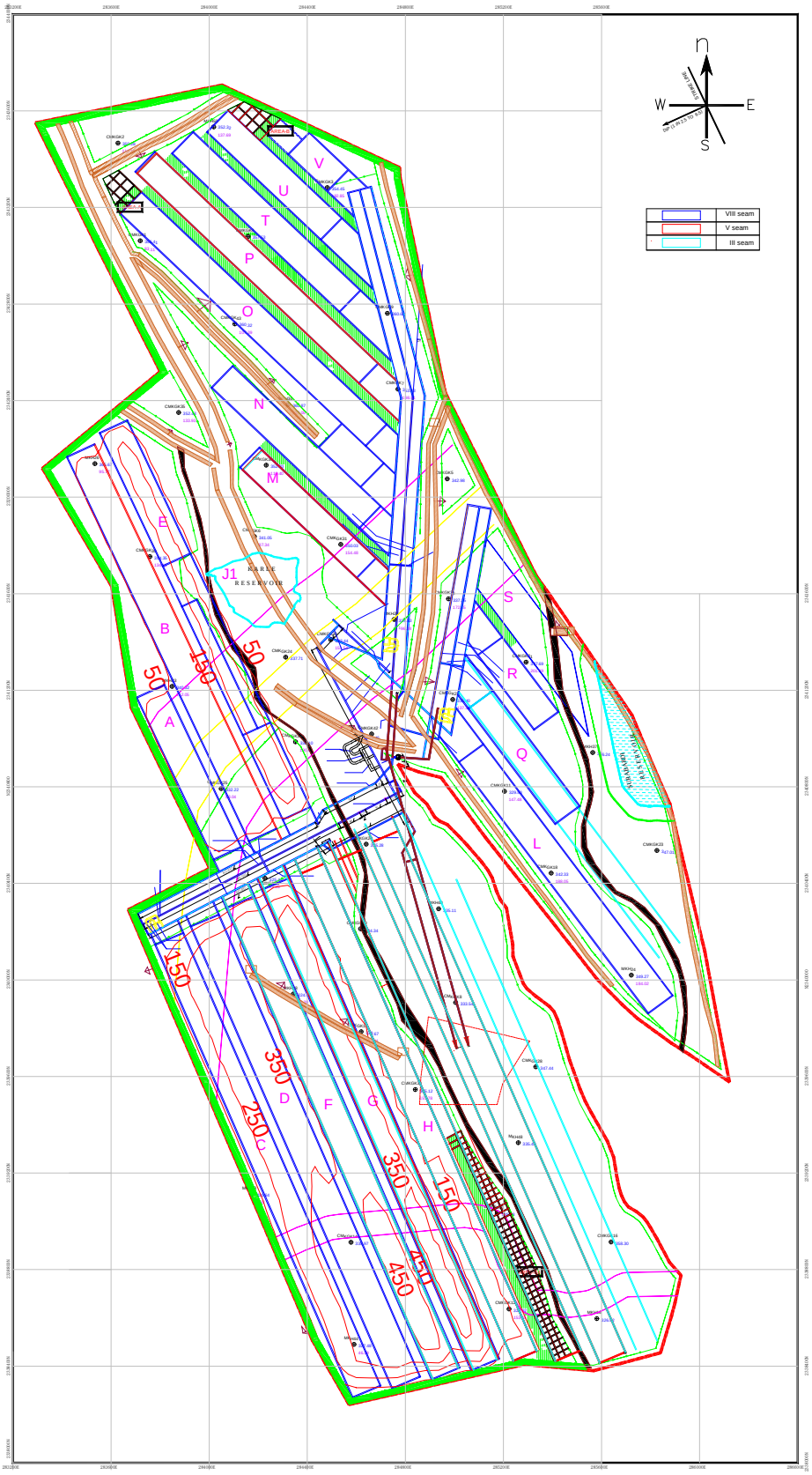


Fig. 6: Anticipated subsidence contour (mm) after 5 years

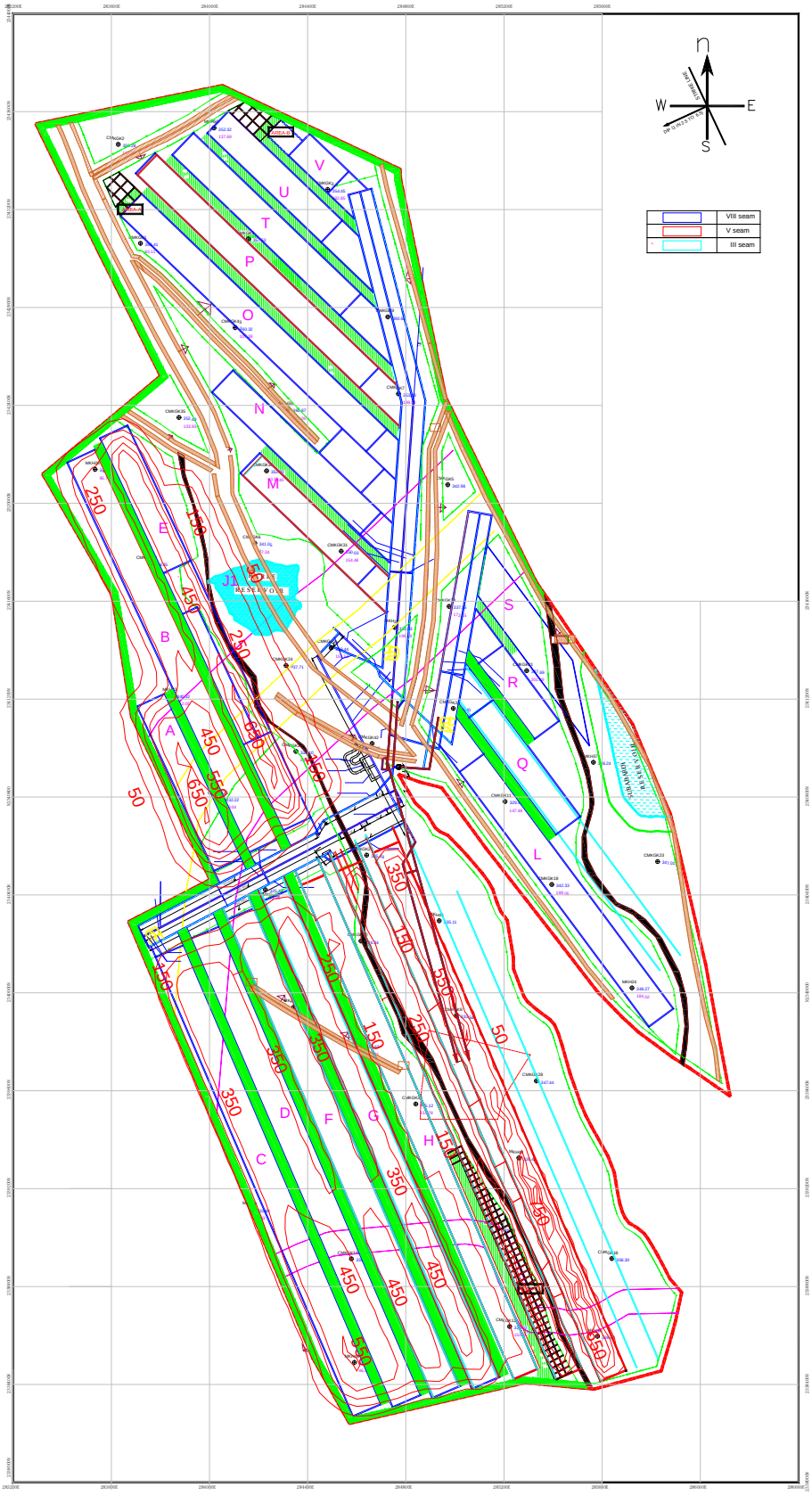


Fig. 7: Anticipated subsidence contour (mm) after 10 years

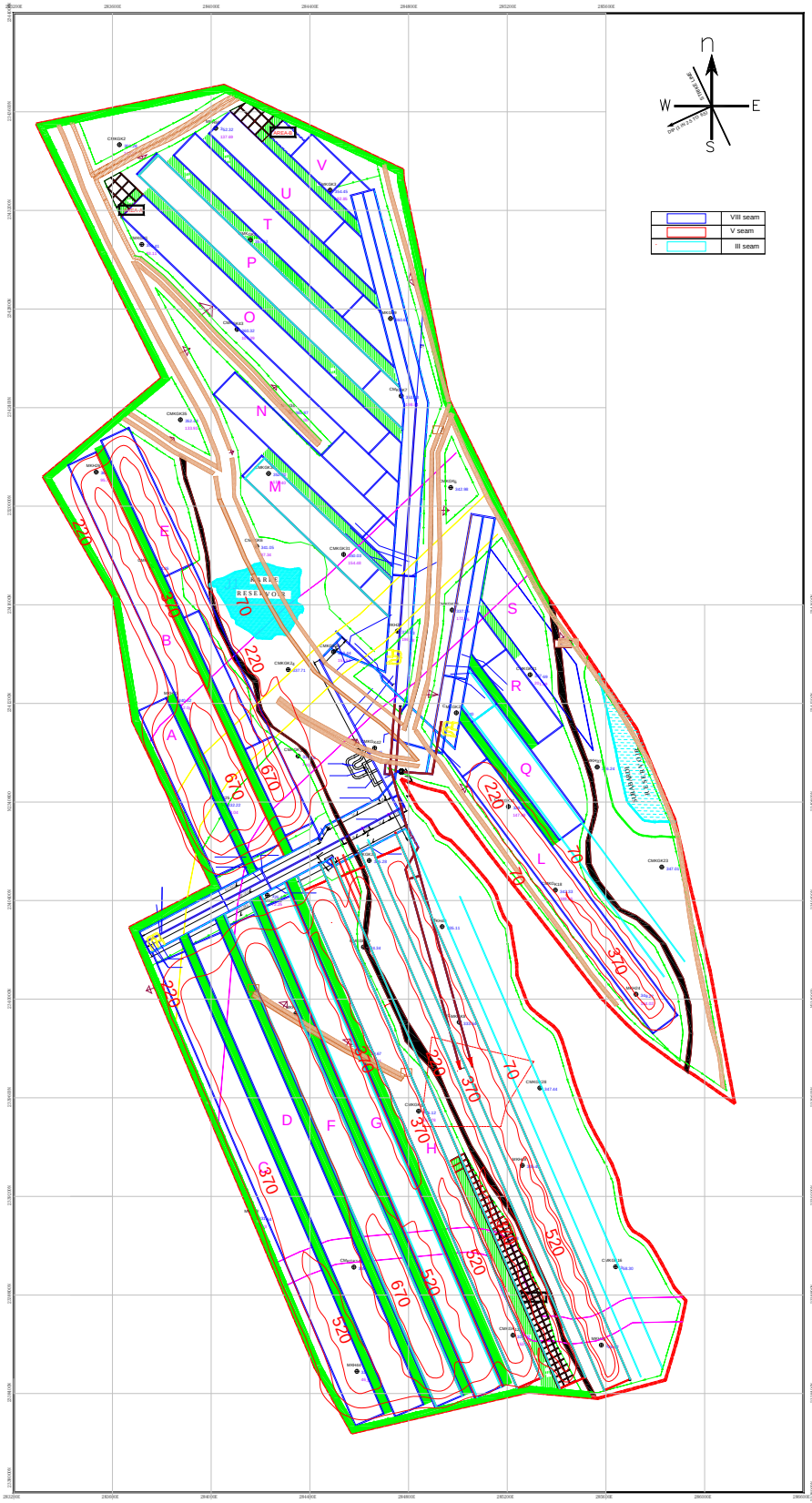


Fig. 8: Anticipated subsidence contour (mm) after 15years

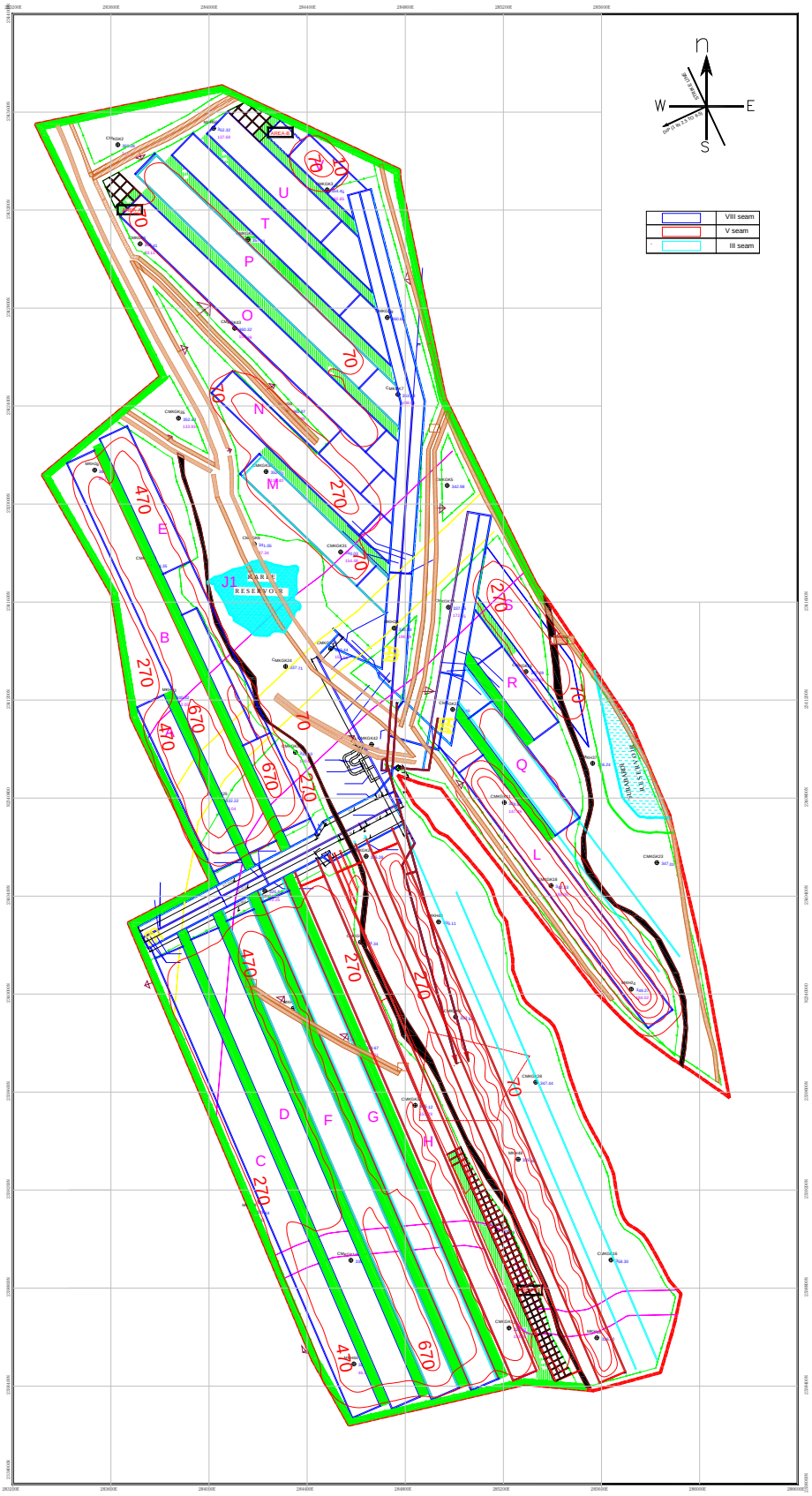


Fig. 9: Anticipated subsidence contour (mm) after 20 years

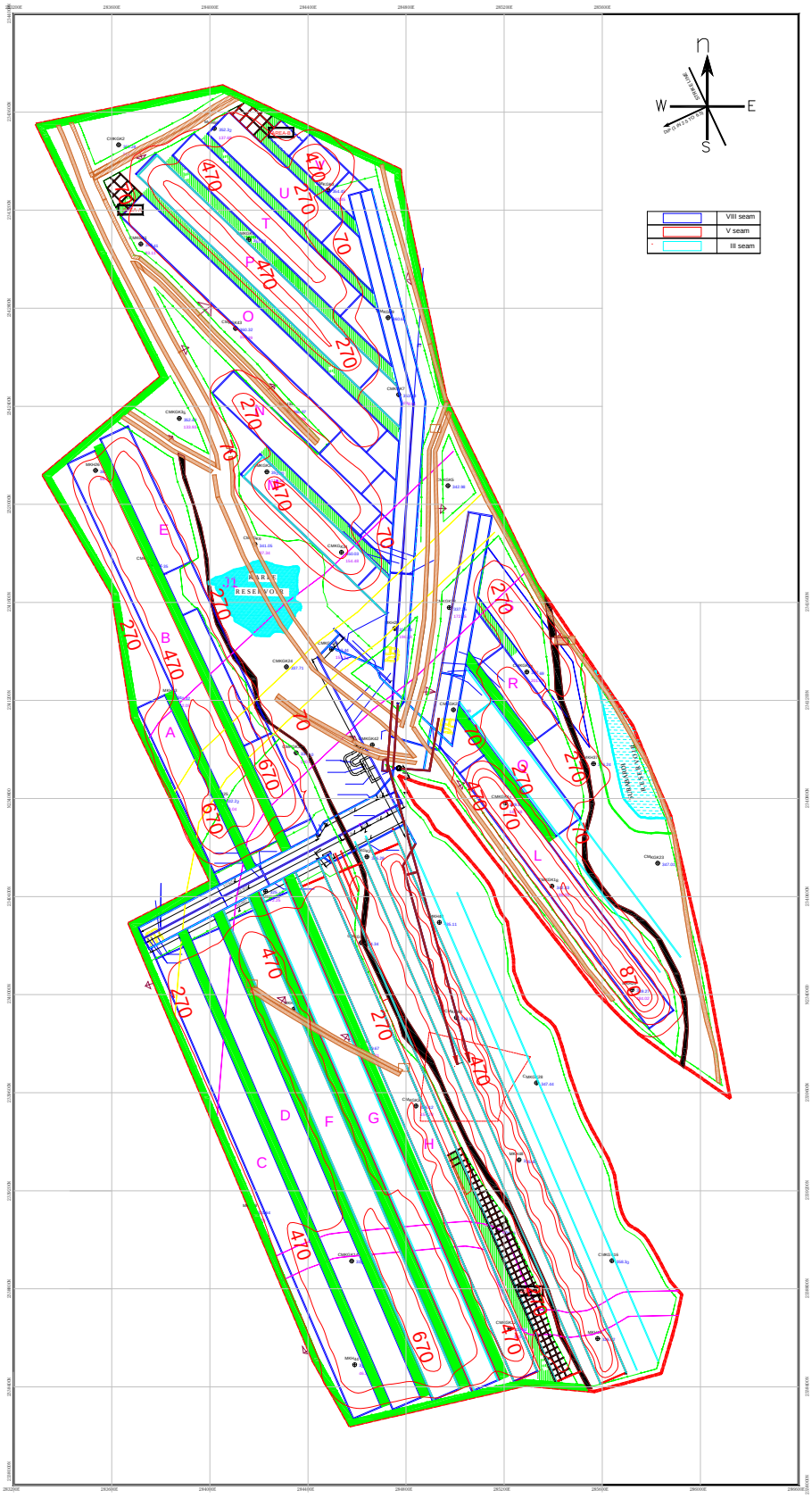


Fig. 10: Anticipated subsidence contour (mm) after 25 years

The three-dimensional view of the subsidence contour at different phases of mining is shown in Figs. 11-16.

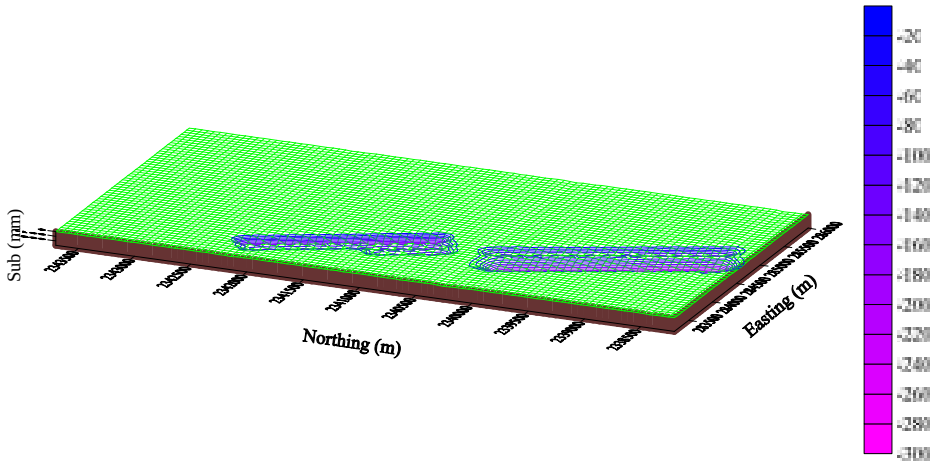


Fig. 11: View of three-dimensional subsidence contour (mm) after 3 years

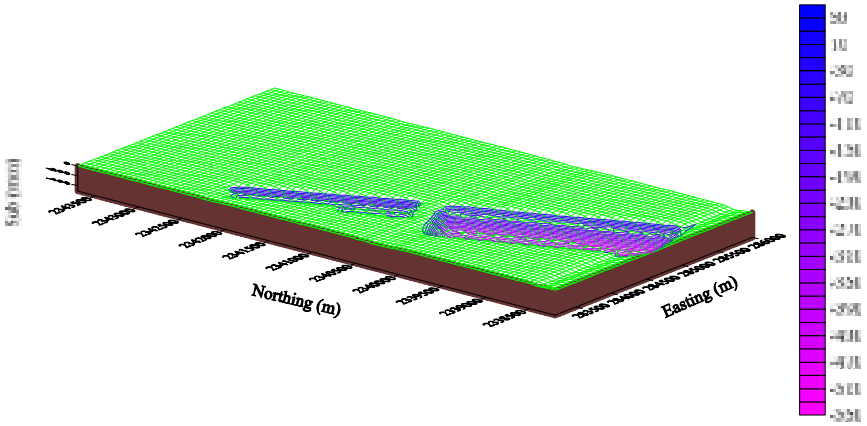


Fig. 12: View of three-dimensional subsidence contour (mm) after 5 years

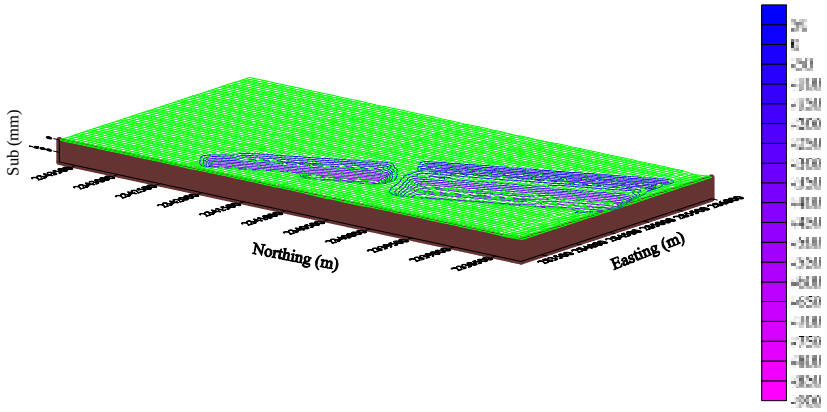


Fig. 13: View of three-dimensional subsidence contour (mm) after 10 years

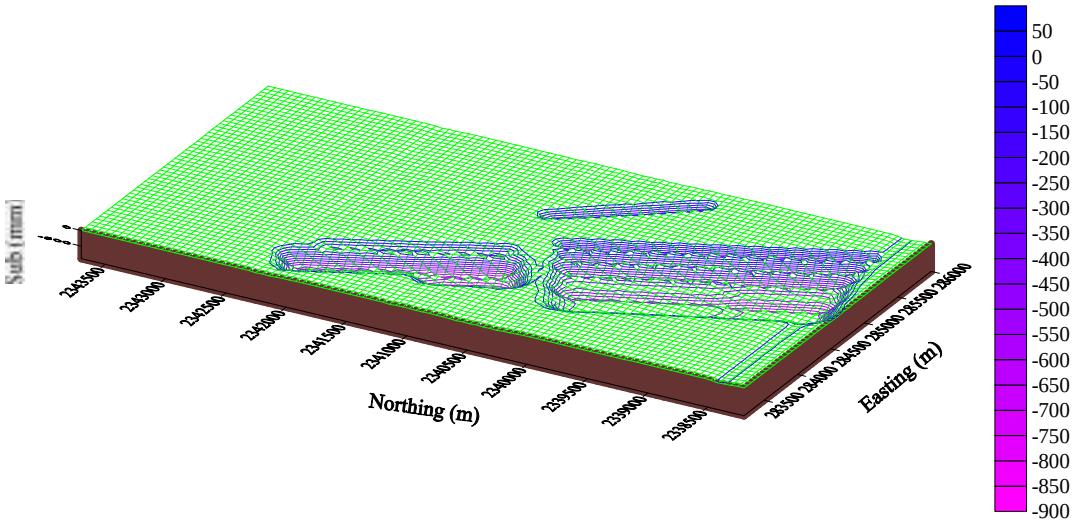


Fig. 14: View of three-dimensional subsidence contour (mm) after 15 years

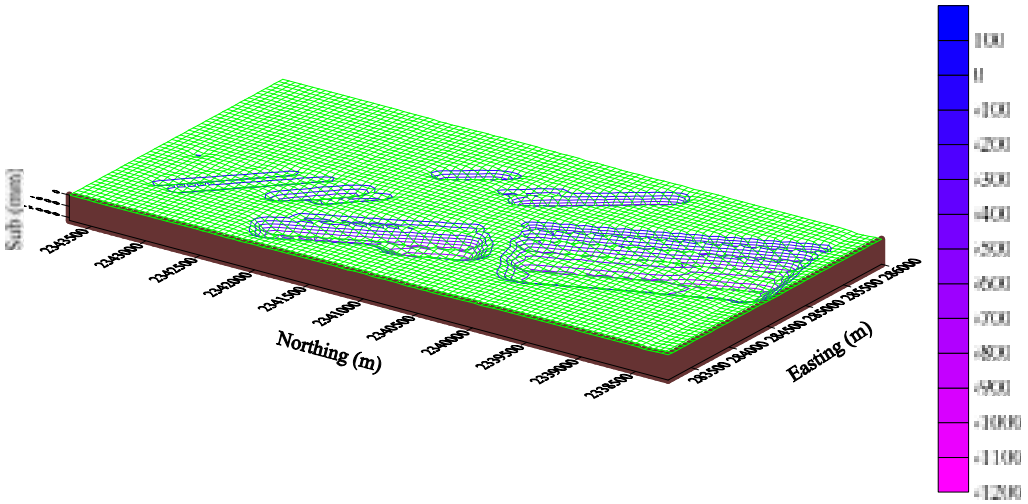


Fig. 15: View of three-dimensional subsidence contour (mm) after 20 years

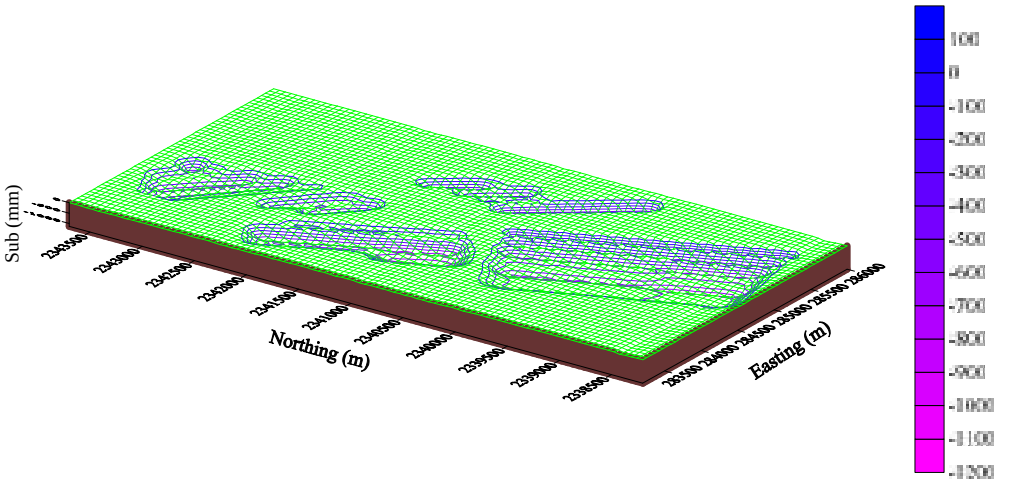


Fig. 16: View of three-dimensional subsidence contour (mm) after 25 years

10.0 SURFACE PROFILE

The surface profiles from prior to depillaring operation till end of 25 years covering the entire lease boundary of Gondkhari coal block are plotted. The status of topography prior to mining and topographical transformation after 3, 5, 10, 15, 20 and 25 years is shown in Figs. 17 to 23 respectively. The figures indicate the influence of subsidence at the surface over the depillaring panels.

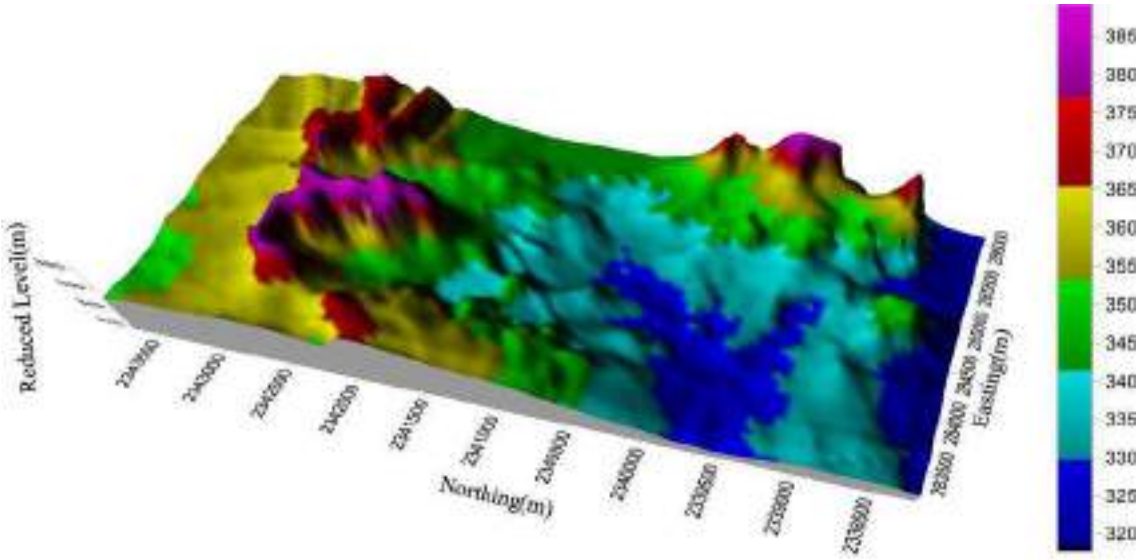


Fig. 17: 3D surface profile prior to mining

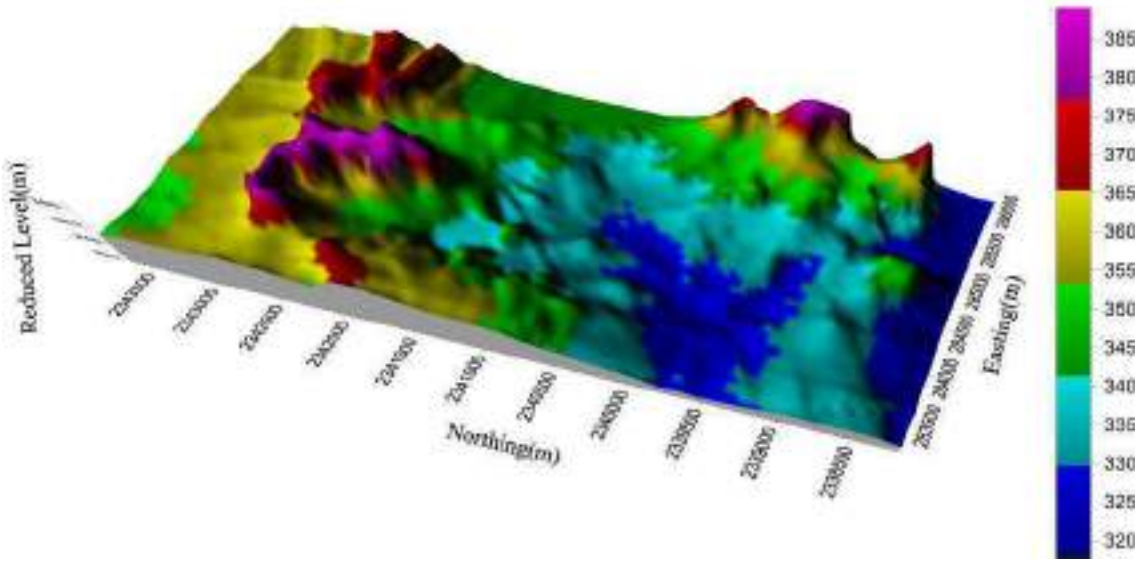


Fig. 18: 3D surface profile after 3 years

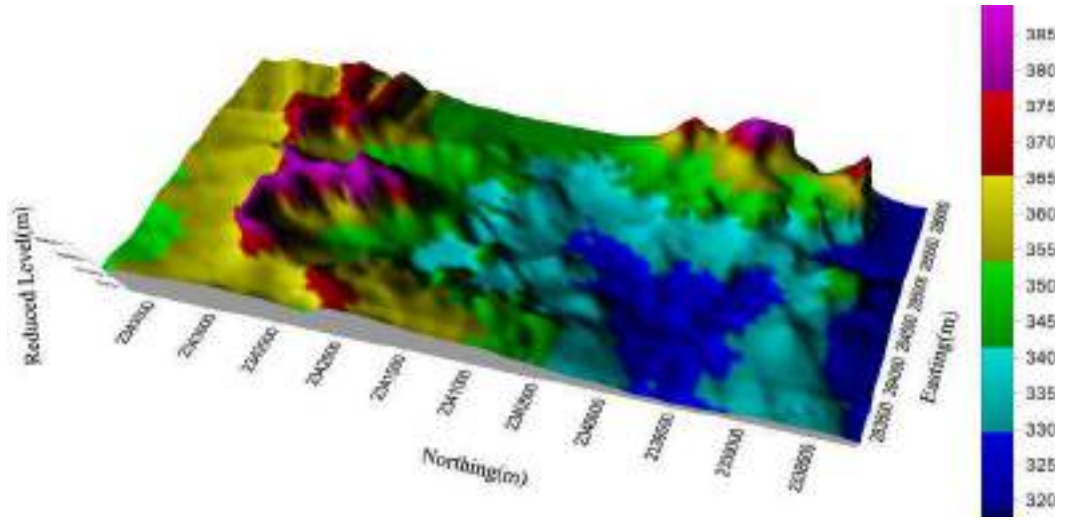


Fig. 19: 3D surface profile after 5 years

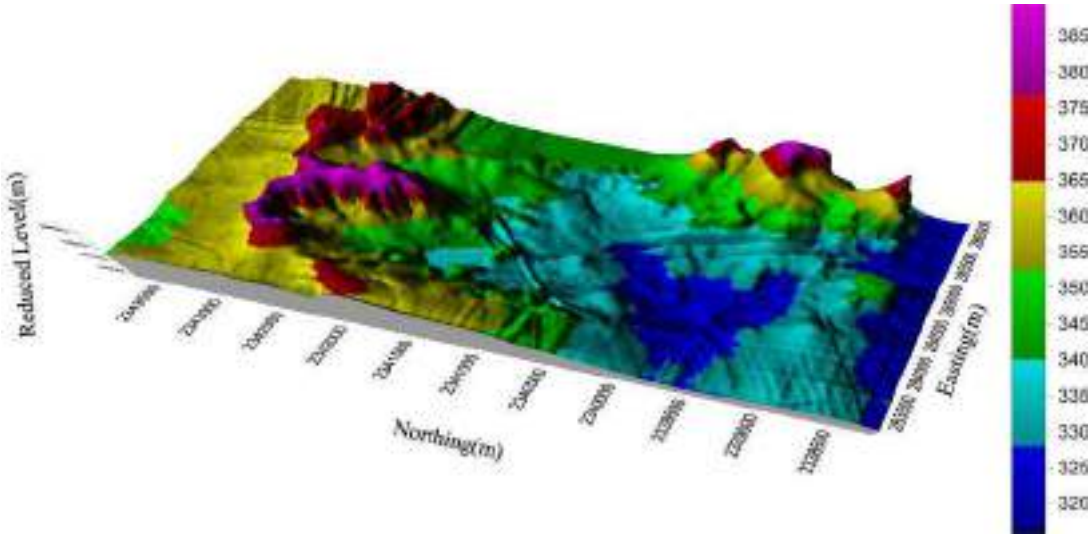


Fig. 20: 3D surface profile after 10 years

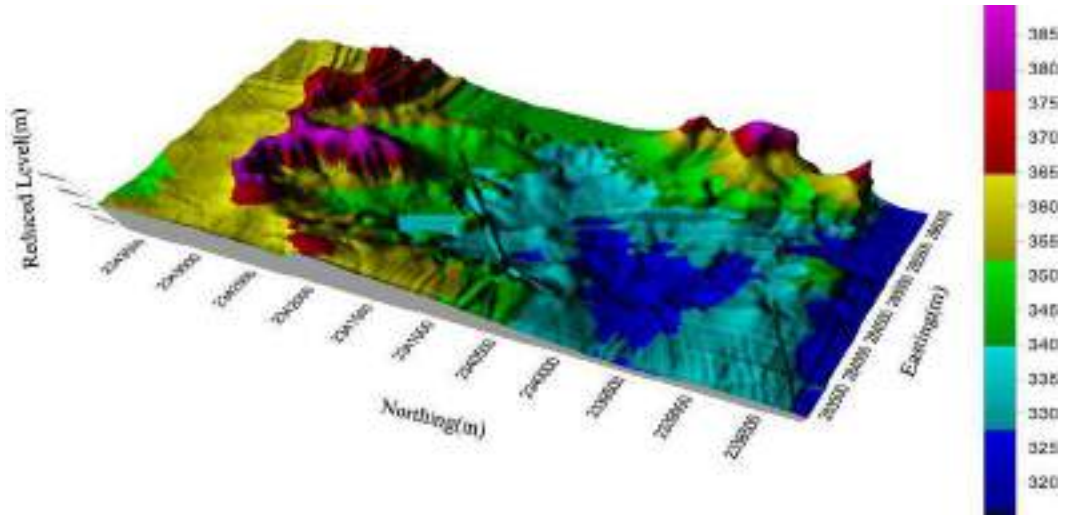


Fig. 21: 3D surface profile after 15 years

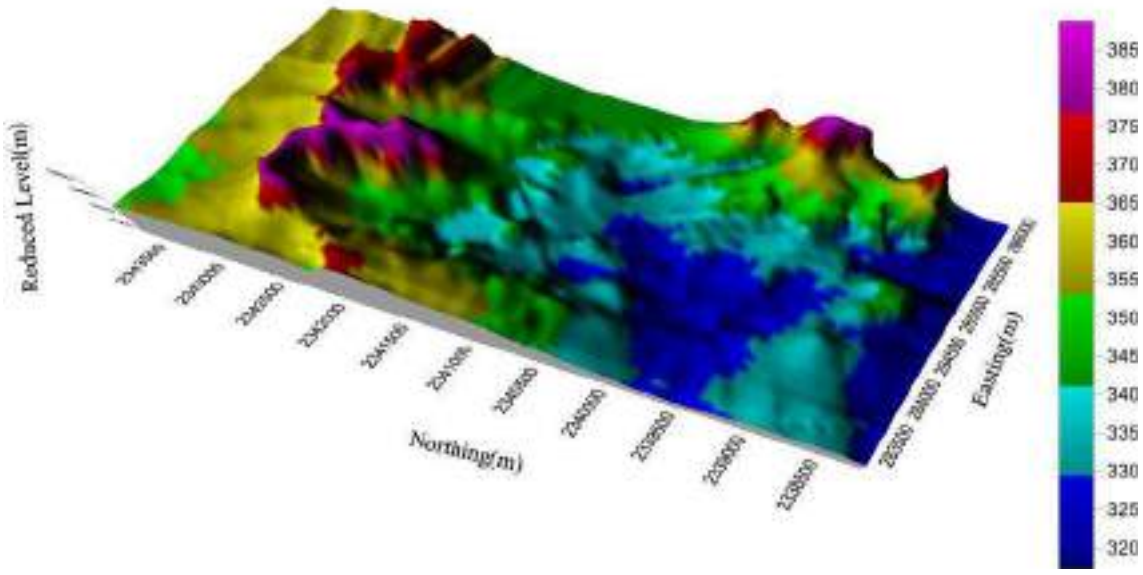


Fig. 22: 3D surface profile after 20 years

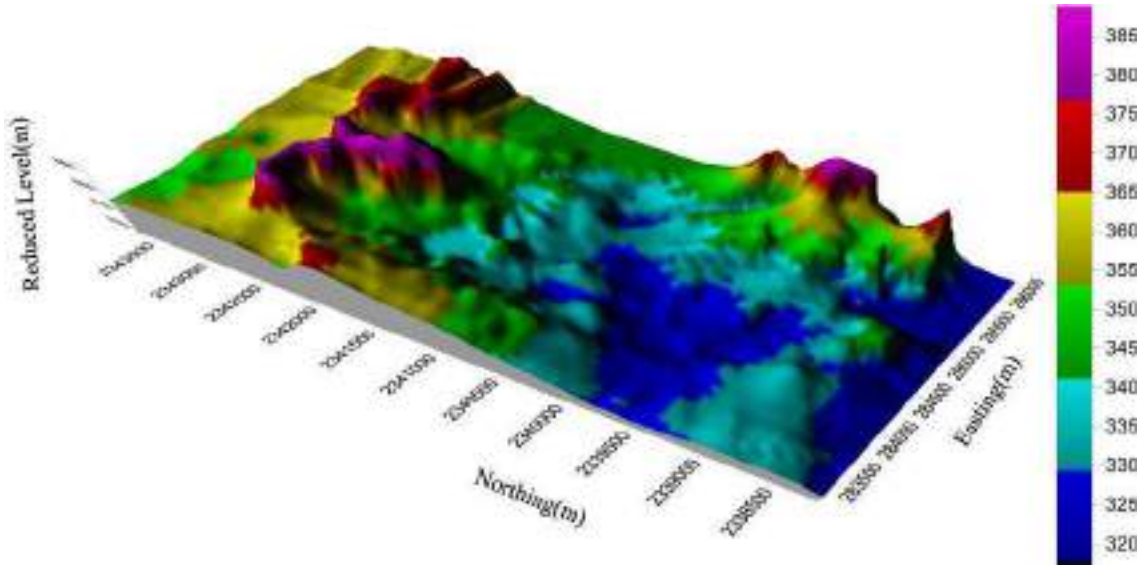


Fig. 23: 3D surface profile after 25 years

11.0 SUBSIDENCE MANAGEMENT AND REMEDIAL MEASURES

There are surface structures within the coal block. The subsidence aspects and remedial measures are proposed for the safety of surface structures and mining operation. Hence, dimension (width) of few panels was reduced from 120 m to 110 m and 100 m to restrict the tensile strain within safe limit of 3 mm/m.

The development layout for all the four seams was considered and the analysis and 3D study resulted in a tensile strain value up to a maximum of 2.95 mm/m, and the maximum

anticipated subsidence was 1160 mm after 25 years. With these parameters, it can be concluded that there will not be any crack development on surface. However, subsidence measurement should be conducted at frequent intervals to monitor the surface ground movement during the initial years of depillaring operation. The results of the observation shall be reconciled with the strain values predicted in the report. If there is any deviation from the predicted values the following mitigative measures may be considered to limit within the permissible values:

a) Further reduction in face length, wherever required.

b) Reduction in height of extraction.

Alternatively, adoption of partial/ full paste filling should be followed.

Suitable drainage, if required, should be made to avoid any water logging in the centre of subsidence troughs. The cumulative predicted maximum tensile strain at the surface of 2.95 mm/m would not cause damage to the surface structures.

12.0 CONCLUSIONS AND RECOMMENDATIONS

A total of 69 panels were proposed by the mine management to be mined from four seams (from VIII to /II) by longwall method at Gondkhari coal block located in Kamptee coalfield. The maximum anticipated tensile strain after a span of 25 years is 2.95 mm/m. The following conclusion and recommendations are proposed for workings in Gondkhari coal block:

1) The predicted maximum subsidence and tensile strain due to extraction of coal from VIII, V and III seams after twenty-five years are 1160 mm, and 2.95 mm/m respectively.
2) The predicted maximum tensile strain at the surface of 2.95 mm/m would not affect the National Highway road, high tension lines, permanent and temporary settlements, nalla, two lakes (Suraburdi lake in the periphery of eastern boundary and Karli lake in the north central part of the block) major roads and revenue forest in parts on surface
3) Suitable drainage, if necessary, should be made to avoid logging of water in the centre of subsidence troughs as it would affect the surface topography.
4) The rate of face advance of each panel should be continuous and constant.

5) Subsidence should be monitored especially for the panels located in the vicinity of the surface structures during extraction to assess the actual impact as well as for the safety perspective.

13.0 REFERNCES

Anon. (1999). Subsidence studies for development of models with special reference to multi-seam mining in India. **Coal S&T Project Report**, Central Mining Research Institute, 126 p.

Sheorey, P. R., John Loui P., Singh K. B. and Singh S. K. (2000). Ground subsidence observations and a modified influence function method for complete subsidence prediction. **International Journal of Rock Mechanics & Mining Sciences**, 37, pp 801-818.

Saxena, N. C. (2003). **Subsidence Management Handbook**, Scientific Publisher, Jodhpur, India, pp88.

Anon. (1991). Surface subsidence in mining areas. **Coal S&T Project Report**, Central Mining Research Institute, 435 p.

ANNEXURE-I

Calculation by Influence Function method

Since the workings in seams as per production program were found to be situated irregularly in three-dimensions, not always vertically superimposed, the influence function method is of great use in finding out subsidence parameters (Anon., 1999). This method is suitable for all types of depillaring workings, irrespective of shape, size or different rates of retreat of extraction in successive seams. Each infinitesimal (small) sector 'dA' is regarded as an extraction element and has its own weighting factor according to its placement in the influence circle. An influence circle has radius *H*tanθ where *H* is depth of working and θ is angle of draw (Fig. A1). The following is the modified influence function used in CIMFR – subsidence software.

$$K_z = \frac{0.532}{R^2}\left(1+\text{Cos}\frac{\pi r}{R}\right) \quad \text{--- 1}$$

Where,

K_z = influence function for subsidence,

R = radius of influence circle and

r = radial distance of sector centroid from centre of influence circle

$$\iint_{A_0} K_z dA = 1 \quad \text{--- 2}$$

Where, A_0 is the area of influence circle.

The subsidence at point P on the surface or a chosen plane of reference is simply the sum of multiplications of weighting factors and maximum possible subsidence (S_{max}), considered all the extraction elements of the proposed extraction panel. S_{max} is given as follows:

$$S_{max} = a.m.e \quad \text{--- 3}$$

Where,

a = subsidence factor

m = height of extraction and

e = percentage of extraction expressed in ratio

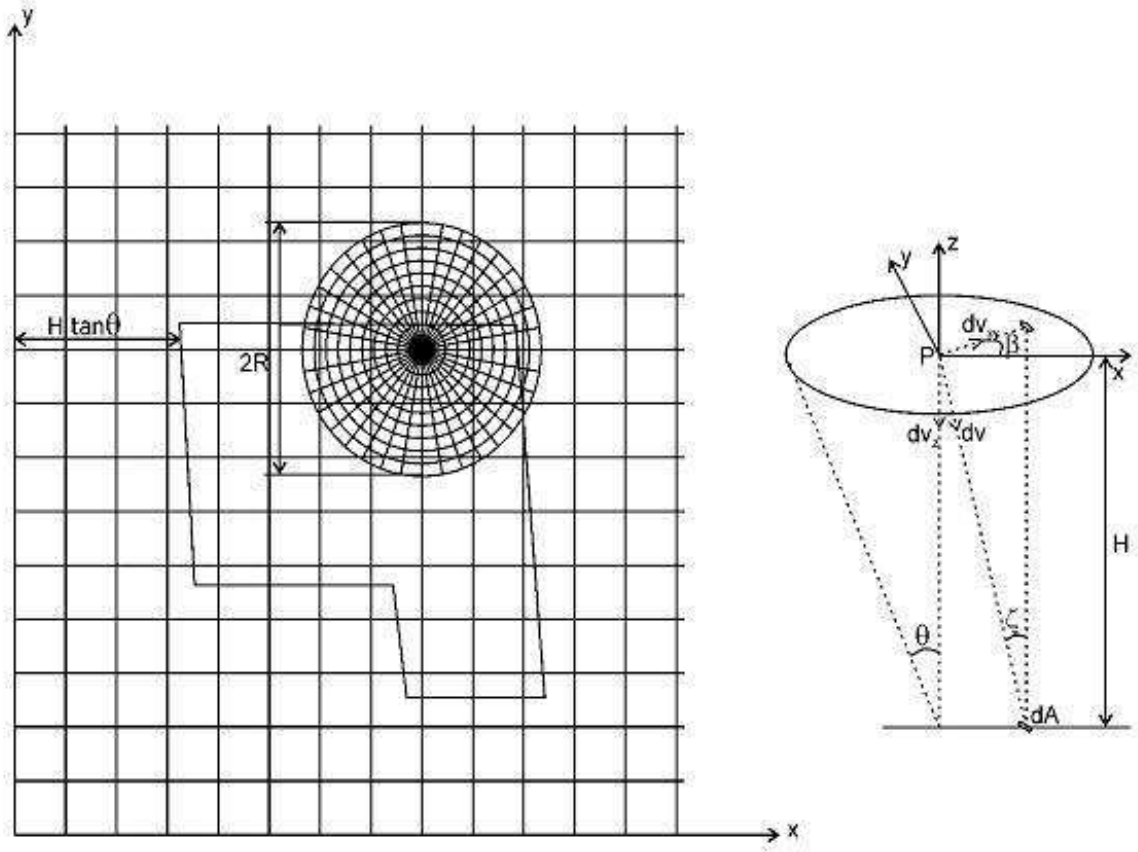


Fig. A1: Illustration of influence function method

ANNEXURE V
ENVIRONMENTAL STANDARDS

1.1 AIR ENVIRONMENT

TABLE 1.1.1

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), µg/m³	Annual*	50	20	- Improved West and Gaeke
		24 hours**	80	80	-Ultraviolet fluorescence
2	Nitrogen Dioxide (NO_2), µg/m³	Annual*	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 hours**	80	80	- Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM_{10} µg/m³	Annual*	60	60	- Gravimetric - TOEM
		24 hours**	100	100	- Beta attenuation
4	Particulate Matter (size less than 2.5µm) or $PM_{2.5}$ µg/m³	Annual*	40	40	- Gravimetric - TOEM
		24 hours**	60	60	- Beta attenuation
5	Ozone (O_3) µg/m³	8 hours**	100	100	- UV photometric - Chemilminescence
		1 hour**	180	180	- Chemical Method
6	Lead (Pb) µg/m³	Annual*	0.50	0.50	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
		24 hours**	1.0	1.0	- ED-XRF using Teflon filter
7	Carbon Monoxide (CO) mg/m³	8 hours**	02	02	- Non Dispersive Infra Red (NDIR) spectroscopy
		1 hour**	04	04	
8	Ammonia (NH_3) µg/m³	Annual*	100	100	-Chemiluminescence
		24 hours**	400	400	-Indophenol blue method
9	Benzene (C_6H_6) µg/m³	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) - particulate phase only, ng/m³	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m³	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m³	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note. — Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman
[ADVT-III/4/184/09/Exty.]

TABLE 1.1.2
LIST OF INSTRUMENTS USED FOR SAMPLING & ANALYSIS

Sr. No.	Instrument Name	Make	Model	Parameters
1	Respirable particulate sampler	Aero Vironment Engineers Inc.	RDS- 9000	RPM, SPM, SO_2, NO_X
2.	Weather Technologies data acquisition system microprocessor system for automatic monitoring of weather parameters.	Weather technologies (India Pvt. Ltd., Pune)	WDL – 1002	Wind speed, direction, temperature, relative humidity, rain gauge & solar radiation.
3.	Spectrophotometer	Systronics	166	Spectrophotometric Methods.
4.	Inductive Coupled Plasma analyser (ICPA- AE 5)	Thermo Electronics UK	6300	Metal elements in air, water, soil samples.
5.	Gas Chromatograph	Ashco	Neon Pro	PAH, organic compounds.
6.	Sound level meter	Lutron, Taiwan	SL – 4001	Noise Monitoring
7.	pH Meter	Systronics	361	pH values in water and soil samples.
8.	Conductivity meter	Systronics	308	Conductivity measurement in water samples.
9.	Turbidity Meter	Systronics	132	Turbidity Measurement in water samples
10.	Flame Photometer	Systronics	128	Sodium Potassium in Water and Soil analysis.
11.	Ion-selective electrode meter	Thermo Electronics UK	Orion star	Specific Ions measurement in Water and Soil analysis.

TABLE 1.1.3
MONITORED PARAMETERS AND FREQUENCY OF SAMPLING

Parameters	Sampling frequency
Suspended Particulate Matter	24 hourly sample twice a week for Three months
Respirable Particulate Matter	24 hourly sample twice a week for Three months
$PM_{2.5}$	24 hourly sample twice a week for Three months
Sulphur dioxide (SO_2)	24 hourly sample twice a week for Three months
Oxides of Nitrogen (NO_X)	24 hourly sample twice a week for Three months

Ozone	8 hourly samples for 24 hour twice a week for three months
Carbon Monoxide (CO)	8 hourly samples for 24 hour twice a week for three months

TABLE 1.1.4
TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

Sr. No.	Parameter	Techniques	Technical Protocol	Minimum Reportable Value ($\mu g/m^3$)
1	Total Suspended Particulate Matter	Respirable Dust Sampler (Gravimetric Method)	IS - 5182 (Part – IV)	5.0
2	Respirable Particulate Matter	Respirable Dust Sampler (Gravimetric Method)	IS - 5182 (Part – IV)	5.0
3	$PM_{2.5}$	Fine particulate sampler using WINS Impactor with low flow rate 16.7 lpm (Envirotech)	IS - 5182 (Part – IV)	5.0
4	Sulphur Dioxide	Modified West and Gaeke Method	IS - 5182 (Part – II)	4.0
5	Oxide of Nitrogen	Jacob & Hochheiser Method	IS - 5182 (Part – VI)	4.0
6	Ozone	Spectrophotometer	ASTM – D5011-92	1.0
7	Carbon Monoxide	Gas Chromatography Method	IS - 5182 (Part – X)	12.5
8	Mercury	ICP-AAS	IS - 5182 (Part - X)	1.0
9	VOC	Absorption / Adsorption over Char Coal By GCMS	-	-
10	Hydro Carbon (Methane, Non Methane & THC)	Flame Ionization Detection	-	0.05 ppm

TABLE 1.1.5
SENSITIVITY OF METEOROLOGY MONITORING EQUIPMENT

Sr. No.	Sensor	Sensitivity
1	Wind Speed Sensor	+ 0.02 m/s
2	Wind Direction Sensor	+ 3 degrees
3	Temperature Sensor	± 0.2 ° C
4	Relative Humidity	± 3%
5	Rain gauge	0.5mm
6	Solar radiation	4mV/KW/m2

1.2 WATER ENVIRONMENT

TABLE 1.2.1
GROUND WATER QUALITY STANDARDS

Sr. No.	Parameter	Units	Limits of IS : 10500 : 2012
1	pH	-	6.5 to 8.5 (NR)
2	Color	Hazen	5 (25)
3	Taste	-	Agreeable
4	Odor	-	UO
5	Dissolved Oxygen	mg/l	4 minimum
6	Electrical Conductivity	µS/cm	#
7	Turbidity	NTU	5 (10)

Sr. No.	Parameter	Units	Limits of IS : 10500 : 2012
8	Chlorides	mg/l	250 (1000)
9	Fluorides	mg/l	1.0(1.5)
10	Cyanides	mg/l	0.05 (NR)
11	Nitrate NO_3-N	mg/l	45(NR)
12	Phenolic Compounds	mg/l	0.005
13	Total Dissolved Solids (TDS)	mg/l	500 (2000)
14	Total Hardness	mg/l	300(600)
15	Sulphates as SO4	mg/l	200(400)
16	Arsenic	mg/l	0.01(NR)
17	Calcium	mg/l	75(200)
18	Magnesium	mg/l	30(100)
19	Sodium	mg/l	#
20	Potassium	mg/l	#
21	Manganese	mg/l	0.1(0.3)
22	Mercury	mg/l	0.001(NR)
23	Selenium	mg/l	0.01(NR)
24	Lead	mg/l	0.05(NR)
25	Copper	mg/l	0.05(1.5)
26	Cadmium	mg/l	0.01(NR)
27	Iron	mg/l	0.3(1.0)
28	Zinc	mg/l	5(15)
29	Boron	mg/l	1
30	E.coli	-	Absent
31	Coliform Organisms	MPN/100ml	10
32	Oil and Grease	mg/l	0.1
33	Pesticides	mg/l	absent
34	Alkalinity as $CaCO_3$	mg/l	200(600)
35	Chromium	mg/l	0.05(NR)
36	Aluminium	mg/l	0.03 (0.2)
37	Phenolic Compounds	mg/l	0.001(0.002)
38	Anioionic Detergents	mg/l	0.2(1.0)
39	Mineral Oil	mg/l	0.01(0.03)

Note : #: Limits not specified, Ag : agreeable, UO : Un- objectionable.
(): Permissible limit in absence of alternative source.

TABLE 1.2.2
WASTE WATER DISCHARGE STANDARDS

Sr. No.	List of Parameter	Units	Standard (On Land Irrigation)
1	Color and Odor	--	All efforts should be made to remove colour and upleasunt odor as far as pracativable.
2	Suspended Solids	mg/l	200
3	Particle size of Suspended Solids	--	Shall pass 850 micron IS sieve.
4	pH value	--	5.5 to 9.0
5	Temperature	°C	#
6	Oil and grease, Max.	mg/l	10.0
7	Total residual chlorine, Max.	mg/l	#
8	Ammonical nitrogen (as N), Max.	mg/l	#

Sr. No.	List of Parameter	Units	Standard (On Land Irrigation)
9	Total Kjeldhal nitrogen (as N), Max.	mg/l	#
10	Freeammonia (as NH_3), Max.	mg/l	#
11	Biochemical Oxygen Demand (3 days at 27°C)	mg/l	100.0
12	Chemical Oxygen Demand, Max.	mg/l	#
13	Arsenic (as As), Max.	mg/l	0.2
14	Mercury (as Hg), Max.	mg/l	#
15	Lead (as Pb), Max.	mg/l	#
16	Cadmium (as Cd), Max.	mg/l	#
17	Hexavalent chromium (as Cr +6), Max.	mg/l	#
18	Total chromium (as Cr), Max.	mg/l	#
19	Copper (as Cu), Max.	mg/l	#
20	Zinc (as Zn), Max.	mg/l	#
21	Selenium (as Se), Max.	mg/l	#
22	Nickel (as Ni), Max.	mg/l	#
23	Cyanide (as CN), Max.	mg/l	0.2
24	Fluorides as F	mg/l	#
25	Dissolved phosphates (as P), Max.	mg/l	#
26	Sulphides (as S), Max.	mg/l	#
27	Phenolic compounds (as C2,H5,OH), Max.	mg/l	#
28	Radioactive Materials	mg/1	#
	Alpha Emitters, Max.	mC/ml	10^{-7}
	Beta Emitters, Max.	mC/ml	10^{-7}
29	Bio-assay test	--	90% survival of fish after 96 hours in 100% effluent.
30	Manganese (as Mn)	mg/l	#
31	Iron (as Fe)	mg/l	#
32	Vanadium (as V)	mg/l	#
33	Nitrate nitrogen	mg/l	#

Note: 1. # Limits not specified

2. These standards shall be applicable for industries, operations or processes other than those industries, operations or process for which standards have been specified in Schedule of the Environment Protection Rules, 1989.

TABLE 1.2.3
SAMPLING AND HANDLING OF TEST SAMPLES

Sr. No.	Particulars	Relavent Clause	Remarks
1.	Sampling	Clause 5.7	Covered under NABL Scope
2.	Handling of test Samples	Clause 5.8	

TABLE 1.2.4
STANDARD OPERATING PROCEDURES (SOP)
FOR WATER AND WASTEWATER SAMPLING AND ANALYSIS

Sr. No.	Parameter	Sample Collection	Sample Size	Storage / Preservation
1	pH	Grab sampling Polyurithane Plastic / glass container	50 ml	On site analysis
2	Electrical Conductivity	Grab sampling Polyurithane Plastic / glass container	50 ml	On site analysis
3	Total Suspended Solids (TSS)	Grab sampling Polyurithane Plastic / glass container	100 ml	Refrigeration, can be stored for 7 days

Sr. No.	Parameter	Sample Collection	Sample Size	Storage / Preservation
4	Total Dissolved Solids (TDS)	Grab sampling Polyurithane Plastic / glass container	100 ml	Refrigeration, can be stored for 7 days
5	COD	Grab sampling Polyurithane Plastic / glass container	100 ml	Add H_2SO_4 to pH <2, refrigeration; 28 days
6	Residual Chlorine	Grab sampling Polyurithane Plastic / glass container	50 ml	On site analysis
7	Hardness	Grab sampling Polyurithane Plastic / glass container	100 ml	Add HNO_3 to pH<2, refrigeration; 6 months
8	Chlorides	Grab sampling Polyurithane Plastic / glass container	50 ml	Not required; 28 days
9	Sulphates	Grab sampling Polyurithane Plastic / glass container	100 ml	Refrigeration; 28 days
10	Sodium, Potassium	Polyurithane Plastic / glass container	100 ml	Not required; 6 months
11	Nitrates	Polyurithane Plastic / glass container	100 ml	Refrigeration; 48 hrs
12	Fluorides	Polyurithane Plastic / glass container	100 ml	Not required; 28 days
13	Alkalinity	Polyurithane Plastic / glass container	100 ml	Refrigeration; 14 days
14	Ammonia	Polyurithane Plastic / glass container	100 ml	Add HNO_3 to pH<2, refrigeration; 28 days
15	Hexavalent Chromium, Cr^{+6}	Polyurithane Plastic / glass container rinse with 1 : 1 HNO_3	100 ml	Grab sample; refrigeration; 24 hrs
16	Heavy Metals (Hg, Cd, Cr, Cu, Fe, Zn, Pb, etc.)	Polyurithane Plastic / glass container 1 : 1 HNO_3	500 ml	Filter, Add HNO_3 to pH<2; Grab sample; 6 months

TABLE 1.2.5

ANALYTICAL TECHNIQUES FOR WATER AND WASTEWATER SAMPLING AND ANALYSIS

Sr. No.	Parameter	Method
1	pH	APHA – 4500 – H^+
2	Colour	APHA – 2120 C
3	Odour	IS : 3025, Part- 4
4	Temperature	APHA – 2550 B
5	Dissolved Oxygen	APHA – 4500 O
6	BOD, 3 day @ 27° C	APHA – 5210 B
7	COD	APHA – 5220 C
8	Electrical Conductivity	APHA – 2510 B
9	Turbidity	APHA – 2130 B
10	Chlorides	APHA – 4500 CI
11	Fluorides	APHA – 4500 F
12	Phosphates	APHA – 4500 P
13	Cyanides	APHA – 4500 CN
14	NH_3 -N	APHA – 4500 NH_3
15	Nitrate NO_3-N	APHA – 4500 NO_3
16	NO_2-N	APHA – 4500 NO_2
17	Phenolic Compounds	APHA – 5530 D
18	Total Dissolved Solids (TDS)	APHA – 2540 C
19	Total Suspended Solids (TSS)	APHA – 2540 D
20	Total Hardness	APHA – 2340 C
21	Sulphates as SO4	APHA – 4500 SO_4^{-2}
22	Arsenic	APHA – 3120 B/ APHA –3114 B/ APHA –3500 AS
23	Calcium	APHA – 3120 B/ APHA –3500 CA

Annexure V : Environmental Standards

Sr. No.	Parameter	Method
24	Magnesium	APHA – 3120 B/ APHA –3500 Mg
25	Sodium	APHA – 3120 B/ APHA –3500 Na
26	Potassium	APHA – 3120 B/ APHA –3500 K
27	Manganese	APHA – 3120 B/ APHA –3500 Mn
28	Barium	APHA – 3120 B/ APHA –3500 Ba
29	Mercury	APHA – 3120 B/ APHA –3500 Hg
30	Silver	APHA – 3120 B/ APHA –3500 Ag
31	Selenium	APHA – 3120 B/ APHA – 3114 B/ APHA –3500 Se
32	Lead	APHA – 3120 B/ APHA –3500 Pb
33	Copper	APHA – 3120 B/ APHA –3500 Cu
34	Cadmium	APHA – 3120 B/ APHA –3500 Cd
35	Iron	APHA – 3120 B/ APHA –3500 Fe
36	Zinc	APHA – 3120 B/ APHA –3500 Zn
37	Nickel	APHA – 3120 B/ APHA –3500 Ni
38	Boron	APHA – 4500 B
39	Coliform Organisms	APHA – 9215 D
40	Total Organic Carbon	APHA – 5310 B
41	Oil and Grease	APHA – 5220 B
42	Pesticides	APHA – 6630 D
43	PAH	APHA – 6440 C
44	Alkalinity as CaCO3	APHA – 2320 B

1.3 SOIL ENVIRONMENT

TABLE 1.3.1
STANDARD SOIL CLASSIFICATION

Sr. No.	Soil Test	Classification
1	pH	< 4.5 Extremely acidic 4.51- 5.50 Very strongly acidic 5.51- 6.00 moderately acidic 6.01- 6.50 slightly acidic 6.51- 7.30 Neutral 7.31- 7.80 slightly alkaline 7.81- 8.50 moderately alkaline 8.51- 9.0 strongly alkaline 9.01 very strongly alkaline
2	Salinity Electrical Conductivity (µmhos/cm) (1ppm = 640 µmhos/cm)	Upto 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops (sensitive to salts)
3	Organic Carbon (%)	Upto 0.2 : very less 0.21-0.4 : less 0.41-0.5 medium, 0.51- 0.8: on an average sufficient >1.0 more than sufficient
4	Nitrogen (Kg/ha)	Upto 50 very less 51-100 less 101-150 good 151-300 Better >300 sufficient
5	Phosphorus (Kg/ha)	Upto 0.2 : very less 16-30 less 31-50 medium, 51-65 on an average sufficient 66-80 sufficient >80 more than sufficient
6	Potash (Kg/ha)	0-120 very less 120-180 less 181-240 medium, 241-300 average 301-360 Better >360 more than sufficient

TABLE 1.3.2
ANALYTICAL TECHNIQUES FOR SOIL ANALYSIS

Sr. No.	Parameter	Method
1	Grain size distribution	Sieve analysis (D 422 – 63)
2	Textural classification	Chart developed by Public Roads Administration
3	Bulk density	Sand replacement, core cutter
4	Sodium absorption ratio	Flame colourimetric (D 1428-82)
5	pH	pH meter (D 1293-84)
6	Electrical conductivity	Conductivity meter (D 1125-82)
7	Nitrogen	Kjeldahl distillation (D 3590-84)
8	Phosphorus	Molybdenum blue, colourimetric (D 515-82)
9	Potassium	Flame photometric (D 1428-82)
10	Copper	AAS (D 1688-84)
11	Iron	AAS (D 1068-84)
12	Zinc	AAS (D 1691-84)

Sr. No.	Parameter	Method
13	Boron	Surcumin, colourimetric (D 3082-79)
14	Chlorides	Argentometric (D 512-81 Rev 85)

TABLE 1.3.3
SOIL ANALYSIS PARAMETER AND UNIT

Sr. No.	Parameter	Units
1	pH (1 : 5 Aq. Extract)	---
2	Conductivity (1 : 5 Aq. Extract)	µS/cm
3	Texture	---
4	Sand	%
5	Silt	%
6	Clay	%
7	Bulk Density	mg/cc
8	Exchangeable Calcium as Ca	mg/kg
9	Exchangeable Magnesium as Mg	mg/kg
10	Exchangeable Sodium as Na	mg/kg
11	Available Pottassium as K	Kg/ ha
12	Available Phosphorous as P	Kg/ ha
13	Available Nitrogen as N	Kg/ ha
14	Organic Matter	%
15	Organic Carbon	%
16	Water Soluble Chloride as Cl^+	mg/kg
17	Water Soluble Sulphate as SO_4	mg/kg
18	Sodium Absorption Ratio	---
19	Aluminium	%
20	Total Iron	%
21	Manganese	mg/kg
22	Zinc	mg/kg
23	Boron	mg/kg

1.4 NOISE ENVIRONMENT

TABLE 1.4.1
AMBIENT NOISE STANDARDS

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

Note :*Day time is from 6 am to 10 pm.

****** Silence zone is defined as area up to 100-m around premises of hospitals, educational institutions and courts. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones.

TABLE 1.4.2
STANDARD FOR OCCUPATIONAL EXPOSURE

Total Time of Exposure per Day in Hours (Continuous or Short term Exposure)	Sound Pressure Level in dB (A)
8	90
6	92
4	95
3	97
2	100
3/2	102
1	105
¾	107
½	110
¼	115
Never	>115

Note:

1. No exposure in excess of 115 dB (A) is to be permitted.

For any period of exposure falling in between any figure and the next higher or lower figure as indicated in column (1), the permissible level is to be determined by extrapolation on a proportionate scale.

ANNEXURE VI (A)
AIR ENVIRONMENT

2998

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Anacon Laboratories

Test Report

Report No.: ALPL/10062022/1-1		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-1
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-1) Project site- Location at North end

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
03.03.2022	72.5	32.2	8.4	23.4	0.346	6.8	6.1
07.03.2022	67.1	27.4	7.3	27.4	0.362	6.2	7.3
10.03.2022	69.4	25.8	8.6	24.5	0.366	7.1	6.6
14.03.2022	74.3	27.1	10.4	22.9	0.350	9.1	7.8
21.03.2022	57.9	24.2	9.5	25.4	0.323	7.6	7.1
24.03.2022	68.7	26.0	9.1	24.9	0.344	8.3	7.9
28.03.2022	64.9	23.2	10.2	23.4	0.331	9.8	6.9
31.03.2022	69.2	28.7	8.4	22.6	0.362	7.9	6.3
04.04.2022	71.5	35.6	9.8	20.9	0.351	8.6	7.6
07.04.2022	64.1	28.8	8.5	24.5	0.347	7.4	6.4
11.04.2022	72.3	26.3	9.7	27.4	0.333	8.7	5.6
14.04.2022	67.5	25.4	9.2	23.4	0.336	9.9	6.9
18.04.2022	73.2	34.2	9.9	22.6	0.325	7.6	6.3
21.04.2022	55.4	21.6	9.5	25.0	0.327	8.1	7.1
25.04.2022	59.7	24.1	8.6	18.1	0.341	7.9	6.9
28.04.2022	67.2	28.6	9.7	20.9	0.333	8.7	6.1
02.05.2022	65.8	31.7	8.1	24.9	0.346	6.5	5.7
05.05.2022	59.5	24.5	8.5	22.3	0.362	7.1	6.8
09.05.2022	73.2	31.2	9.5	24.2	0.369	8.1	5.3
12.05.2022	66.9	29.5	8.7	25.4	0.347	8.7	7.4
16.05.2022	64.8	27.4	9.2	21.3	0.350	9.7	6.4
19.05.2022	69.4	33.3	9.7	24.5	0.341	8.3	7.2
23.05.2022	71.7	34.4	10.2	22.6	0.331	7.6	6.8
26.05.2022	64.4	29.8	8.7	26.9	0.354	8.7	5.6
Min	**55.4**	**21.6**	**7.3**	**18.1**	**0.323**	**6.2**	**5.3**
Max	**74.3**	**35.6**	**10.4**	**28.9**	**0.369**	**9.9**	**7.9**
Avg	**67.1**	**28.4**	**9.1**	**23.8**	**0.345**	**8.1**	**6.7**
98th	**73.8**	**35.0**	**10.3**	**28.2**	**0.368**	**9.9**	**7.9**

Verified by

Shubhangi Armarkar
(Technical Manager)

Authorized Signatory

Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

Thanks for putting in your faith and trust in our services, We at Anacon Laboratories cherish our relationship.
We put in a lot of hard work to ensure that you have a seamless experience at every step of our relationship.
In order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in

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Test Report

Report No.: ALPL/10062022/1-2		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-2
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-2) Project site- Location at South end

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
03.03.2022	62.7	29.5	7.0	15.7	0.274	5.9	5.1
07.03.2022	57.5	21.8	7.4	17.0	0.283	5.1	4.6
10.03.2022	54.3	23.1	6.7	19.9	0.286	7.0	5.6
14.03.2022	52.8	18.7	6.4	18.6	0.271	5.8	5.2
21.03.2022	57.6	23.4	5.8	16.5	0.267	6.8	5.6
24.03.2022	62.4	27.3	6.2	17.4	0.281	6.5	5.9
28.03.2022	59.3	25.0	6.4	16.3	0.254	5.7	4.4
31.03.2022	63.7	28.4	7.2	17.7	0.237	6.8	5.3
04.04.2022	67.4	30.8	8.1	14.9	0.238	6.4	5.6
07.04.2022	60.2	27.2	6.4	17.6	0.224	6.9	4.2
11.04.2022	63.1	25.4	5.9	20.3	0.278	6.3	4.8
14.04.2022	60.9	23.9	6.6	19.6	0.261	6.1	5.3
18.04.2022	57.6	21.5	6.2	18.6	0.274	6.5	5.9
21.04.2022	54.9	20.8	6.6	17.8	0.263	6.0	5.0
25.04.2022	59.6	26.4	7.2	19.1	0.266	6.9	5.1
28.04.2022	57.7	21.7	5.8	18.7	0.272	6.7	5.6
02.05.2022	55.9	22.8	6.2	15.9	0.253	5.4	4.2
05.05.2022	59.2	26.1	7.3	16.2	0.269	6.1	4.8
09.05.2022	66.4	32.4	7.6	16.9	0.271	5.8	5.3
12.05.2022	61.9	24.1	7.0	18.5	0.260	6.7	5.6
16.05.2022	65.5	25.8	8.0	15.4	0.261	6.9	5.0
19.05.2022	58.9	27.9	7.3	18.2	0.248	6.1	5.4
23.05.2022	57.2	26.1	7.8	19.4	0.243	5.1	5.6
26.05.2022	59.5	21.6	7.6	16.3	0.280	7.4	6.1
Min	**52.8**	**18.7**	**5.8**	**14.9**	**0.224**	**5.1**	**4.2**
Max	**67.4**	**32.4**	**8.1**	**20.3**	**0.286**	**7.4**	**6.1**
Avg	**59.8**	**25.1**	**6.9**	**17.6**	**0.263**	**6.3**	**5.2**
98th	**66.9**	**31.7**	**8.1**	**20.1**	**0.285**	**7.2**	**6.0**

Verified by

Shubhangi Armarkar
(Technical Manager)

Authorized Signatory

Dr. (Mrs.) S.D. Garway
(Quality Manager)

End of Report

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Test Report

Report No.: ALPL/10062022/1-3		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-3
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-3) Kalambi

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
03.03.2022	48.5	20.9	6.6	13.8	0.239	6.3	5.3
07.03.2022	51.9	18.5	5.8	12.5	0.246	5.1	4.9
10.03.2022	53.6	20.3	6.7	13.4	0.258	5.9	5.1
14.03.2022	50.3	17.9	5.6	14.3	0.222	4.8	4.7
21.03.2022	47.2	16.2	6.4	13.1	0.250	6.0	4.3
24.03.2022	50.3	18.2	5.8	14.2	0.242	6.9	5.5
28.03.2022	46.2	20.3	5.3	12.3	0.235	6.4	4.6
31.03.2022	41.5	18.9	6.7	13.6	0.249	5.5	5.3
04.04.2022	47.7	22.1	5.9	13.2	0.233	7.0	5.7
07.04.2022	51.9	19.3	6.9	12.1	0.226	6.3	4.5
11.04.2022	50.1	16.9	5.2	13.6	0.236	6.5	5.4
14.04.2022	56.6	20.0	6.9	14.4	0.229	6.0	5.1
18.04.2022	48.3	18.2	6.7	16.1	0.246	6.3	5.7
21.04.2022	53.4	16.6	5.2	12.6	0.232	5.4	5.3
25.04.2022	50.5	18.5	5.8	11.4	0.251	6.5	4.5
28.04.2022	47.8	20.6	5.9	12.1	0.229	5.5	5.2
02.05.2022	51.2	19.3	6.7	13.3	0.220	4.8	5.3
05.05.2022	54.8	15.8	5.3	13.9	0.215	5.4	4.6
09.05.2022	49.9	18.9	4.8	11.9	0.230	5.9	5.5
12.05.2022	44.4	17.9	5.6	13.1	0.243	5.1	4.9
16.05.2022	47.3	16.3	5.2	14.2	0.223	5.7	6.2
19.05.2022	45.6	18.2	6.4	12.7	0.244	6.0	5.3
23.05.2022	49.4	19.3	5.3	13.7	0.225	5.4	4.6
26.05.2022	51.4	17.3	5.9	11.6	0.216	5.9	5.1
Min	**41.5**	**15.8**	**4.8**	**11.4**	**0.215**	**4.8**	**4.3**
Max	**56.6**	**22.1**	**6.9**	**15.1**	**0.258**	**7.0**	**6.2**
Avg	**49.6**	**18.6**	**5.9**	**13.2**	**0.235**	**5.9**	**5.1**
98th	**55.8**	**21.5**	**6.9**	**14.8**	**0.255**	**7.0**	**6.0**

Verified by
Shubhangi Amarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-4		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-4
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-4) Waddhamna

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
03.03.2022	65.5	28.0	13.8	25.6	0.393	8.1	7.5
07.03.2022	70.1	29.3	12.3	24.9	0.397	6.5	6.1
10.03.2022	63.6	28.4	12.9	23.9	0.393	7.7	6.4
14.03.2022	59.9	26.2	11.3	23.6	0.378	7.4	6.2
21.03.2022	64.2	30.1	12.4	25.7	0.407	8.8	7.5
24.03.2022	67.7	29.7	10.4	26.3	0.390	8.0	6.9
28.03.2022	69.6	27.6	10.7	22.4	0.385	7.5	6.5
31.03.2022	71.7	32.2	11.8	23.2	0.397	6.4	5.9
04.04.2022	69.2	30.8	10.7	25.0	0.374	7.5	6.7
07.04.2022	77.2	34.0	11.3	21.4	0.421	6.7	6.1
11.04.2022	70.7	30.7	10.4	24.9	0.401	8.6	6.8
14.04.2022	66.4	28.8	12.1	26.4	0.359	9.0	7.3
18.04.2022	71.5	29.0	12.6	23.2	0.397	8.1	6.8
21.04.2022	70.1	33.2	9.4	24.5	0.369	7.3	7.0
25.04.2022	64.5	31.4	10.4	26.0	0.353	7.6	6.4
28.04.2022	61.2	33.6	11.3	22.4	0.364	8.6	8.0
02.05.2022	65.5	31.1	12.4	25.7	0.340	8.0	6.9
05.05.2022	67.7	27.3	11.3	24.1	0.328	9.2	8.3
09.05.2022	69.0	31.5	8.9	26.6	0.385	7.6	6.4
12.05.2022	70.2	29.3	10.4	24.9	0.377	8.5	7.5
16.05.2022	67.1	27.8	11.5	26.0	0.369	8.2	6.7
19.05.2022	72.4	30.0	12.6	24.5	0.372	8.9	8.1
23.05.2022	73.3	32.6	11.3	23.8	0.353	6.9	6.2
26.05.2022	69.3	30.1	13.3	25.7	0.342	7.7	5.9
Min	**59.9**	**26.2**	**8.9**	**21.4**	**0.328**	**6.4**	**5.9**
Max	**77.2**	**34.0**	**13.8**	**26.6**	**0.421**	**9.2**	**8.3**
Avg	**68.2**	**30.1**	**11.5**	**24.6**	**0.377**	**7.9**	**6.8**
98th	**75.4**	**33.8**	**13.6**	**26.5**	**0.415**	**9.1**	**8.2**

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-5		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-5
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-5) Carmel Academy CBSE

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
04.03.2022	60.1	29.7	9.2	22.1	0.382	7.7	5.6
08.03.2022	64.4	26.3	8.1	19.6	0.371	6.3	6.3
11.03.2022	66.7	28.7	9.7	21.6	0.388	7.2	7.1
15.03.2022	62.3	25.5	7.9	22.6	0.338	5.9	6.1
22.03.2022	58.5	22.9	8.9	19.0	0.377	7.3	5.6
25.03.2022	62.3	25.9	6.8	21.8	0.366	8.5	5.1
29.03.2022	57.4	28.8	7.4	20.1	0.356	7.8	5.9
01.04.2022	51.6	26.8	9.3	25.8	0.374	6.9	6.4
05.04.2022	59.2	31.3	8.2	20.9	0.354	8.6	6.3
08.04.2022	64.4	27.4	9.7	24.4	0.344	7.7	5.7
12.04.2022	62.1	23.9	7.2	21.8	0.358	8.0	7.7
15.04.2022	70.2	28.3	9.7	20.4	0.348	7.5	6.5
19.04.2022	59.9	25.9	9.3	22.6	0.371	7.7	7.9
22.04.2022	66.2	23.6	6.6	22.1	0.352	6.5	6.2
26.04.2022	62.6	26.3	9.0	20.9	0.378	8.0	5.7
29.04.2022	59.3	29.3	8.2	20.1	0.348	6.9	6.6
03.05.2022	63.6	27.4	9.3	18.7	0.335	5.9	6.9
06.05.2022	68.0	22.4	7.4	21.6	0.328	6.5	5.9
10.05.2022	61.9	26.8	6.6	24.4	0.350	7.3	7.1
13.05.2022	55.0	25.5	7.9	20.9	0.367	6.3	6.3
17.05.2022	58.6	23.0	7.2	20.1	0.339	7.0	7.9
20.05.2022	56.5	25.9	8.9	22.3	0.368	7.5	5.9
24.05.2022	61.3	27.4	6.8	16.1	0.343	6.5	6.3
27.05.2022	63.7	24.5	9.2	18.7	0.329	7.2	5.7
Min	**51.6**	**22.4**	**6.6**	**16.1**	**0.328**	**5.9**	**5.1**
Max	**70.2**	**31.3**	**9.7**	**25.8**	**0.388**	**8.6**	**7.9**
Avg	**61.5**	**26.4**	**8.2**	**21.2**	**0.356**	**7.2**	**6.4**
98th	**69.2**	**30.6**	**9.7**	**25.2**	**0.383**	**8.6**	**7.9**

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-6		**Date:** 10/06/2022	
Issued to	**M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)		
Sample Type	**Ambient Air Quality**	**Inward No.**	2022/EIA-44-6
Sample Drawn By:	Anacon Representative	**Sample Received Date**	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	**Sampling Time**	24 hrs

Ambient Air Quality (AAQ-6) Ketapar

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
04.03.2022	50.9	20.1	6.9	18.1	0.303	7.6	6.2
08.03.2022	53.1	23.5	8.4	16.7	0.292	6.3	5.8
11.03.2022	55.5	21.6	7.5	15.5	0.316	6.7	5.4
15.03.2022	56.9	23.9	8.8	19.1	0.349	5.6	4.8
22.03.2022	49.5	19.4	8.3	17.2	0.367	6.2	5.7
25.03.2022	54.6	24.5	9.2	19.9	0.318	7.1	6.7
29.03.2022	59.2	22.4	7.9	18.9	0.340	7.5	5.9
01.04.2022	63.9	27.5	7.1	18.0	0.278	7.9	5.4
05.04.2022	58.3	24.1	8.6	16.7	0.376	7.8	6.3
08.04.2022	55.1	21.9	7.4	14.9	0.337	7.2	5.8
12.04.2022	62.5	26.4	6.4	14.0	0.314	5.4	6.7
15.04.2022	56.8	23.0	7.9	16.1	0.351	5.6	5.4
19.04.2022	53.9	24.5	7.1	16.3	0.302	6.9	4.8
22.04.2022	60.3	26.9	8.0	14.3	0.339	7.6	6.9
26.04.2022	55.5	24.9	7.9	18.4	0.312	5.4	5.4
29.04.2022	53.3	23.6	6.9	16.1	0.282	6.1	6.2
03.05.2022	51.9	21.6	7.7	17.4	0.302	7.1	5.7
06.05.2022	55.3	20.5	6.6	15.2	0.289	7.6	6.7
10.05.2022	58.2	23.8	8.0	14.3	0.303	6.1	5.5
13.05.2022	62.8	25.3	8.4	15.5	0.327	6.4	6.2
17.05.2022	54.3	22.4	7.4	16.3	0.301	7.2	6.4
20.05.2022	58.2	26.4	7.7	14.0	0.312	6.4	5.7
24.05.2022	61.5	24.5	8.6	16.5	0.333	6.9	6.1
27.05.2022	54.6	23.5	8.4	14.3	0.314	6.3	5.3
Min	**49.5**	**19.4**	**6.0**	**14.0**	**0.278**	**5.4**	**4.8**
Max	**63.9**	**27.5**	**9.2**	**19.9**	**0.376**	**7.9**	**6.9**
Avg	**56.5**	**23.6**	**7.6**	**16.4**	**0.319**	**6.7**	**5.9**
98th	**63.4**	**27.2**	**9.0**	**19.5**	**0.372**	**7.8**	**6.8**

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-7		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-7
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-7) Alesar

Date	PM10 µgim³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
04.03.2022	59.5	26.3	8.2	16.4	0.395	7.5	7.2
08.03.2022	62.2	28.8	9.1	19.9	0.423	8.2	7.6
11.03.2022	60.8	28.9	9.3	17.7	0.410	8.9	8.3
15.03.2022	62.9	31.7	10.4	19.8	0.365	9.6	9.1
22.03.2022	61.8	28.2	9.2	18.5	0.414	9.1	8.4
25.03.2022	65.3	30.3	8.3	20.8	0.408	7.5	7.7
29.03.2022	66.0	25.8	7.0	16.1	0.382	8.1	6.9
01.04.2022	70.6	29.6	9.9	17.1	0.409	7.5	6.0
05.04.2022	67.3	27.6	7.6	19.4	0.368	8.9	7.6
08.04.2022	71.6	30.3	8.6	14.8	0.370	6.4	6.6
12.04.2022	66.5	33.0	7.4	19.0	0.351	8.3	8.3
15.04.2022	63.9	25.8	9.1	21.3	0.333	9.8	7.4
19.04.2022	67.2	28.5	10.1	17.2	0.395	8.9	6.6
22.04.2022	68.5	31.7	7.6	18.8	0.343	5.2	7.0
26.04.2022	65.1	29.7	8.3	20.9	0.330	7.6	5.8
29.04.2022	60.7	27.7	7.4	16.1	0.389	7.5	7.3
03.05.2022	63.8	27.2	8.3	20.6	0.314	9.8	8.1
06.05.2022	59.8	25.7	7.2	18.2	0.332	7.9	7.6
10.05.2022	68.0	30.3	9.4	21.4	0.355	5.5	7.3
13.05.2022	62.7	31.1	10.1	16.6	0.395	6.6	5.5
17.05.2022	65.3	29.3	8.7	19.0	0.387	8.1	7.2
20.05.2022	71.4	31.9	9.2	16.6	0.390	5.2	6.0
24.05.2022	65.8	29.9	8.2	21.1	0.371	7.2	8.3
27.05.2022	68.9	31.4	9.7	23.5	0.327	8.4	7.6
Min	**59.5**	**25.7**	**7.0**	**14.8**	**0.314**	**5.2**	**5.5**
Max	**71.6**	**33.0**	**10.4**	**23.5**	**0.423**	**9.8**	**9.1**
Avg	**65.3**	**29.1**	**8.7**	**18.8**	**0.373**	**7.8**	**7.3**
98th	**71.5**	**32.5**	**10.3**	**22.5**	**0.419**	**9.8**	**8.8**

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-8		**Date:** 10/06/2022	
Issued to		**M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	**Ambient Air Quality**	**Inward No.**	2022/EIA-44-8
Sample Drawn By:	Anacon Representative	**Sample Received Date**	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	**Sampling Time**	24 hrs

Ambient Air Quality (AAQ-8) Gondkhari

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
04.03.2022	75.3	30.8	12.1	26.8	0.402	7.1	5.4
08.03.2022	81.2	35.2	13.7	30.2	0.405	8.4	7.9
11.03.2022	78.0	32.6	14.7	27.9	0.412	7.9	6.8
15.03.2022	80.6	36.6	14.7	30.3	0.414	9.2	8.3
22.03.2022	77.2	32.1	13.5	28.7	0.419	8.6	6.9
25.03.2022	84.2	35.8	14.7	31.1	0.415	8.3	7.4
29.03.2022	77.8	32.1	12.7	28.5	0.393	9.2	7.7
01.04.2022	74.3	38.9	15.9	24.1	0.395	7.6	6.8
05.04.2022	67.5	37.1	14.5	28.3	0.380	8.9	7.4
08.04.2022	70.6	39.8	15.9	30.5	0.385	7.9	6.6
12.04.2022	75.6	36.4	15.3	27.9	0.404	9.3	7.9
15.04.2022	69.9	33.4	13.4	28.6	0.402	7.9	8.2
19.04.2022	72.4	34.3	14.6	25.5	0.398	7.9	8.6
22.04.2022	74.9	40.2	11.7	26.3	0.412	9.1	6.9
26.04.2022	69.6	37.9	11.1	24.1	0.398	7.9	8.3
29.04.2022	66.4	41.0	8.8	21.0	0.410	9.2	7.1
03.05.2022	75.2	37.2	11.2	25.3	0.404	9.4	8.6
06.05.2022	88.4	29.0	12.7	27.9	0.394	9.6	8.2
10.05.2022	68.9	31.1	11.7	29.2	0.399	7.5	7.7
13.05.2022	82.8	35.2	12.9	26.7	0.407	7.7	8.5
17.05.2022	67.3	29.3	11.2	28.7	0.383	9.1	9.2
20.05.2022	69.9	32.5	11.5	24.4	0.402	8.6	7.5
24.05.2022	73.5	36.4	13.7	28.7	0.393	9.1	7.6
27.05.2022	67.2	33.2	14.3	31.1	0.412	9.5	7.0
Min	**66.4**	**29.0**	**8.8**	**21.0**	**0.380**	**7.0**	**5.4**
Max	**88.4**	**41.0**	**15.9**	**31.1**	**0.419**	**9.6**	**9.2**
Avg	**74.5**	**34.9**	**13.2**	**27.5**	**0.402**	**8.5**	**7.6**
98th	**86.5**	**40.6**	**15.9**	**31.1**	**0.417**	**9.6**	**8.9**

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-9		Date: 10/06/2022	
Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-9
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	Sampling Time	24 hrs

Ambient Air Quality (AAQ-9) Surabardi

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
03.03.2022	65.4	24.1	10.9	19.9	0.371	6.2	4.5
07.03.2022	70.5	27.5	12.1	22.4	0.374	7.3	6.5
10.03.2022	67.7	25.5	12.3	20.7	0.38	6.9	5.6
14.03.2022	70	28.6	13.8	22.5	0.382	8	6.9
21.03.2022	67	25.1	12.2	21.3	0.387	7.5	5.7
24.03.2022	73.1	28	11	23.1	0.383	7.2	6.1
28.03.2022	67.5	25.1	9.3	19.7	0.363	8	6.4
31.03.2022	64.5	30.4	13.1	17.9	0.365	6.6	5.6
04.04.2022	58.7	29	10.1	21	0.351	7.8	6.1
07.04.2022	61.3	31.1	11.4	22.6	0.355	6.1	5.5
11.04.2022	65.6	28.5	9.8	20.7	0.373	8.1	6.5
14.04.2022	60.7	26.1	12.1	21.2	0.371	6.9	6.8
18.04.2022	62.8	26.8	13.4	18.9	0.367	6.9	7.1
21.04.2022	65	31.4	10.1	19.5	0.38	7.9	5.7
25.04.2022	60.4	29.6	11	17.9	0.367	6.9	6.9
28.04.2022	57.6	32.1	9.8	15.6	0.378	8	5.9
02.05.2022	65.3	29.1	11	18.8	0.373	8.2	7.1
05.05.2022	76.7	22.7	9.5	20.7	0.364	8.4	6.8
09.05.2022	59.8	24.3	12.5	21.7	0.368	6.6	6.4
12.05.2022	71.9	27.5	13.4	19.8	0.376	6.7	7
16.05.2022	56.4	22.9	11.5	21.3	0.363	7.9	7.6
19.05.2022	60.7	25.4	12.2	18.1	0.371	7.5	6.2
23.05.2022	63.8	28.5	10.9	21.3	0.363	7.9	6.3
26.05.2022	58.3	26	12.8	23.1	0.38	8.3	5.8
Min	**57.6**	**22.7**	**9.3**	**15.6**	**0.351**	**6.1**	**4.5**
Max	**76.7**	**32.1**	**13.8**	**23.1**	**0.387**	**8.4**	**7.6**
Avg	**64.7**	**27.3**	**11.5**	**20.4**	**0.371**	**7.4**	**6.3**
98th	**75.0**	**31.8**	**13.6**	**23.1**	**0.385**	**8.4**	**7.4**

Verified by
Shubhangi Ambarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/10062022/1-10		**Date:** 10/06/2022	
Issued to		**M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	**Ambient Air Quality**	**Inward No.**	2022/EIA-44-10
Sample Drawn By:	Anacon Representative	**Sample Received Date**	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022	**Sampling Time**	24 hrs

Ambient Air Quality (AAQ-10) Khapri

Date	PM10 µg/m³	PM2.5 µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH3 µg/m³
04.03.2022	51.9	23.1	8.1	17.4	0.298	6.6	4.6
08.03.2022	55.6	20.4	7.1	15.6	0.305	5.4	5.4
11.03.2022	57.6	22.3	8.5	17.0	0.319	6.2	6.1
15.03.2022	53.8	19.8	6.9	17.6	0.278	5.1	5.2
22.03.2022	50.5	17.6	7.8	15.0	0.310	6.3	4.8
25.03.2022	53.8	20.1	6.0	17.2	0.301	7.3	4.4
29.03.2022	49.5	22.4	6.5	15.6	0.293	6.7	5.1
01.04.2022	44.5	20.6	8.2	20.3	0.308	5.9	5.5
05.04.2022	51.1	24.3	7.2	16.5	0.291	7.4	5.4
08.04.2022	55.6	21.3	8.5	19.2	0.283	6.6	4.9
12.04.2022	53.6	18.6	6.3	17.2	0.295	6.9	6.6
15.04.2022	60.6	22.0	8.5	16.1	0.286	6.4	5.6
19.04.2022	51.7	20.1	8.2	17.8	0.305	6.6	6.8
22.04.2022	57.1	18.3	6.0	17.4	0.290	5.6	5.3
26.04.2022	54	20.4	7.0	16.5	0.311	6.9	4.9
29.04.2022	51.2	22.6	7.2	15.8	0.286	5.9	5.7
03.05.2022	54.9	21.3	8.2	14.7	0.276	5.1	5.9
06.05.2022	58.7	17.4	6.5	17.2	0.270	5.5	5.1
10.05.2022	53.4	20.6	5.8	19.2	0.268	6.3	6.1
13.05.2022	47.5	19.8	6.9	16.5	0.302	5.4	5.4
17.05.2022	50.6	17.9	6.3	15.8	0.279	6.0	6.8
20.05.2022	48.8	20.1	7.8	17.6	0.303	6.4	5.9
24.05.2022	52.9	21.3	6.0	12.7	0.282	5.6	5.4
27.05.2022	55	19	7.2	14.7	0.271	6.2	4.9
Min	**44.5**	**17.4**	**5.8**	**12.7**	**0.270**	**5.1**	**4.4**
Max	**60.6**	**24.3**	**8.5**	**20.3**	**0.319**	**7.4**	**6.8**
Avg	**53.1**	**20.5**	**7.2**	**16.7**	**0.293**	**6.2**	**5.5**
98th	**59.7**	**23.7**	**8.5**	**19.8**	**0.315**	**7.4**	**6.8**

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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Test Report

Report No.: ALPL/05042023/1-1		**Date:** 05/04/2023	
Issued to		**M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	**Ambient Air Quality**	**Inward No.**	2023/EIA-8-1
Sample Drawn By:	Anacon Representative	**Sample Received Date**	13, 20, 27, 30 March-2023
Date of Analysis:-	14, 21, 28, 31 March-2023	**Sampling Time**	24 hrs

Ambient Air Quality (AAQ-11) Sahuli

Date	PM10	PM2.5	SO_2	NO_2	CO	Ozone	NH3
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	µg/m³
03.03.2023	59.8	26.2	7.9	8.9	0.316	6.4	6.2
06.03.2023	56.4	27.0	7.4	10.5	0.321	7.5	6.8
09.03.2023	59.4	28.7	7.7	9.3	0.302	7.0	6.1
13.03.2023	52.6	24.6	8.3	11.6	0.328	7.7	5.5
16.03.2023	47.2	27.4	7.6	12.1	0.295	7.1	6.1
20.03.2023	53.4	23.5	6.7	8.8	0.280	6.4	7.0
23.03.2023	57.3	26.5	7.1	11.4	0.316	7.3	6.6
27.03.2023	51.5	25.8	7.3	10.7	0.283	5.3	6.1
Min	**47.2**	**23.5**	**6.7**	**8.8**	**0.280**	**5.3**	**5.5**
Max	**59.8**	**28.7**	**8.3**	**12.1**	**0.328**	**7.7**	**7.0**
Avg	**54.7**	**26.2**	**7.5**	**10.4**	**0.305**	**6.8**	**6.3**
98th	**59.7**	**28.5**	**8.2**	**12.0**	**0.327**	**7.7**	**7.0**

Verified by
Snehal Raut
Deputy Technical Manager

Authorized Signatory
Dr. (Mrs.) S. D. Garway
Quality Manager

-----End of Report-----

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Test Report

Report No.: ALPL/05042023/1-2		**Date:** 05/04/2023	
Issued to		**M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	**Ambient Air Quality**	**Inward No.**	2023/EIA-8-2
Sample Drawn By:	Anacon Representative	Sample Received Date	13, 20, 27, 30 March-2023
Date of Analysis:-	14, 21, 28, 31 March-2023	Sampling Time	24 hrs

Ambient Air Quality (AAQ-12) Drugdhamna

Date	PM10	PM2.5	SO_2	NO_2	CO	Ozone	NH3
	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	µg/m³
03.03.2023	59.4	29.5	8.3	14.5	0.4	7.4	6.9
06.03.2023	62.0	22.6	10.0	13.9	0.419	7.5	8.2
09.03.2023	57.7	25.7	8.9	16.4	0.435	8.7	5.8
13.03.2023	61.0	31.2	7.7	15.3	0.426	8.5	7.2
16.03.2023	55.3	26.5	8.1	16.9	0.406	6.6	6.6
20.03.2023	50.9	32.1	7.1	14.1	0.373	7.0	5.7
23.03.2023	57.1	26.9	8.5	16.0	0.406	8.1	7.0
27.03.2023	55.0	28.4	7.8	17.6	0.435	6.2	7.8
Min	**50.9**	**22.6**	**7.1**	**13.9**	**0.373**	**6.2**	**5.7**
Max	**62.0**	**32.1**	**10.0**	**17.6**	**0.435**	**8.7**	**8.2**
Avg	**57.3**	**28.1**	**8.3**	**15.6**	**0.412**	**7.5**	**6.9**
98th	**61.9**	**32.0**	**9.8**	**17.5**	**0.435**	**8.7**	**8.1**

Verified by

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway
Quality Manager

-----End of Report-----

ORIGINAL TEST REPORT

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Test Report

Issued to		**M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2022/EIA-44-11
Sample Drawn By:	Anacon Representative	Sample Received Date	7,14, 21,28 March-2022, 4,11,18,25 Apr-2022 & 2,9,16,23,30 May-2022
Date of Analysis:-	8,15, 22,29 March-2022, 4,12,19,26 Apr-2022 & 3,9,17,24,30 May-2022	Sampling Time	24 hrs

CONCENTRATION OF HEAVY METALS &VOCS IN AMBIENT AIR

Location	Pb(µg/m^3)	As (ng/m^3)	Ni (ng/m^3)	Benzene (µg/m^3)	BaP(ng/m^3)
Project site- Location at North end	0.24	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Project site- Location at South end	0.07	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Kalambi	0.09	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Waddhamna	0.18	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Carmel Academy CBSE	0.12	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Ketapar	0.16	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Alesar	0.13	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Gondkhairi	0.21	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Surabardi	0.19	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Khapri	0.08	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Ambient Air Quality CPCB Standard	**1 (24 hrs)**	**6 (Annual)**	**20 (Annual)**	**5 (Annual)**	**1 (Annual)**

ORIGINAL TEST REPORT

Verified by
Snehal Raut
Deputy Technical Manager

Authorized Signatory
Dr. (Mrs.) S. D. Garway
Quality Manager

-----End of Report-----

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Test Report

Issued to		M/s. Adani Power Maharashtra Limited Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	
Sample Type	Ambient Air Quality	Inward No.	2023/EIA-8-3
Sample Drawn By:	Anacon Representative	Sample Received Date	13, 20, 27, 30 March-2023
Date of Analysis:-	14, 21, 28, 31 March-2023	Sampling Time	24 hrs

CONCENTRATION OF HEAVY METALS &VOCS IN AMBIENT AIR

Location	Pb(µg/m^3)	As (ng/m^3)	Ni (ng/m^3)	Benzene (µg/m^3)	BaP(ng/m^3)
Sahuli	0.11	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Drugdhamna	0.14	BDL (DL-0.1)	BDL (DL-0.1)	BDL (DL-0.01)	BDL (DL-0.01)
Ambient Air Quality CPCB Standard	**1 (24 hrs)**	**6 (Annual)**	**20 (Annual)**	**5 (Annual)**	**1 (Annual)**

Verified by
Snehal Raut
Deputy Technical Manager

Authorized Signatory
Dr. (Mrs.) S. D. Garway
Quality Manager

-----End of Report-----

ORIGINAL TEST REPORT

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ANNEXURE VI (B)
NOISE ENVIRONMENT

Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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MIDC Butibori, Nagpur, Maharashtra, India - 441 122
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Test Report

Noise Study Report

Report Code: ALPL/31052022/1-13 **Issue Date:** 31/05/2022
Inward Number: 2022/EIA-44 **Inward Date:** 28/03/2022

Issued To : **M/s. Adani Power Maharashtra Limited**
Gondkhairi Underground Coal Mine
(Kamptee Coal Limited), Village:- Gondkhari,
Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)

EQUIVALENT NOISE LEVELS

Date of Monitoring:- 10/03/2022 to 21/03/2022

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq_{Day}	Leq_{Night}
Residential Area			
1.	Ketapar	53.9	41.3
2.	Khapri	54.7	42.6
3.	Alesur	51.2	39.7
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
4.	Gondkhari	62.5	47.2
5.	Surabardi	59.8	43.7
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
6.	Kalambi – Pratap High School	46.7	37.4
7.	Somalwad School Waddhamna	48.1	39.2
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
8.	Project site- Nr. Alesur Lake Farm House	51.5	38.3
CPCB Standards dB(A)		**75.0**	**70.0**

ORIGINAL TEST REPORT

NOTES: • Please see watermark 'Original Test Report' to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

Remark: - All Results are within Limit as per CPCB Standards.

Verified by
Shubhangi Armarkar
(Technical Manager)

Authorized Signatory
Dr. (Mrs.) S.D. Garway
(Quality Manager)

-----End of Report-----

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ANNEXURE VI (C)
WATER ENVIRONMENT

3015

Anacon Laboratories Pvt. Ltd. Nagpur Lab
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Test Report

Test Report No. : ALPL/31052022/2-9 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-1 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Canal	SW-1 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Vena Canal

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent,	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	148
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.72 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	594.36
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	5.9
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	381
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	136
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	211.95
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	61.7
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	14.05
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	12.18
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	20.16
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	29.01
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	18.61
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	58.6
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.32
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	19.2
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	62
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	7.1
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
for Technical Manager

Authorized Signatories

Pooja Kalbande
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-9 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-1 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Canal	SW-1 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Vena Canal

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.58
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.38
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Sadeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-10 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-2 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Anas Nadi

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing I. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	177
II	**Chemical Testing I. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	8.15 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1727.3
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	5.7
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	987
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	314
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	542.21
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	145.59
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	43.4
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	15.68
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	70.91
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	40.61
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	22.81
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	232.56
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.48
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	23.41
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	67
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	8.4
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

ORIGINAL TEST REPORT

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kalbande
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-10 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-2 Surface Water	2 L & 250ml

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhalke	**Sampling Date** 12/05/2022 **Sampling Time** 10.45 am to 4.15pm	Anas Nadi

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.48
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.41
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Sadeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-------End of Report-----

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Test Report

Test Report No. : ALPL/31052022/2-11 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-3 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Nag Nadi

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	542
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	8.36 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1947
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	5.1
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	1100
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	432
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	712.19
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	173.04
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	68.08
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	17.21
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	50.37
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	10.26
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	12.52
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	240.8
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.16
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	12.83
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	88
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	17.3
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-11 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-3 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Nag Nadi

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.54
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.32
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
27	Cobalt(as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-12 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-4 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Jhilpi Nadi

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	94
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	8.37 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	656.67
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.2
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	413
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	164
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	247.16
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	77.36
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.09
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	10.01
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	18.16
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	14.62
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition 2017	45	No relaxation	9.21
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	69.94
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.2
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	10.08
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	71
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	5.7
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
for Technical Manager

Authorized Signatories

Pooja Kathale
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-12 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-4 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Blakte	12/05/2022 10.45 am to 4.15pm	Jhilpi Nadi

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.62
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.43
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

NOTES: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● 'mg/l' is equivalent to 'ppm'. ● MPN indicates most probable number. ● BDL:- Indicates Below detection limit. ● DL:- Indicates detection limit of instrument/method and shall be considered as 'absent'

REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Saldeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-------End of Report-----

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Test Report

Test Report No. : ALPL/31052022/2-13 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Upstream	SW-5 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Kharkari Nadi

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing I. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	345
II	**Chemical Testing I. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.59 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1374.24
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.9
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	5.8
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	818
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	348
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	469.88
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	135.17
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	32.13
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	12.65
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	48.31
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	21.52
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	20.61
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	122.43
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.22
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	21.65
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	58
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	12.5
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-13 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Pond	SW-5 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Kharkari Nadi

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.42
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.61
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-14 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Lake	SW-6 Surface Water	2 L & 250ml

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 12/05/2022 **Sampling Time** 10.45 am to 4.15pm	Alesur Local Lake

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrite, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing I. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	120
II	**Chemical Testing I. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.12 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1023.4
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.1
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	595
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	230
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	364.96
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	108.42
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	26.91
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	10.68
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	24.2
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	9.28
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	15.62
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	125.59
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.19
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	16.53
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	44
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	6.8
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-14 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	**Sample Source**	**Sample Particulars**	**Quantity Received**
Surface Water	Lake	SW-6 Surface Water	2 L & 250ml

Sample Collected By	**Sampling Date**	**Sampling Location**
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 **Sampling Time** 10.45 am to 4.15pm	Alesur Local Lake

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.36
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.21
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

--------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-15 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA 44 SW 7 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Lake	SW-7 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Suraburdi Lake

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing I. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	58
II	**Chemical Testing I. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	8.34 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1466.1
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.8
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.3
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	905
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	384
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	474.21
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	128.1
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	37.49
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1992	--	--	14.61
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	62.58
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	57.61
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	19.82
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	115.34
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.26
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	20.68
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	26
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	3.6
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

ORIGINAL TEST REPORT

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-15 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-7 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Lake	SW-7 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Suraburdi Lake

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.45
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.33
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

--------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-16 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-8 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Pond	SW-8 Surface Water	2 L & 250ml

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	12/05/2022 10.45 am to 4.15pm	Pond (Nr. Highway)

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Total Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Chemical oxygen demand, Biochemical oxygen demand, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
I	**Biological Testing I. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Present
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	76
II	**Chemical Testing I. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.30 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	917.4
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.7
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.2
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	556
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	198
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	326.41
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	68.3
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	19.64
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	13.58
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	33.21
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	18.32
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	14.2
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	116.67
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.21
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	15.21
20	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	--	--	32
21	Biochemical oxygen demand (at 27°C for 3 days)	mg/l	IS 3025 (Part 44) :1993	--	--	4.1
22	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

ORIGINAL TEST REPORT

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-16 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-SW-8 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Surface Water	Pond	SW-8 Surface Water	2 L & 250ml

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 12/05/2022 **Sampling Time** 10.45 am to 4.15pm	Pond (Nr. Highway)

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit	
III	**Chemical Testing** **2. Residues In Water**					
23	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	0.44
24	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.28
25	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
26	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
27	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
28	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
29	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
30	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
33	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above mentioned parameters only.

Verified By
Shashikant Saldeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

------End of Report-----

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Test Report

Test Report No. : ALPL/31052022/2-1 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-1 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-1 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	11/05/2022 10.30 am to 4.30 pm	Project Site

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.47 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	811.44
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.2
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	504
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	193
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	283.11
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	85.3
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	17.01
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	12.18
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	28.61
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	10.51
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.62
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	95.19
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.18
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	10.11
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'µg/l' is equivalent to 'ppb'. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-1 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-1 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-1 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	11/05/2022 10.30 am to 4.30 pm	Project Site

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 10 & 11 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-2 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-2 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	26/05/2022 10.30 am to 4.30 pm	Kalambi

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.15 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1081.5
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.1
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	618
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	152
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	380.03
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	105.49
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	28.32
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	15.92
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	40.12
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	22.61
16	Nitrate (as NO_3)	mg/l	APHA metho@23rd edition: 2017	45	No relaxation	11.52
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	207.86
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.22
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	12.16
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-2 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-2 Ground Water	2 L

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 26/05/2022 **Sampling Time** 10.30 am to 4.30 pm	Kalambi

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.24
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 7, 10 & 11 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

--------End of Report--------

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Test Report

Test Report No. : ALPL/31052022/2-3 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-3 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	11/05/2022 10.30 am to 4.30 pm	Ketapar

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.28 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1212.1
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.5
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	713
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	235
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	436.38
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	122.1
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	31.93
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	14.81
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	36.72
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	24.01
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	14.61
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	181.75
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.25
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	15.07
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be related to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'µg/l' is equivalent to 'ppb'. ● BDL- Below detection limit. ● DL- DL indicates detection limit of instrument /method and shall be considered as 'absent'.

Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-3 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-3 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	11/05/2022 10.30 am to 4.30 pm	Ketapar

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.16
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'µg/l' is equivalent to 'ppb'. ● BDL- Below detection limit. ● DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.

REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 7,9, 10,11 & 12 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Saldeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-4 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-4 Ground Water	2 L

Sample Collected By	Sampling Date	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	11/05/2022 Sampling Time 10.30 am to 4.30 pm	Khapri

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.10 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	965.26
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.7
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	578
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	197
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	344.23
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	99.07
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	23.51
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	12.61
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	32.62
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	12.81
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition; 2017	45	No relaxation	9.82
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	148.61
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.2
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	10.34
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-4 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-4 Ground Water	2 L

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 11/05/2022 **Sampling Time** 10.30 am to 4.30 pm	Khapri

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.18
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 7, 10 & 11 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-5 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-5 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	13/05/2022 10.30 am to 4.30 pm	Alesur

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.03 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	568.85
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.3
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	367
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	168
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	210.63
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	62.11
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.48
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	10.96
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	12.81
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	9.62
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	12.6
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	39.82
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.17
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	12.91
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'µg/l' is equivalent to 'ppb'. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kalbande
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-5 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-5 Ground Water	2 L

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 13/05/2022 **Sampling Time** 10.30 am to 4.30 pm	Alesur

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.21
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 10 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

--------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-6 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-6 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	11/05/2022 10.30 am to 4.30 pm	Gondkhari

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.61 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	1399.08
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.5
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.4
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	786
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	260
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	478.05
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	135.17
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	34.12
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	14.32
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	43.22
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	17.88
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	14.52
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	209.81
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.28
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	14.76
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'ug/l' is equivalent to 'ppb'. ● BDL- Below detection limit. ● DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.

Verified By
Shubhangi Armarkar
for Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-6 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-6 Ground Water	2 L

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 11/05/2022 **Sampling Time** 10.30 am to 4.30 pm	Gondkhari

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.19
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'ug/l' is equivalent to 'ppb'. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 7,9,10,11 & 12 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Sadeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-------End of Report-------

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Test Report

Test Report No. : ALPL/31052022/2-7 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.**	2022/EIA-44-GW-7	**Analysis Start**	17/05/2022
	Inward Date	16/05/2022	**Analysis End**	23/05/2022
			Report Issue Date	31/05/2022
	Reference	Mail Communication	**Sample Category**	Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-7 Ground Water	2 L

Sample Collected By	Sampling Date	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	Sampling Time 10.30 am to 4.30 pm	Surabardi

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.19 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	553.32
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.2
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	348
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	104
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	214.27
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	72.65
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	7.95
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	11.01
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	13.62
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	9.92
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	10.97
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	94.68
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.14
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	11.21
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By

Shubhangi Armarkar
Technical Manager

Authorized Signatories

Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Gurway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-7 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-7 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-7 Ground Water	2 L

Sample Collected By		Sampling Location
Anacon Representative Mr. Gajanan Bhakte	**Sampling Date** 27/05/2022 **Sampling Time** 10.30 am to 4.30 pm	Surabardi

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.22
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 10 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

------End of Report------

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Test Report

Test Report No. : ALPL/31052022/2-8 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Condkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-GW-8 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water	

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-8 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	21/05/2022 10.30 am to 4.30 pm	Waddhamna

Tests Required : Total coliform, Faecal Coliform, pH, Electrical Conductivity, Turbidity, Dissolved Oxygen, Total dissolved solids, Total suspended solids, Alkalinity, Total hardness, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Chloride, Fluoride, Total Nitrogen, Oil and Grease.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Biological Testing 1. Water**					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	Faecal Coliform	MPN/100 ml	IS 1622 : 1981	-	-	BDL(DL-2)
II	**Chemical Testing 1. Water**					
3	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.52 at 25°C
4	Electrical Conductivity at 25°C	µs/cm	IS 3025 (Part 14) 2013	--	--	909.54
5	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
6	Dissolved Oxygen	mg/l	IS 3025 (Part 38) :1989	--	--	6.5
7	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	500	2000	558
8	Total Suspended Solids	mg/l	IS 3025 (Part 17) :1984	--	--	BDL(DL-10)
9	Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part 23) : 1986	200	600	208
10	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	339.38
11	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	89.84
12	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	27.95
13	Potassium (as K)	mg/l	IS 3025 (Part 45) :1993	--	--	10.21
14	Sodium (as Na)	mg/l	IS 3025 (Part 45) :1993	--	--	25.28
15	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 1986	200	400	21.52
16	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	18.59
17	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	109.58
18	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.29
19	Total Nitrogen (as N)	mg/l	IS 3025 (Part 34) : 2019	--	--	19.21
20	Oil & grease	mg/l	IS 3025 (Part 39) :1991	--	--	BDL(DL-4)

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Verified By
Shubhangi Armarkar
for Technical Manager

Authorized Signatories
Pooja Kathane
Technical Manager

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-8 dated 31/05/2022

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Condkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/ETA-44-GW-8 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Water

Sample Name	Sample Source	Sample Particulars	Quantity Received
Ground Water	Borewell	GW-8 Ground Water	2 L

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Anacon Representative Mr. Gajanan Bhakte	21/05/2022 10.30 am to 4.30 pm	Waddhamna

Tests Required : Total Phosphate, Iron, Copper, Manganese, Cobalt, Cadmium, Arsenic, Lead, Zinc, Nickel, Total Chromium.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
III	**Chemical Testing** **2. Residues In Water**					
21	Total Phosphate (as PO_4)	mg/l	IS 3025 (Part 31) : 1988	-	-	BDL (DL - 0.1)
22	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
25	Cobalt (as Co)	mg/l	IS 3025 (Part 2) : 2019	-	-	BDL(DL-0.01)
26	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
27	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
28	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
29	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
30	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)

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REMARKS : As requested by the client, sample was tested for above parameters only. As per IS 10500 : 2012, for test no. 7,9,10 & 11 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.

Verified By
Shashikant Satdeve
Sr. Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-------End of Report------

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ANNEXURE VI (D)
SOIL ENVIRONMENT

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Test Report

Test Report No. : ALPL/31052022/2-17 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-I **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S1-Project Site	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	18.96
2	Bulk density	g/cm3	Lab-SOP	1.633
3	Water holding capacity	%	Arqd-Che2b5	20.87
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	72.23
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	10.23
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	17.54
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Sandy Loam
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6.38 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	250
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	492.9
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	271.2
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	286.5
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	55.6
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	139.4
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	49.2

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Carway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-17 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-1 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S1-Project Site		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	260.1
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	55.0
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	403.2
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	226.5
18	Sodium adsorption ratio	-	By Calculation	2.57
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.37
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.22
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	116.8
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	13.01
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	120.32
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	13.52

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Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-17 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-1 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S1-Project Site		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.21
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	34.83
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	3.483
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	5.866
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.827
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	7.210
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.967
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks: As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

——End of Report——

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Test Report

Test Report No. : ALPL/31052022/2-18 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhaini Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S2-Kalambi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	19.15
2	Bulk density	g/cm3	Lab-SOP	1.502
3	Water holding capacity	%	Anqd-Che2b5	17.73
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	48.84
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	10.80
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	40.36
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Sandy Clay
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	5.82 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	630
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	825.3
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	285.36
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	492.6
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	69.2
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	146.2
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	44.95

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-18 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S2-Kalambi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	446.6
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	68.7
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	677.2
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	256.2
18	Sodium adsorption ratio	-	By Calculation	3.77
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.70
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.40
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	211
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	28.33
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	351.71
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	22.95

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Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-18 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/FIA-44-S-2 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S2-Kalambi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.19
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	28.44
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	2.387
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	7.128
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	2.335
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	9.311
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.886
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks:As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

——End of Report——

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Test Report

Test Report No. : ALPL/31052022/2-19 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S3-Modhogarh RF	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	18.37
2	Bulk density	g/cm3	Lab-SOP	1.643
3	Water holding capacity	%	Anqd-Che2b5	19.15
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	40.98
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	40.23
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	16.79
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Loam
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6.57 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	210
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	658.35
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	322.8
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	435.2
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	94.38
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	155.0
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	46.31

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-19 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S3-Modhogarh RF	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	373.0
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	92.7
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	494.9
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	258.0
18	Sodium adsorption ratio	-	By Calculation	3.47
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.45
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.26
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	124.5
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	19.46
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	287.42
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	13.24

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Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-19 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-3 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S3-Medhagarh RF	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.22
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	19.65
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	3.772
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	5.684
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.682
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	8.682
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.960
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks:As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

——End of Report——

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Test Report

Test Report No. : ALPL/31052022/2-20 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S4-Asthi Kala	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	20.36
2	Bulk density	g/cm3	Lab-SOP	1.509
3	Water holding capacity	%	Arqd-Chz2b5	18.19
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	45.23
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	21.54
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	33.23
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Clay Loam
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	5.34 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	375
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	719.55
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	410.4
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	577.8
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	96.2
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	134.3
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	53.09

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-20 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S4-Asthi Kala	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	528.8
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	95.4
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	632.4
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	363.7
18	Sodium adsorption ratio	-	By Calculation	4.26
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.73
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.42
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	226.26
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	25.39
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	347.13
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	29.65

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Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-20 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-4 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S4-Asthi Kala	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.27
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	27.72
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.982
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	9.567
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.787
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	7.881
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.987
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks:As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

——End of Report——

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Test Report

Test Report No. : ALPL/31052022/2-21 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S5-Khargaon	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	22.15
2	Bulk density	g/cm3	Lab-SOP	1.526
3	Water holding capacity	%	Anqd-Che2b5	14.93
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	38.26
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	19.38
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	42.36
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Clay
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in Indin (Department of agriculture & corporation, Govt of India)	5.49 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	328
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	229.5
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in Indin (Department of agriculture & corporation, Govt of India)	236.4
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	415.6
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	82.5
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	107.2
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	47.22

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-21 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** SS-Khargaon	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	383.3
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	81.7
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	218.2
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	216.6
18	Sodium adsorption ratio	-	By Calculation	4.60
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.82
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.48
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	259.7
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	28.65
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	358.47
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	23.23

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Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-21 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-5 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S5-Khargaon	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.24
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	33.98
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	4.081
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Gobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6.664
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	2.664
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	8.720
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.082
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks:As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

——End of Report——

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Test Report No. : ALPL/31052022/2-22 dated 31/05/2023

Issued To ; **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S6-Gondkhari	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	19.63
2	Bulk density	g/cm3	Lab-SOP	1.498
3	Water holding capacity	%	Anqd-Che2b5	16.19
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	40.36
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	29.38
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	30.26
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Clay Loam
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	5.81 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	629
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	719.4
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	234.72
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	436.4
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	88.11
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	139.2
13	Water Soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	52.28

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-22 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** 86-Gondkhari		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	398.6
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	87.2
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	601.6
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	214.0
18	Sodium adsorption ratio	-	By Calculation	3.61
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.91
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.53
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	188.9
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	31.59
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	289.3
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	21.92

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Verified By
Shubhangi Armarkar
for Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-22 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-6 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil	
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S6-Gondkhari	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.26
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	21.12
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	4.310
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	9.168
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	2.812
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6.811
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.968
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks:As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

——End of Report——

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Test Report

Test Report No. : ALPL/31052022/2-23 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.**	2022/EIA-44-S-7	**Analysis Start** 17/05/2022
	Inward Date	16/05/2022	**Analysis End** 23/05/2022
			Report Issue Date 31/05/2022
	Reference	Mail Communication	**Sample Category** Soil

Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S7-Surabardi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	20.85
2	Bulk density	g/cm3	Lab-SOP	1.563
3	Water holding capacity	%	Anqd-Che2b5	20.87
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	60.36
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	14.01
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	25.36
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Sandy Clay Loam
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	6.17 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	792
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	792.45
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	417.12
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	516.8
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	94.33
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	156.0
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	48.27

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Verified By

Shubhangi Armarkar
for Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Gajanan Bhakte		**Sampling Location** S7-Sumbardi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	458.2
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	93.2
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	634.4
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	345.0
18	Sodium adsorption ratio	-	By Calculation	3.70
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.15
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.67
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	297
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	40.15
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	303.3
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	19.84

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Verified By
Shubhangi Armarkar
Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-23 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-7 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S7-Surabardi	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.16
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	16.89
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	3.487
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	7.942
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.968
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	9.250
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.891
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks:As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Test Report

Test Report No. : ALPL/31052022/2-24 dated 31/05/2023

Issued To : **M/s. Adani Power Maharashtra Limited** Gondkhairi Underground Coal Mine (Kamptee Coal Limited), Village:- Gondkhari, Tehsil:- Kalmeshwar, Dist:- Nagpur (M.S)	**Sample Inward No.** 2022/EIA-44-S-8 **Inward Date** 16/05/2022 **Reference** Mail Communication	**Analysis Start** 17/05/2022 **Analysis End** 23/05/2022 **Report Issue Date** 31/05/2022 **Sample Category** Soil
Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S8-Waddhamna	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
1	Infiltration rate	mm/hr	Lab-SOP	21.56
2	Bulk density	g/cm3	Lab-SOP	1.609
3	Water holding capacity	%	Anqd-Che2b5	21.12
4	Particle size distribution			
	Sand	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	35.96
	Silt	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	18.68
	Clay	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	45.36
5	Texture	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Clay
6	pH (1:2.5 Aq. Extract) at 25°C	-	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	5.74 at 25°C
7	Electrical Conductivity (1:2.5 Aq. Extract)	µs/cm	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	432
8	Water soluble Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	685.36
9	Water soluble Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	378.52
10	Water soluble Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	472.5
11	Water soluble Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	74.33
12	Water soluble Chloride (as Cl)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	161.5
13	Water soluble Sulphate (as SO_4)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	48.27

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Verified By

Shubhangi Armarkar
Technical Manager

Mangesh Fande
Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway
Quality Manager

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Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg	
Sample Collected By Anacon Representative Mr. Ga'anan Bhakte		**Sampling Location** S8-Waddhamna	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
14	Exchangeable Sodium (as Na)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	431.9
15	Exchangeable Potassium (as K)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	73.7
16	Exchangeable Calcium (as Ca)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	587.3
17	Exchangeable Magnesium (as Mg)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	329.2
18	Sodium adsorption ratio	-	By Calculation	3.60
19	Total Organic matter	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.06
20	Total Organic Carbon	%	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.62
21	Available Nitrogen (as N)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	232.8
22	Available Phosphorous (as P)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	36.9
23	Available Potassium (as K)	Kg/hec	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	334.1
24	CEC	meq/100g	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	23.9

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Verified By
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Technical Manager

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

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Sample Name Soil	**Sampling Date :** 12/05/2022 **Sampling Time :** 11am to 3.20 pm	**Quantity Received** 1 Kg
Sample Collected By Anacon Representative Mr. Gajanan Bhakte	**Sampling Location** S8-Waddhamna	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Test Result
25	Total Arsenic (As)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
26	Available Boron (B)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.22
27	Total Cadmium (Cd)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
28	Total Chromium (Cr)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	29.22
29	Available Copper (Cu)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	2.928
30	Total Lead (Pb)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
31	Total Nickel (Ni)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent
32	Total Cobalt (Co)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	8.647
33	Available Iron (Fe)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	1.466
34	Available Manganese (Mn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	8.161
35	Available Zinc (Zn)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	0.987
36	Total Selenium (Se)	mg/Kg	Method Manual, Soil testing in India (Department of agriculture & corporation, Govt of India)	Absent

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Remarks: As requested by the client, sample was tested for above parameters only.

Verified By
Nidhi Dubey
Sr.Chemist

Authorized Signatory
Dr. (Mrs.) S.D. Garway
Quality Manager

-----End of Report-----

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ANNEXURE VII (A) - FLORA

Annexure VII (A) : Flora observed in the study area

Sr. No.	Botanical Name	Local Name	Family	Habit	IUCN Status	Core Zone	Buffer Zone
1	*Abrus precatorius* L.	Gunj	Leguminosae	C	NA	*	*
2	*Acacia auriculiformis* Benth.	Australian Babhool	Leguminosae	T	LC	*	*
3	*Acacia catechu* (L.f.) Willd.	Khair	Leguminosae	T	NA	*	*
4	*Acacia leucophloea* (Roxb.) Willd.	Hivar	Leguminosae	T	NA	*	*
5	*Acacia nilotica* (L.) Delile	Babool	Leguminosae	T	NA	*	*
6	*Acanthospermum hispidum* DC.	Gokharu	Zygophyllaceae	H	NA		*
7	*Achyranthes aspera* L.	Chirchita	Amaranthaceae	S	NA		*
8	*Aegle marmelos* (L.) Corrêa	Bel	Rutaceae	T	NA		*
9	*Ailanthus excelsa* Roxb.	Maharukh	Simarubiaceae	T	NA	*	*
10	*Albizia lebbeck* (L.) Benth.	Chichva	Leguminosae	T	NA		*
11	*Alstonia scholaris* (L.) R. Br.	Chhatvan	Apocynaceae	T	LC	*	*
12	*Alternanthera sessilis* (L.) R.Br. ex DC.	Garundi	Amaranthaceae	H	LC	*	*
13	*Andrographis paniculata* (Burm .f.) Nees	Kal megh	Acanthaceae	H	NA		*
14	*Annona squamosa* L.	Sitafal	Annonaceae	T	NA	*	*
15	*Anogeissus latifolia* (Roxb. ex DC.)	Dhawada	Combretaceae	T	NA		*
16	*Apluda mutica* L.	Phulhara	Poaceae	G	NA		*
17	*Argemone mexicana* L.	Pila Dhotra	Papaveraceae	H	NA	*	*
18	*Asparagus racemosus* Willd.	Satawari	Liliaceae	S	NA		*
19	*Atylosia scarabaeoides* (L.)	Rantur	Fabaceae	H	LC		*
20	*Azadirachta indica* A.Juss.	Neem	Meliaceae	T	NA	*	*
21	*Azanza lampas* (Cav.) Alef.	Jangli bhindi	Malvaceae	S	NA		*
22	*Barleria prionites* (Linn)	Katekoranti	Acanthaceae	S	NA		*
23	*Bauhinia racemosa* Lam.	Apta	Leguminosae	T	NA	*	*
24	*Bauhinia vahlii, (Wand*. A)	Mahulbel	Caesalpiniaceae	C	NA		*
25	*Bombax ceiba* L.	Katesawar/ Semal	Malvaceae	T	NA	*	*
26	*Borassus flabalifer* L.	Tad	Aracaceae	T	NA		*
27	*Boswellia serrata* (Roxb.ex. Colebr)	Salai	Burseraceae	T	-		*
28	*Bridelia retusa* (L.) A.Juss.	Kasai	Euphorbiaceae	T	NA		*
29	*Buchanania lanzan* Spreng.	Char	Anacardiaceae	T	NA		*
30	*Butea monosperma* (Lam.) Taub.	Palash	Leguminosae	T	NA	*	*
31	*Butea superba* (Roxb)	Palasvel	Fabaceae	C	NA		*
32	*Calotropis procera* (Aiton) Dryand.	Aak	Asclepiadaceae	S	NA	*	*

Sr. No.	Botanical Name	Local Name	Family	Habit	IUCN Status	Core Zone	Buffer Zone
33	*Careya arborea* Roxb.	Kumbhi	Lecythidaceae	T	NA		*
34	*Carissa carandas* L.	Karwand	Apocynaceae	S	NA		*
35	*Cassia fistula* L.	Amaltas	Leguminosae	T	NA	*	*
36	*Cassia tora* L.	Chirota, Travar	Leguminosae	H	NA	*	*
37	*Celastrus paniculata* (Willd)	Malkagni	Celastraceae	C	NA		*
38	*Celastrus paniculatus* Willd.	Malkanguni	Celastraceae	C	NA	*	*
39	*Chloroxylon swietenia* DC.	Bhirra	Rutaceae	T	VU (A1c)		*
40	*Cleistanthus collinus* (Roxb.) Benth. ex Hook.f.	Garari	Phyllanthaceae	T	VU (A1d)		*
41	*Cleome viscosa* (Linn)	Pivili tilwan	Cleomaceae	H	NA		*
42	*Combretum decandrum* Jacq.	Piwarbel	Combretaceae	C	NA		*
43	*Cordia myxa* L.	lasora	Boraginaceae	T	NA	*	*
44	*Curculigo orchioides* Gaertn.	Kali Musli	Hypoxidaceae	H	NA		*
45	*Cuscuta reflexa* (Roxb)	Amarbel	Convelvulaceae	P	NA	*	*
46	*Cymbopogon martini* (Roxb.) W.Watson	Rusa	Poaceae	G	NA		*
47	*Cynodon dactylon* (L.) Pers.	Doob	Poaceae	G	NA	*	*
48	*Dalbergia latifolia* Roxb.	Shisham	Leguminosae	T	NA	*	*
49	*Datura metel* (Linn)	Kaladhotra	Solanaceae	S	NA	*	*
50	*Dendrocalamus strictus* (Roxb.) Nees	Bans	Poaceae	G	NA	*	*
51	*Dichanthium annulatum* (Forssk)	Marvel (Small)	Poaceae	G	NA	*	*
52	*Diospyros melanoxylon* Roxb.	Tendu	Ebenaceae	T	NA	*	*
53	*Ehretia laevis* Roxb.	Dataranga	Boraginaceae	T	NA		*
54	*Elephantopus scaber* L.	Ban Tambakhu	Asteraceae	H	NA	*	*
55	*Eleusina indica* Gaertn.	Pandur	Poaceae	G	NA	*	*
56	*Eragrostic tenella* (L.)	Bhurbhusi	Poaceae	G	NA	*	*
57	*Eragrostis amabilis* (L.) Wight & Arn.	Bhurbhusi	Poaceae	G	NA	*	*
58	*Eranthemum purpurascens* Wight ex Nees	Van tulsi	Acanthaceae	S	NA		*
59	*Erythrina variegata* L.	Pangara	Leguminosae	T	NA	*	*
60	*Eucalyptus tereticornis* Sm.	Nilgiri	Myrtaceae	T	NA	*	*
61	*Ficus benghalensis* L.	Wad	Moraceae	T	NA	*	*
62	*Ficus glomerata* L.	Umber	Moraceae	T	NA	*	*
63	*Ficus hispida* (Linn)	Katumber	Moraceae	S	NA	*	*
64	*Ficus religiosa* L.	Pimpal	Moraceae	T	NA	*	*
65	*Flacourtia indica* (Burm.f.) Merr.	Kakai	Bixaceae	T	NA		*
66	*Gardenia latifolia* Aiton	Ghogar	Rubiaceae	T	LC		*

Sr. No.	Botanical Name	Local Name	Family	Habit	IUCN Status	Core Zone	Buffer Zone
67	*Garuga pinnata* Roxb.	Kekad	Burseraceae	T	NA		*
68	*Grewia tiliifolia* Vahl	Dhaman	Tilliaceae	T	NA		*
69	*Grewia hirsuta* Vahl	Gaturli	Tiliaceae	S	NA		*
70	*Haldina cordifolia* (Roxb.) Ridsdale	Haldu	Rubiaceae	T	NA		*
71	*Helicteres isora* L.	Murudsheng	Sterculiaceae	S	NA		*
72	*Hemidesmus indicus* (L.) Ait.	Khobarvel/ Anantmul	Periplocaceae	C	NA	*	*
73	*Heteropogon contortus* (Linn)	Kusal	Poaceae	G	NA	*	*
74	*Holarrhena antidysenterica* (Roth) Wall. ex A.DC.	Kuda	Apocynaceae	S	NA	*	*
75	*Holoptelea integrifolia* Planch.	Chirol	Ulmaceae	T	NA		*
76	*Hyptis suaveolens* (Linn)	Rantulasi/ Bantulasi	Lamiaceae	H	NA	*	*
77	*Ichnocarpus frutescens* (L.) W.T.Aiton	Dudhi	Apocynaceae	C	NA		*
78	*Indigofera tinctoria* (Linn.)	Neel	Leguminaceae	S	NA		*
79	*Ixora arborea* (Roxb.) ex. Sm.	lokhandi	Rubiaceae	T	NA		*
80	*Jatropha curcas* L.	Ratanjot	Euphorbiacece	S	NA	*	*
81	*Justicia adhatoda* L.	Adulsa	Acanthaceae	S	NA		*
82	*Kydia calycina* Roxb.	Baranga	Malvaceae	T	NA		*
83	*Lagerstroemia parviflora* Roxb.	Senjha/ Lendia	Lythraceae	T	NA		*
84	*Lannea coromandelica* (Houtt.) Merr.	Moyen/ Mowai	Anacardiaceae	T	NA		*
85	*Lantana camara* L.	Ghaneri	Verbenaceae	S	NA	*	*
86	*Lawsonia inermis* L.	Mehndi	Lythraceae	S	NA		*
87	*Limonia acidissima* Groff	kaitha	Rutaceae	T	NA		*
88	*Madhuca indica* J.F.Gmel.	Moha	Sapotaceae	T	NA	*	*
89	*Mangifera indica* L.	Aam	Anacardiaceae	T	NA	*	*
90	*Maytenus emarginata, (Wild)*	Bharati	Celastraceae	S	NA		*
91	*Melia azedarach* L.	Bakain	Meliaceae	T	NA		*
92	*Mimosa hamata (Willd)*	Chilati	Mimosaseae	C	NA		*
93	*Mimosa pudica* L.	Lajwanti	Mimosaseae	H	LC		*
94	*Mitragyna parvifolia* (Roxb.) Korth.	Munga	Rubiaceae	T	NA		*
95	*Mucuna pruriens* (L.) D.C.	Kanjkuri	Fabaceae	C	NA		*
96	*Parthenium hysterophorus* L.	Gajar Ghas	Asteraceae	H	NA	*	*
97	*Peltophorum pterocarpum* (DC.) K.Heyne	Peltaphorum	Leguminosae	T	NA		*
98	*Phoenix acaulis* Roxb.	Chhindi	Aracaseae	S	NA	*	*
99	*Phyllanthus emblica* L.	Aonla	Euphorbiaceae	T	NA		*
100	*Phyllanthus niruri* L.	Bhui Aonla	Euphorbiaceae	H	NA	*	*

Sr. No.	Botanical Name	Local Name	Family	Habit	IUCN Status	Core Zone	Buffer Zone
101	*Pithecellobium dulce* (Roxb.) Benth.	Cheejbil	Leguminosae	T	NA		*
102	*Pongamia pinnata* (L.) Pierre	Karanj	Leguminosae	T	NA	*	*
103	*Psidium guajava* L.	Jam	Myrtaceae	T	NA		*
104	*Randia uliginosa* (Retz.) Poir.	Kala phetra	Rubiaceae	T	NA		*
105	*Schleichera oleosa* (Lour.) oken	Kusum	Sapindaceae	T	NA		*
106	*Schrebera swietenioides* Roxb.	Mokha	Oleaceae	T	NA		*
107	*Sehima nervosum* (Rottler) Stapf	Sheda	Poaceae	G	NA	*	*
108	*Semecarpus anacardium* L.f.	Biba/Bhilawa	Anacanrdiaceae	T	NA		*
109	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Acacia	Leguminosae	T	NA		*
110	*Smilax guianensis* Vitman	Ramdaton	Smilacaceae	C	NA		*
111	*Solanum xanthocarpum* Schrad. & H. Wendl.	Bhatkataiya	Solanaceae	S	NA		*
112	*Syzygium cumini* (L.) Skeels	Jamun	Myrtaceae	T	NA		*
113	*Tamarindus indica* L.	Imli	Leguminosae	T	NA		*
114	*Tectona grandis* L.f.	Teak	Verbenaceae	T	NA	*	*
115	*Tephrosia purpurea* (L.) Pers.	Diwali	Papallionaceae	H	NA	*	*
116	*Terminalia arjuna* (Roxb) Wight & Arn.	Arjun	Combretaceae	T	NA	*	*
117	*Terminalia bellirica* (Gaertn.) Roxb.	Behada	Combretaceae	T	NA		*
118	*Terminalia tomentosa* Wight & Arn.	Ain	Combretaceae	T	NA	*	*
119	*Terminalia chebula* Retz.	Hirda	Combretaceae	T	NA		*
120	*Themeda quadrivalvis* (L.) O.ktze	Ghonad	Poaceae	G	NA	*	*
121	*Themeda triandra* Forssk.	Ghonal	Poaceae	G	NA	*	*
122	*Tinospora sinensis* (Lour.) Merr.	Gudvel	Menispermiacea e	S	NA		*
123	*Tribulus terrestris* L.	Gokharu	Zygophyllaceae	S	NA		*
124	*Tridax procumbens* (Linn)	Kamarmodi	Asteraceae	H	NA	*	*
125	*Vanda tessellata, (Roxb)*	Bandha	Orchidaceae	P	LC	*	*
126	*Vitex negundo* (L)	Nirgudi	Verbenaceae	S	NA		*
127	*Woodfordia fruticosa* (Kurz)	Jilbili/Dhayti	Lythraceae	S	LC		*
128	*Wrightia tinctoria* R.Br.	Kalakuda	Apocynaceae	S	NA		*
129	*Xanthium strumarium* L.	Gokharu	Asteraceae	H	NA	*	*
130	*Ziziphus nummularia* (Burm.f.) Wight & Arn.	Bor	Rhamnaceae	T	NA		*
131	*Ziziphus xylopyrus* (Retz.) Willd.	Ghont	Rhamnaceae	T	NA	*	*
132	*Ziziphus jujuba* Mill.	Bor	Rhamnaceae	T	LC	*	*

Sr. No.	Botanical Name	Local Name	Family	Habit	IUCN Status	Core Zone	Buffer Zone
133	*Zizyphus oenoplia (L.)* Mill	Eruni	Rhamnaceae	C	NA	*	*

Source: *Communication with local people and primary survey conducted by Anacon Team.*

ANNEXURE VII (B) – AGRICULTURE

Annexure VII (B) : Agriculture in the study area

A. Agriculture Crops Grown in The Study Area

Sr. No.	Botanical Name	Local Name	Family
Food Grains			
1.	*Pennisetum americanum*	Bajri	Poaceae
2.	*Sorghum vulgare*	Jawar	Poaceae
3.	*Triticum aestivum*	Gahu	Poaceae
Cereals			
1.	*Cajanus cajan*	Tur	Fabaceae
2.	*Cicer arietinum*	Herbara	Fabaceae
3.	*Pisum sativum*	Watana	Fabaceae
Oil Seeds			
1.	*Glycine max*	Soyabean	Fabaceae
Cash Crop			
1.	*Herbaceum gossypium*	Cotton	Malvaceae
Vegetables			
1.	*Abelmoschus esculentus*	Bhendi (Lady finger)	Malvaceae
2.	*Amaranthus tricolor*	Chavli	Amaranthaceae
3.	*Brassica oleracea*	Gobi	Cruciferae
4.	*Dolichos lablab*	Val	Fabaceae
5.	*Momordica charantia*	Bitter Gourd (Karela)	Cucurbitaceae
6.	*Solanum melongena*	Wangi (Brinjal)	Solanaceae
7.	*Spinacia oleracea*	Palak	Amaranthaceae
Spices			
1.	*Capsicum sp.*	Mirchi	Solanaceae
2.	*Coriandrum sativum*	Kothimbir	Umbelliferae

B. Prominent Horticultural Trees in The Study Area

Sr. No.	Botanical Name	Local Name	Family
1.	*Annona squamosa*	Sitaphal	Annonaceae
2.	*Carica papaya*	Papaya	Caricaceae
3.	*Citrus aurantifolia*	Limbu	Rutaceae
4.	*Citrus sp.*	Orange	Rutaceae
5.	*Punica granatum*	Dalimb	Lythraceae
6.	*Psidium guava*	Peru	Myrtaceae

Source: *Communication with local people and primary survey conducted by Anacon Team.*

ANNEXURE VII (C) - FAUNA

Annexure VII (C) : Fauna observed in the study area

A. Mammals

S. No.	Scientific Name	English Name	Common Name	IUCN Status	Schedule as per WPA
1.	*Canis aureus*	Jackal	Kolha	LC	I
2.	*Felis chaus*	Jungle cat	Ranmanjar	LC	I
3.	*Sus scrofa*	Wild boar	Randukkar	LC	II
4.	*Presbytis entellus*	Common langur	Bandar	LC	II
5.	*Funambulus palmarum*	Palm squirrel	Khar	LC	-
6.	*Lepus nigricollis*	Indian hare	Sasa	LC	II
7.	*Herpestes edwardsi*	Common Mongoose	Mongoose	LC	I
8.	*Bandicota bengalensis*	Field rat	Undir	LC	-
9.	*Rattus rattus*	Common house rat	Undir	LC	-
10.	*Pteropus medius*	Indian flying fox	Watwaghul	LC	-

B. Herpetofauna

S. No.	Scientific Name	English Name	Common Name	IUCN Status	Schedule as per WPA
1.	*Bungarus caeruleus*	Common Indian Krait	Karait	LC	II
2.	*Ptyas mucosus*	Common Rat Snake	Dhaman	NA	I
3.	*Naja naja*	Indian Cobra	Nag	LC	I
4.	*Calotes versicolor*	Garden Lizard	---	LC	-
5.	*Mabuya carinata*	Keeled Indian Mabuya	---	LC	-
6.	*Duttaphrynus parietalis*	Indian Toad		NT	II
7.	*Daboia russelli*	Russell's viper	Viper	LC	I

B. Avifauna

Sr. No.	Scientific Name	English Name	Common Name	Schedule as per WPA	Distribution
1.	*Accipiter badius*	Shikra	Shikra	I	R
2.	*Acridothere stristis*	Common Maina	Maina	II	R
3.	*Anastomus oscitans*	Openbilled Stork	Stork	II	R
4.	*Bubo bubo*	Ullu	Eurasian Eagle-owl	II	R
5.	*Bubulcus ibis*	Cattle egret	Gai Bagla	II	R
6.	*Columba livia*	Blue rock pigeon	Kabutar	II	R
7.	*Coracias bengalensis*	Indian roller	Chukar	II	R
8.	*Corvus splendens*	Common crow	Kavla	II	R
9.	*Corvusmacrorhynchos*	Jungle crow	Junglee Kavla	II	R

Sr. No.	Scientific Name	English Name	Common Name	Schedule as per WPA	Distribution
10.	*Coturnix coturnix*	Common or gray	Bater	II	RW
11.	*Cuculus varius*	Common Howk	Papiha/ Papiya	II	R
12.	*Elanus caeruleus*	Black winged kite	Kapasi	II	R
13.	*Francolinus francolinus*	Black partridge	Kala Titar	II	R
14.	*Gallus gallus*	Jungle fowl	Jangli Kombdi	II	R
15.	*Milvus migrans*	Common pariah kite	Ghar	II	R
16.	*Passer domesticus*	House sparrow	Chimni	II	R
17.	*Pericrocotusflammeus*	Scarlet minivet	Pahari Bulbul/Chasm	II	R
18.	*Phalacrocorax fuscicollis*	Indian Cormorant	Shag	II	R
19.	*Psittacula krameri*	Parrot	Popat	II	R
20.	*Pycnonotus cafer*	Red vented Bulbul	Bulbul	II	R
21.	*Streptopelia senegalensis*	Chota Fakhta	Laughing Dove	II	R
22.	*Turdoides striatus*	Jungle babbler	Sat Bhai	II	R
23.	*Sterna aurantia*	River Tern	Nadi Surai	II	RM
24.	*Actitis hypoleucos*	Common Sandpiper	Deshi tutari	II	W
25.	*Oriolus oriolus*	Golden oriole	Haldya	II	R
26.	*Merops orientalis*	Green Bee Eater	Vedha Raghu	II	R
27.	*Halcyon smyrnensis*	White Breasted Kingfisher	Khandya	II	R
28.	*Centropus sinensis*	Crow Pheasant (Greater Caucal)	Bharadwaj	II	R
29.	*Dicrurus adsimillis*	Black drongo	Kotwal	II	R
30.	*Sturnus pagodarum*	Brahminy Myna	Bhangpadi Myna	II	R
31.	*Acrido tristis*	Common Myna	Myna/Salunki	II	R
32.	*Perdicula asiatica*	Jungle Bush Quail	Jungle zudupi lava	II	R
33.	*Copsychus saularis*	Oriental Magpie Robin	Dayal	II	R
34.	*Pavo cristatus*	Indian Peafowl	Mor	I	R

Note: R = Widespread Resident, r = Very Local Resident, RW = Resident Winter visitor, as per the distribution given in WCMC & *Oriental Bird Club*'s Check list of Indian Birds

D. Butterflies

S. No.	Scientific Name	Common Name	IUCN Status
1.	*Papilio demoleus*	Lime Butterfly	NA
2.	*Papilio polytes*	Common Mormon	LC
3.	*Catopsilia pomona*	Common Emigrant	NA
4.	*Eurema hecabe*	Common Grass yellow	NA
5.	*Chilades laius*	Lime Blue	NA
6.	*Danaus genutia*	Stripped Tiger	NA

E. Fishes

Sr. No.	Fish	Common Name	IUCN Status
1.	*Catla catla*	Catala	LC
2.	*Labeo Rohita*	Rohu	LC
3.	*Cirrhinus mrigala*	Mrigala	LC
4.	*Tilapia sp.*	Tilapia	NA
5.	*Tenualosa ilisha*	Ilish	LC
6.	*Channa striata*	Mudfish	LC
7.	*Mystus cavasius*	Shongate	LC

Source: *Communication with local people and primary survey conducted by Anacon Team.*

ANNEXURE VII (D) - PLANKTON STUDY

ANNEXURE VII (D) – PLANKTONS DIVERSITY IN WATERBODIES WITHIN STUDY AREA

A. Phyto-planktons

Sr. No.	Algal Group	Species	Sampling Locations			
			Alesur Local Lake	Surabardi Dam & Reservoir	Wena Dam & Reservoir	Weva River
1.	Cyanophyceae	*Merispopedia punctata*	-	+	+	-
2.		*Microcystis aeruginosa*	+	+	+	+
3.		*Oscillatoria limnatica*	+	-	-	+
4.		*Raphidiopsis curjanta*	-	+	+	+
5.		*Chroococcus minor*	+	+	+	-
6.		*Anabaena iyengarii*	-	+	-	+
7.		*Gloeocapsa lacustiis*	-	-	+	+
8.	Chlorophyceae	*Ankistrodesmus falcatus*	+	+	-	+
9.		*Chlorella vulgaris*	+	+	-	+
10.		*Mougeotia capicina*	+	-	+	-
11.		*Euastrum pectinatum*	-	+	+	+
12.		*Chlorococcum humicola*	-	+	+	-
13.		*Chlosteridium turgidrum*	-	+	-	+
14.		*Cosmarium botrytis*	+	-	+	+
15.		*Micractinium pusillum*	+	-	-	+
16.		*Pediastrum boryanum*	+	+	+	+
17.		*Scenedesmus quadricauda*	-	+	+	-
18.		*Tetraedron caudatum*	-	+	+	-
19.	Bacillariophyceae	*Cyclotella planctonica*	+	-	-	+
20.		*Cymbella cistula*	+	+	+	-
21.		*Diatoma vulgarae*	-	-	+	+
22.		*Navicula schizonema*	+	+	+	-
23.		*Nitzchia bilobate*	-	-	+	+
24.		*Synedra ulna*	+	+	+	-
25.		*Stephanodiscus hantzchii*	-	+	-	-
26.	Euglenophyceae	*Euglena acus*	-	+	+	+
27.		*Phacus pleuronectes*	+	-	-	-
28.	Pyrrhophyceae	*Peridinium tabulatum*	-	+	+	-

B. Zooplanktons

Sr No	Genus	Species	Sampling Locations			
			Alesur Local Lake	Surabardi Dam & Reservoir	Wena Dam & Reservoir	Weva River
1.	Ciliata	*Halteria grandinella*	+	+	-	+
2.		*Tetrahymena pyriformis*	-	-	+	-
3.	Rotifera	*Asplanchna intermedia*	+	-	+	+
4.		*Brachionus falcatus*	-	+	-	+
5.		*Brachionus quadridentatus*	+	-	+	-
6.		*Brachionus forficula*	+	+	+	-
7.		*Brachionus havanensis*	-	+	+	+
8.		*Brachionus caudatus*	+	+	-	+
9.		*Keratella tropica*	-	+	+	-
10.		*Keratella irregularis*	+	-	+	+
11.		*Trichocerca tigris*	-	+	-	+
12.		*Lepadella ovalis*	+	+	-	-

Sr No	Genus	Species	Sampling Locations			
			Alesur Local Lake	Surabardi Dam & Reservoir	Wena Dam & Reservoir	Weva River
13.		*Lecane luna*	-	-	+	+
14.	Cladocera	*Ceriodaphnia quadrangula*		+	-	+
15.		*Daphnia longinus*	-	+	-	+
16.	Copepoda	*Diaptomus sicyoides*	-	+	+	-
17.		*Cyclops vicinus*	+	+	+	+
18.	Other forms	*Nematoda*	-	+	-	+
19.		*Oligochaeta*	-	+	+	-

Note: '+' = Present

'-' = Absent

ANNEXURE VII (E)
PHYTO-SOCIOLOGICAL STUDY

ANNEXURE VII E – PHYTO-SOCIOLOGICAL STUDY WITHIN STUDY AREA

A. Trees

Botanical Name	F%	Density /Ha	Basal Area m^2/ Ha	R.F.	R.D.	R. dom.	IVI	SWI (H) DI
1. Acacia catechu	32	52	360.69	9.09	8.72	4.77	22.59	0.19
2. Acacia leucophloea	24	28	386.95	6.82	4.70	5.12	16.63	0.16
3. Acacia nilotica	32	52	397.02	9.09	8.72	5.25	23.07	0.20
4. Azadirachta indica	16	20	575.24	4.55	3.36	7.61	15.51	0.15
5. Bauhinia variegate	8	8	435.99	2.27	1.34	5.77	9.38	0.11
6. Butea monosperma	64	156	436.59	18.18	26.17	5.77	50.13	0.30
7. Cassia fistula	8	8	535.35	2.27	1.34	7.08	10.69	0.12
8. Emblica officinalis	16	20	447.85	4.55	3.36	5.92	13.82	0.14
9. Leucaena leucocephala	16	20	431.29	4.55	3.36	5.70	13.60	0.14
10. Pongamia pinnata	8	12	718.55	2.27	2.01	9.50	13.79	0.14
11. Samanea saman	16	20	721.58	4.55	3.36	9.54	17.44	0.17
12. Syzygium cumini	16	28	727.22	4.55	4.70	9.62	18.86	0.17
13. Tectona grandis	64	120	676.33	18.18	20.13	8.94	47.26	0.29
14. Terminalia arjuna	32	52	711.59	9.09	8.72	9.41	27.23	0.22
Total=	**352**	**596**	**7562.24**	**100**	**100**	**100**	**300**	**2.50**

B. Shrubs

Botanical Name	F %	Density /Ha	Abundance m^2/Ha	R.F.	R.D.	R Abundance	IVI	SWI (H) DI
1. Achyranthes aspera	45	160	355.56	16.36	20.51	10.58	47.46	0.29
2. Barleria prionitis	25	95	380.00	9.09	12.18	11.31	32.58	0.24
3. Calotropis procera	20	50	250.00	7.27	6.41	7.44	21.12	0.19
4. Datura metel	30	95	316.67	10.91	12.18	9.43	32.51	0.24
5. Grewia hirsuta	20	50	250.00	7.27	6.41	7.44	21.12	0.19
6. Holarrhena antidysenterica	15	20	133.33	5.45	2.56	3.97	11.99	0.13
7. Indigofera tinctoria	15	40	266.67	5.45	5.13	7.94	18.52	0.17
8. Jatropha curcas	10	15	150.00	3.64	1.92	4.47	10.02	0.11
9. Justicia adhatoda	15	30	200.00	5.45	3.85	5.95	15.25	0.15
10. Lantana camara	25	50	200.00	9.09	6.41	5.95	21.45	0.19
11. Phoenix acaulis	10	15	150.00	3.64	1.92	4.47	10.02	0.11
12. Solanum xanthocarpum	35	125	357.14	12.73	16.03	10.63	39.38	0.27
13. Vitex negundo	10	35	350.00	3.64	4.49	10.42	18.54	0.17
Total=	**275**	**780**	**3359.37**	**100**	**100**	**100**	**300**	**2.45**

C. Herbs

Botanical Name	F %	Density /Ha	Abundance m^2/Ha	R.F.	R.D.	R Abundance	IVI	SWI (H) DI
1. Acanthospermum hispidum	15	45	300.00	3.57	4.79	9.00	17.36	0.16
2. Alternanthera sessilis	45	130	288.89	10.71	13.83	8.67	33.22	0.24
3. Andrographis paniculata	20	35	175.00	4.76	3.72	5.25	13.74	0.14
4. Argemone mexicana	20	40	200.00	4.76	4.26	6.00	15.02	0.15

Botanical Name	F %	Density /Ha	Abundance m^2/Ha	R.F.	R.D.	R Abundance	IVI	SWI (H) DI
5. Atylosia scarabaeoides	20	25	125.00	4.76	2.66	3.75	11.17	0.12
6. Cassia tora	40	100	250.00	9.52	10.64	7.50	27.67	0.22
7. Cleome viscosa	20	25	125.00	4.76	2.66	3.75	11.17	0.12
8. Curculigo orchioides	10	20	200.00	2.38	2.13	6.00	10.51	0.12
9. Elephantopus scaber	20	40	200.00	4.76	4.26	6.00	15.02	0.15
10. Hyptis suaveolens	25	50	200.00	5.95	5.32	6.00	17.27	0.16
11. Mimosa pudica	10	15	150.00	2.38	1.60	4.50	8.48	0.10
12. Parthenium hysterophorus	70	150	214.29	16.67	15.96	6.43	39.06	0.27
13. Phyllanthus niruri	15	35	233.33	3.57	3.72	7.00	14.30	0.15
14. Tephrosia purpurea	20	40	200.00	4.76	4.26	6.00	15.02	0.15
15. Tridax procumbens	50	160	320.00	11.90	17.02	9.61	38.53	0.26
16. Xanthium strumarium	20	30	150.00	4.76	3.19	4.50	12.46	0.13
Total=	**420**	**940**	**3331.51**	**100**	**100**	**100**	**300**	**2.64**

Note: *D= Density, F= Frequency, RF= Relative Frequency, RD= Relative Density, R. Dom.= Relative Dominance, IVI= Importance Value Index, SWI = Shannon-Wiener Index*

ANNEXURE VII (F) -
BIOLOGICAL CONSERVATION PLAN

3091

BIOLOGICAL CONSERVATION PLAN

FOR

PROPOSED GONDKHARI UNDERGROUND COAL MINE (KAMPTEE COAL FIELD) OF AREA 862.00 HA. AT. VILLAGE GONDKHARI, TAHSIL. KALMESHWAR, DIST. NAGPUR, MAHARASHTRA. 440 023

Baseline Study Period: Pre-Monsoon Season 2022

Project Proponent

adani | Power

M/s. Adani Power Maharashtra Limited






Environmental Consultant

ANACON

M/s. Anacon Laboratories Pvt. Ltd., Nagpur

QCI-NABET Accredited EIA Consultant
MoEF&CC (GOI) and NABL Recognized Laboratory
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
Lab. & Consultancy: FP-34, 35, Food Park,
MIDC, Butibori, Nagpur – 441122
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BIOLOGICAL CONSERVATION PLAN FOR SCHEDULE – I SPECIES

Introduction:

Gondkhari Coal Mine is proposed underground coal mining project in Gondkhari area (Kamptee Coal field) in Nagpur District and which is allotted to M/s. Adani Power Maharashtra Limited (APML) vide vesting order no. NA-104/7/2021-NA, dtd. November 18, 2021. Application for mining lease has been submitted and Approval is under progress. The Mine lease area is 862.00 Ha with production capacity of Coal is 2.00 MTPA (rated capacity) / 3.0 MTPA (Peak Capacity). The method of mining is Mechanised Underground mining method. Life of mine is 26 years.

The lease over an area of 862.00 Ha is located in Village Gondkhari, Tehsil – Kalmeshwar, District - Nagpur, Maharashtra. The nearest habitation is village Gondkhari a distance of 1.50 km in SW direction from the periphery of ML area. The lease area falls under Survey of India Toposheet no. 55 K/16 on 1: 50,000 scale and lies between latitudes N 21°07' 57" - N 21°10’ 56” and longitudes E 78° 54' 45" - E 78°56' 26”.

Biological environment is one of the essential environmental components. It includes variability of flora & fauna in the specified region. Collection of comprehensive baseline information in particular flora and fauna is prerequisite steps for evaluation and identification of impact on REET species due to proposed operation of any extractive industries and its allied activities.

The ecological study of the area was conducted in order to understand the existing status of the flora and fauna to generate baseline information and evaluate the possible impacts on biological environment. The present study highlights the various issues pertaining to floristic diversity and faunal wealth in the surrounding area up to 10 km radius of the proposed UG mining sites.
The baseline study for existing biological environment was carried out during Pre-Monsoon Season - 2022. Study of flora and fauna carried out as per prescribed method addressed in SOP. A participatory and consultative approach was also followed. Field visits were under taken for survey of the vegetation and animals in the study area. The study area is divided into two parts as ML area (Core Zone) and the 10 Km radius from the periphery of ML area (i.e., Buffer Area).

Based on our field observations and literature survey we found several floral and faunal species. Important plant species as well as Schedule-I faunal species are observed in the study area. As per the Wildlife Protection Amendment Act 2022 (Amended on 20th December 2022) we are reported 10 nos. of Sch-I species.

Following Schedule – I faunal species are found in the 10 km radial study area of the project site.

1) Indian peafowl (*Pavo cristatus*)

2) Bengal Monitor Lizard (*Varanus bengalensis*)

3) Shikra (*Accipiter badius*)

4) Common Mongoose (*Herpestes edwardsii*)

5) Indian Cobra (*Naja naja*)

6) Common Rat Snake (*Ptyas mucosa*)

7) Russell’s Viper (*Daboia russelii*)

8) Indian Jackal (*Canis aureus*)

9) Jungle Cat (*Felis chaus*)

10) Sambar deer (*Rusa Unicolor*)

There are no Wildlife Sanctuary, Tiger Reserve, Biosphere Reserve or Elephant corridors within the 10 km radius. There is no National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, within the 10 km radius study area. Gorewada Jungle boundary is 6.69 km in ENE direction. A biological conservation plan is prepared in order to improve surrounding habitat in core and buffer area. The details are as under:

Conservation Plan for Indian peafowl (*Pavo cristatus*)

An Indian Peafowl or Peacock (*Pavo Cristatus*) is a large pheasant justifiably declared as the National Bird of India in 1963 due to its flagship value on its glorious position in mythology and its widespread distribution and grandeur. Being a widespread spread, apart from various habitats, it is also found agriculture field, along the river with good vegetation and close to human habitation in semi feral conditions. In the present study area this species has been confirmed from various habitats located near the village periphery.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Aves
Order	Galliformes
Family	Phasianidae
Species	*Pavo cristatus*
Common Name	Indian Peafowl or Peacock



Indicative Photograph

PHYSICAL DESCRIPTION:

The male, known as a peacock, is a large bird with a length from bill to tail of 100 to115 cm (40 to 46 inches) and to the end of a fully grown train as much as 195 to225 cm (78 to 90 inches) and weigh 4 – 6 kg. The females, or peahens, are smaller at around 95 cm (38 inches) in length and weigh 2.75 – 4 kg. Indian Peafowl are among the largest and heaviest representatives of the Phasianidae family. Their size, color and shape of crest make them unmistakable within their native distribution range.

The male is metallic blue on the crown, the feathers of the head being short and curled. The fan-shaped crest on the head is made of feathers with bare black shafts and tipped with blush-green webbing. A white stripe above the eye and a crescent-shaped white patch below the eye are formed by bare white skin. The sides of the head have iridescent greenish blue feathers. The back has scaly bronze-green feathers with black and copper markings. The scapular and the wings are buff and barred in black, the primaries are chestnut and the secondaries are black. The tail is dark brown and the "train" is made up of elongated upper tail coverts (more than200 feathers, the actual tail has only 20 feathers) and nearly all of these feather's end with an elaborate eye-spot. A few of the outer feathers lack the spot and end in accrescent shaped black tip. The underside is dark glossy green shading into blackish under the tail. The thighs are buff colored. The male has a spur on the leg above the hind toe.

Peacocks are polygamous, and the breeding season is spread out but appears to be dependent on the rains. Several males may congregate at a lake site and these males are often closely related. Males at lake appear to maintain small territories next to each other and they allow females to visit them and make no attempt to guard harems. Females do not appear to favor specific males. Peafowl are omnivorous and eat seeds, insects, fruits, and reptiles. A large percentage of their

food is made up of the fallen berries. Around cultivated areas; peafowl feed on a wide range of crops such as groundnut, tomato, paddy, etc. Around human habitations, they feed on a variety of food scraps. In the countryside, it is particularly partial to crops and garden plants.

HABITAT:

The Indian Peafowl is found mainly on the ground in open scrub forest or on land under cultivation where they forage for berries, grains but will also prey on snakes, lizards, and small rodents. In the study area dense tree canopy cover along the Krishna River supports good insect diversity which is very common food for peafowls. They forage on the ground in small groups and will usually try to escape on foot through undergrowth and avoid flying, though they will fly into tall trees to roost. The bird has accelerated status in Indian mythology, and hence protected culturally in India. The Indian Peafowl is listed as Least Concern by IUCN.

BEHAVIOUR:

Peacocks are gregarious by nature. In the breeding season they are usually seen in small parties of one male with three to five females whereas in the non-breeding season they remain in separate parties of adult males and females with juveniles. Peacock roost in tall trees and emerge from the dense thickets to feed in fields and openings in forests and fields.

FOOD HABIT:

Peacocks are ground feeders. Indian peafowl's do most of their foraging early in the morning and shortly before sunset. They retreat to the shade and security of the trees for the hottest portion of the day. They make a meal of grains, berries drupes wild figs and some cultivated crops. They can also eat insect's small reptiles and small mammals.

THREATS:

No perceptible threats were identified in the villages surveyed. Village resident's area against hunting or poaching of the peafowl, due to culture and mythology reasons.

Adult peafowl can usually escape ground predators by flying into trees. Foraging in groups provides some safety as there are more eyes to look out for predators.

Study Approach

Since the core and buffer zone of the proposed ug mining project site reported with Schedule-I Species names *Pavo cristatus* commonly known as peacock, a systematic study was conducted to assess their status in terms of movement and habitat use of the species. As, first, a detailed biological survey of the core and buffer zone was carried out to understand the status distribution of the species in the study area. Also, questionnaire survey was carried out to understand the recent status of Peacock sighting and their movements. The conclusion of the survey discussed the potential sighting and habitat use, and movement and food habitats of peacock in the study area.

Sighting and Habitat Use:

No peacock was directly sighted in the project site (Core zone). This species is well adapted to natural village environment setting. According to the villagers (Interview), during day time that temporally move towards the surrounding areas like agriculture fields or water bodies for feeding while during night time roosts on the trees present in vicinity of human settlement and also road side trees.

Habitat Improvement Action Plan:

Habitat improvement programme will include plantation of various plant species like *Mangifera indica*, *Lagerstroemia parviflora*, *Tamarindus indica*, *Azadirachta indica* and other species reported from the study area should be taken into priority. In order to improve vegetation cover, it is suggested to carry out extensive afforestation program in different phases. These species will help to provide habitat for faunal diversity, and also increase the species diversity and maintain the naturalness of the surrounding area.

Seed Distribution Among the Villagers:

During this habitat improvement programme the seed of *Syzygium cumini* (Jamun), *Tamarindus Indica* (Imli), *Phyllanthus emblica* (Amla)*, Azadirachta indica* (Neem) *Delonix regia* Gulmohar, *Ficus religiosa* (Peepal), *Cassia fistula* (Amaltas), *Dalbergia sissoo* (Shesham), *Albizia lebbeck* (Shirish), *Ziziphus mauritiana* (Ber), and other seeds will be distributed in the various villages of the study area. Compost packets will be also provided at the intervals of every six months by the proponent (in consultation of forest department).

Awareness Among People in Study Area:

- By conducting awareness programmes (community and school level) for conservation of peacocks in the area and also through organizing competitions during “Wildlife Week” and “Van Mahotsav” celebrations.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Awareness programes for peacock conservation will be carried out once in a year in the schools of different nearby villages. Students will be taught about the behavioral and family studies of the Peacock.
- In school of nearby villages for Peacock conservation as Drawing Competition. (Peacock Picture) & Essay Writing on Peacock.

In consultation of the forest department, following conservation measures will be adapted for peacock conservation:

- Habitat improvement programme in the different villages will be undertaken in the study area for shelter and roosting of peacocks. This will be achieved by plantation of local varieties of the tree species near villages in buffer area. Plantation will also be carried in some forest patches identified by local forest department.
- School level awareness programme will be conducted for conservation of peacock by organizing competition during “Wildlife Week” and “Van Mahotsav” celebration.

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Conservation Plan for Bengal Monitor Lizard (*Varanus bengalensis*)

Bengal monitors or common Indian monitors (*Varanus bengalensis*) occur across much of southern Asia. Compared to other varanid lizards, Bengal monitors have a much larger geographic range, where they are considered less restricted both geographically and environmentally. This species is widely distributed from Afghanistan to Java, including southeastern Iraq, Iran, and Afghanistan, Pakistan and India, southern Nepal, Bhutan, and China, North and South Vietnam, Laos, and islands in the Strait of Malacca and the Greater Sunda Islands.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Reptilia
Order	Squamata
Family	Varanidae
Species	*Varanus bengalensis*
Common Name	Bengal monitor



Indicative Photograph

PHYSICAL DESCRIPTION:

Adult Bengal monitors are generally grey or greenish-grey in color, with a ventral pattern of grey to black crossbars from the chin to the tail. These markings are generally darkest in the western parts and lightest in the eastern parts of the geographic range. These ventral markings typically become lighter, and the ground color darker, with age. Thus, adults display a less pronounced, less contrasting pattern than younger Bengal monitors. In the wild, the heaviest recorded male Bengal monitor weighed 7.18 kg, though captive individuals have been reported to reach 10.2 kg. In the wild, males generally weigh 42% more than females. Males of the same snout to vent length (SVL) as females are typically 9.2% heavier. Young Bengal monitors, on average, weigh 0.078 kg.

HABITAT:

Bengal monitors have the ability to cope with a broad range of environments, from deserts to rainforests to habitats having seasonally snowy winters. However, generally they are found in areas with continuously warm climates, with mean annual air temperatures of approximately 24 7 C. The most common tropical forest habitats for Bengal monitors are deciduous, semi-deciduous, evergreen tropical forests, and thornbrush.

BEHAVIOUR:

Bengal monitors are almost completely solitary. Much of the daytime is spent in constant movement, searching for food. Bengal monitor are more likely to interact with one another during the peak breading season, when males compete for mates.

FOOD HABITS:

The diet of Bengal monitors is almost strictly carnivorous. Common prey include: annelids, insects, amphibians, smaller reptiles, birds, small mammals, and eggs. At smaller body sizes for Bengal monitors, various beetle's species represent the largest portion of their diet, averaging 52.8%. The second largest component of their diet is made up of orthopteran insects at 9.5%. The remainder of their diet is made up of other insects, crabs, rodents, reptiles, spiders, birds and almost any other animal they can reasonably consume.

PREDATION:

Predation on *V. bengalensis* does occur despite the fact that they themselves large predators. Species that prey upon *V. bengalensis* include other Bengal monitors, pythons and other large snakes, eagles, mongooses, wild and domesticated dogs, feral cats, and even humans. Most predation occurs early in life as eggs, hatchlings, and juveniles, while only a small portion of predation involves fully grown adults.

REPRODUCTION:

Females show the greatest chances of successful copulation by mating with only one or two individual males in successive years, though they still may be courted by several other males.

THREATS FOR BENGAL MONITOR:

Poaching due to commercial exploitation of their skins for leather products.

Hunting due to various parts of their bodies are used in some village medicines.

STUDY APPROACH:

Study has been done in order to do biological survey of core and buffer zone of the study area around the wells.

Sightings and Habitat Use: Direct Bengal monitor habitat has not been sighted in the well locations as well as in some of villages near wells. The area was found human occupied and associated surround habitats i.e., crop land, barren land, Scrub land, fallow land and water bodies.

ACTION PLAN FOR THE CONSERVATION OF BENGAL MONITOR:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Bengal monitor during awareness programs like rally, student competition, community meeting, training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Bengal monitor.

Conservation Plan for Shikra (*Accipiter badius*)

The shikra (Accipiter badius) is a small bird of prey in the family Accipitridae widely distributed across its native range. These birds have a sharp two-note call and have the typical flap and glide flight. Their scientific name comes from Latin and is roughly translated as "chestnut-colored or brown hawk".

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Aves
Order	Accipitriformes
Family	Accipitridae
Species	*Accipiter badius*
Common Name	Shikra



Indicative Photograph

PHYSICAL DESCRIPTION:

The Shikra is a small goshawk, measuring 25 to 45 cm in length and weighing 100 to 200 grams. The female shikra is larger than the male and weighs 130 to 260 grams. The wingspan is 50 to 70 cm. The shikra has short rounded wings and a narrow and long tail. The underside is white with fine rufous bars. The upper parts are grey. The lower belly has fewer bars and the thighs are white.

The wingtips are black and the central tail feathers have a dark terminal band. The male shikra have red iris and females have yellow-orange iris. The female shikra have brownish upper parts and the heavier barring on the underparts. Their call is a 'pee-wee' and sharper 'kik-ki ... kik-ki' sound.

HABITAT:

The Shikra inhabits a range of habitats including forests, deciduous woodland, plains, farmlands, savanna, arid steppe and urban areas.

FOOD HABITS & BEHAVIOR:

It is a specialist feeder, living mainly on the larvae of social bees and wasps, and eating bits of comb and honey. It takes other small insect prey such as cicadas. The crested honey buzzard breeds in woodland, and is inconspicuous except in the spring, when the mating display includes wing-clapping. The display of roller-coasting in flight and fluttering wings at the peak of the ascent are characteristic of the genus Pernis.

BREEDING:

The Shikra species breeding season is from March to June. The nest is constructed on trees with twigs as a platform and is lined with grass. Both the partners take part in nest building. The usual clutch is 3 to 4 eggs.

THREATS:

This is large bird of prey and it prefers large trees for roosting and nesting so decreasing amount of such trees is kind of direct threat to the species.

It prefers social bees and wasps for food as well as bits of honey comb so the indirect loss of such species can disturb the food availability of Honey buzzard. It also prey upon small insects such as cicadas so application of various pesticides can indirectly harm the species.

Global Warming and Air pollution can harm this species in seasonal migration and the health of the species.

CONSERVATION MEASURES

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

Increasing the tree cover in the study area which will provide shelter and roosting to the Honey Buzzard. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other Ficus sp. Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighborhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.

Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.

Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.

Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.

Provision of veterinary care and cages for injured or sick deformed birds especially during 'Uttarayan' – A Kite flying festival where the birds are prone to thread injuries.

Conservation Plan for Common mongoose (*Herpestes edwardsii*)

It has been generally accepted that the Indian grey mongoose occurs in Saudi Arabia, Kuwait, Bahrain, Iran, Afghanistan, Pakistan, India, Nepal, Sri Lanka, and Bangladesh. A 2007 study found specimens also in Turkey, and United Arab Emirates, thus extending the known range.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Herpestidae
Species	*Herpestes edwardsii*
Common Name	Common Mongoose



Indicative Photograph

PHYSICAL DESCRIPTION:

The Indian grey mongoose has tawny grey or iron-grey fur, which is more grizzled and stiffer and coarser than that of other mongooses. The ruddiness of the coat varies in different subspecies, but it is described as appearing more grey than other mongooses. The grizzled appearance comes from the individual hairs being ringed by creamy-white and black. The legs are brown and darker than the body. The hair around the muzzle and eyes is also brown but with a stronger rusty red colouring. The tail is bushy, whilst the tip of the tail, if coloured, is pale yellow or white.

Their tail length equals their body length. Body length: 36–45 cm (14-17 inches) Tail length: 45 cm (17 inches), weight: 0.9-1.7 kg (2-4 lb). Males are significantly larger than the females. Indian grey mongooses are unusual in that they can discriminate four colours, more than most other mammals.

HABITAT:

Indian gray mongooses have been observed in areas of thickets, in cultivated fields or in broken, bushy vegetation.

They also occupied open areas, grasslands, and scrub. They sleep in holes in the ground or hollow trees to escape the mid-day sun.

BEHAVIOUR:

Mongooses are terrestrial, diurnal solitary hunters that search during the day and into late evening. They can be seen any time of the day, but Indian gray mongooses are especially active in the early morning and early evening in search of reptiles. They use a quick trot, moving constantly, scanning the area for food. They are rarely seen climbing trees.

FOOD HABITS:

Indian gray mongooses are opportunistic hunters feeding mainly on mice, rats, lizards, snakes, and beetles. Ground birds, their eggs, and parts of plants: fruits, berries, and roots have become a part of their diet. In India, they have been seen chasing a hare and running away with a cattle

egret. In India, the Indian gray mongoose feeds on the eggs and chicks of the red jungle fowl, the peafowl, and the partridges. They have been known to prey in grasslands in search of snakes and small mammals, on beaches in Hawaii, and wading in the water to find food under stones.

They have also been known to prey on grasshoppers, scorpions, centipedes, frogs, crabs, and fish. The mongoose has an elongated skull with specialized teeth for hunting. The incisors form a cutting edge at the front of the mouth, the canines point and protrude allowing it to clamp onto a snake's head, and the molars have pointed cusps for crushing insects.

Primary Diet: omnivore

Animal Foods: birds, mammals, amphibians, reptiles, fish, eggs, insects, terrestrial non-insect arthropods, aquatic crustaceans

Plant Foods: roots and tubers; seeds, grains, and nuts; fruit

REPRODUCTION:

Social hierarchy was evident, and the dominant male and female were observed and reported to mount more often than subordinate animals. There was no significant change in mounting with females in estrus.

Herpestes edwardsi reproduces rapidly, with females giving birth to two or three litters per year. Litters typically contain from 2 to 4 young. The gestation period is 60 to 65 days with parturition occurring in May or June and October to December. Females have four to six mammae.

There was no information available on parental care in Indian gray mongooses. However, as is the case with all mammals, the female nurses her young. Carnivores are typically born altricial, developing in a nest or den of some type. It is reasonable to assume this is true of *H. edwardsi*.

PREDATORS AND THREATS:

The Mongoose has only a few natural predators in the wild such as hawks and big cats. Larger mongooses can ward off predators through sheer physical size, but smaller species in particular are vulnerable to predation from large carnivores. The mongoose is also sometimes threatened by venomous snakes, but thanks to its agility and speed, the mongoose is more than a match for the fearsome reptile. However, some types of mongooses are currently declining due to habitat loss from human encroachment. They require ample space for burrows and social arrangements.

ACTION PLAN FOR THE CONSERVATION OF MONGOOSE:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Mongoose during awareness programs like rally, student competition, community meeting, training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Bengal monitor.

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Conservation Plan for Indian Cobra (*Naja naja*)

The Indian cobra (*Naja naja*), also known as the spectacled cobra, Asian cobra, or binocellate cobra, is a species of cobra found in India, Pakistan, Bangladesh, Sri Lanka, Nepal, and Bhutan, and a member of the "big four" species that are responsible for the most snakebite cases in India.

It is distinct from the king cobra which belongs to the monotypic genus Ophiophagus. The Indian cobra is revered in Hindu mythology and culture, and is often seen with snake charmers.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Reptilia
Order	Squamata
Family	Elapidae
Species	*Naja naja*
Common Name	Indian cobra



Indicative Photograph

PHYSICAL DESCRIPTION:

The Indian Cobra's most known characteristic features are the wide black band on the underside of the neck, and the hood marking design which shows half-rings on either side of the hood. It is a smooth-scaled snake with black eyes, a wide neck and head, and a medium-sized body. Its colouring varies from black, to dark brown, to a creamy white. The body is usually covered with a spectacled white or yellow pattern, which sometimes forms ragged bands. The Indian cobra may grow from 1.8m to 2.2m.

HABITAT:

The Indian cobra inhabits a wide range of habitats throughout its geographical range. It can be found in dense or open forests, plains, agricultural lands (rice paddy fields, wheat crops), rocky terrain, wetlands, and it can even be found in heavily populated urban areas, such as villages and city outskirts, ranging from sea level to 2,000 metres (6,600 ft) in altitude. This species is absent from true desert regions. The Indian cobra is often found in the vicinity of water. Preferred hiding locations are holes in embankments, tree hollows, termite mounds, rock piles and small mammal dens.

BEHAVIOUR:

When threatened, the Indian Cobra will assume its characteristic posture. It will raise the front one-third of its body and elongate its long, flexible neck ribs and loose skin to form its distinctive hood, on which are resembled eyes.

FOOD HABITS:

The Indian cobra feeds on rodents, lizards and frogs. It bites quickly, and then waits while its venom damages the nervous system of the prey, paralyzing and often killing it. Like all snakes, *N. naja* swallows its prey whole. This species sometimes enters buildings in search of rodent prey.

PREDATION:

The Indian cobra has only a few natural predators in the wild. Wild boars and mongooses are known to steal the eggs and consume baby cobras. Mongooses can also kill an adult cobra as well. Other significant predators include Crocodiles and Eagles. If it can avoid falling victim to these predators, especially as a baby, then the Indian cobra has a very healthy and robust average lifespan of 24 years in the wild.

REPRODUCTION:

The Indian Cobra reproduces sexually by the joining of male and female gametes and produces eggs. Most snakes do not pay much attention to their eggs, but this is not the case with the Indian Cobra. The eggs, usually 12 to 20, are laid in a hollow tree, or in the earth, and the female will guard them throughout the incubation period, only leaving to feed. The young snakes will then hatch after approximately 50 days. Immediately freeing itself from the egg, a hatchling is capable of rearing up, spreading its hood and striking.

THREATS FOR INDIAN COBRA:

The Indian cobra is not considered an endangered species, but there are some threats to the species. These include killing them out of fear or for human consumption and road kill.

The Indian cobra is also the snake used by Indian snake charmers. Its toxic venom is also necessary in the production of antivenom and other research including pain-killers and anti-cancer drugs, some of it harvested illegally in regions of India and other countries within its range.

They are also hunted for their skin bearing the distinctive hood markings which is then used in the leather industry. The Indian cobra is one of the many venomous snakes exploited for making traditional Chinese medicines and also snake vine.

ACTION PLAN FOR THE CONSERVATION OF INDIAN COBRA:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Indian cobra during awareness programs like rally, student competition, community meeting and training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Indian cobra.

Coupled with education and awareness programs, the project proponent implements site-specific mitigation measures which could minimize negative interactions with snakes. These include the following efforts: wearing proper footwear at night, using mosquito nets while sleeping, carrying a light while walking at night to avoid stepping on snakes, and promoting simple changes in land use management, such as removal of bushes and garbage that might provide shelter to snakes.

Conservation Plan for Common Rat Snake (*Ptyas mucosa*)

The Oriental Rat Snake is a large snake found in parts of South and Southeast Asia. Their color varies from pale browns in dry regions to nearly black in moist forest areas. These are non-

venomous and fast-moving snakes. They eat a variety of prey and are frequently found in urban areas where rodents thrive.

Rat Snake (Dhaman) is a commonly seen snake which is famous for its fast-crawling speed and much larger size than most of the widely distributed species found in India. Very long body with dark color patterns on the whole dorsal surface are its general identification features. Apart from these it can be identifies precisely by checking posterior body reticulated with black color net like markings. Traditionally people differentiate between Cobra and Rat Snake by accepting Rat Snake to be a snake having head broader than neck or neck thinner than mid body.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Reptilia
Order	Squamata
Family	Colubridae
Species	*Ptyas mucosa*
Common Name	Indian rat snake



Indicative Photograph

PHYSICAL DESCRIPTION:

Large snake; total length up to 260 cm. There are 14-19 (21) rows of smooth or feebly keeled scales. Head is oval to slightly triangular; body is slender to moderately heavy and tail is long. Eye is large; iris is dark brown to brown black dappled with dirty yellow to tan and pupil is large, round jet black, surrounded by ill-defined ring of dirty yellow. Nostril is prominent. The supraocular forms laterally protruding shelf over eye. There are 2-5 loreals at each side. Tongue is large, black to blue-black, with often dark gray fork tips. Upper head is uniform light to dark brown; the labials are distinct due to lines of black pigment on posterior margin of each scale. Upper body and tail are light to dark brown while some scales have dark brown or black margins and are arranged in various designs; the majority tend to form irregular ill-defined narrow bands around posterior body and tail. Juveniles are olive yellow dorsally, and bear transverse rows of white spots across body anteriorly. Ventral head is cream to light gray; some scales possess indistinct black posterior margins. Ventral body is cream to light gray, with pigmented areas on posterior margins that are progressively larger and darker in posterior part of body. Anal scale is divided and subcaudals are paired, distinctly marked dark brown to black.

HABITAT:

Remain hidden in dark and silent places like rat holes, termite mounds, wood caves, under rocks or any narrow and dark place. Distributed in variety of forests including rainforest, scrub lands, semi-desert, dry, moist and mixed deciduous forests, grasslands, mangroves, wetlands etc. Lives

in almost all kinds of habitat due to its tendency to survive in tough conditions; this includes urban areas, dense & open forest, hills & plains, agricultural lands etc. Prefers wet surroundings during summer (shows semi aquatic behaviour few times), while dry during monsoon.

BEHAVIOUR:

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.

FOOD HABITS:

It preys on frogs, toads, lizards, snakes, birds, mice, and small mammals. Unlike many other nonvenomous snakes, P. mucosa does not constrict its prey, but rather uses its body to press it onto the ground or other hard surfaces to suffocate it.

PREDATION:

This species of snakes is very important for the ecosystem for maintaining ecological equilibrium as it plays a significant role in food web as a predator of rodents, amphibians and lizards.

Adult rat snakes have no natural predators, although younger specimens are the natural prey of King cobras that overlap them in their range. Juveniles fear birds of prey, larger reptiles, and mid-sized mammals. They are wary, quick to react, and fast-moving.

Rat snakes and related colubrids are aggressively hunted by humans in some areas of their range for skins and meat.

REPRODUCTION:

Oriental rat snakes' mate in late spring and early summer, though in tropical areas reproduction may take place year-round. During this time males establish boundaries of territory using a ritualized test of strength in which they intertwine their bodies. The behaviour is sometimes misread by observers as a 'mating dance' between opposite-sex individuals. Females produce 6-15 eggs per clutch several weeks after mating. The incubation period lasts around 60 days. The young measure 36-41 cm in total length and are completely independent at birth.

THREATS FOR INDIAN RAT SNAKE:

Threats includes killing due to misidentification with venomous species like King Cobra, other Cobra species. This is one the most intentionally threatened snake in its range due to its prone activity in and around humans and large size. In many parts of its range, it is exploited for skin and edible use. Snake charmers use this species in snake charming because of its large size and harmless to display nature.

ACTION PLAN FOR THE CONSERVATION OF INDIAN RAT SNAKE:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Indian rat snake during awareness programs like rally, student competition, community meeting and training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Indian Rat Snake.

Coupled with education and awareness programs, the project proponent implements site-specific mitigation measures which could minimize negative interactions with snakes. These include the following efforts: wearing proper footwear at night, using mosquito nets while sleeping, carrying a light while walking at night to avoid stepping on snakes, and promoting simple changes in land use management, such as removal of bushes and garbage that might provide shelter to snakes.

Conservation Plan for Russell's Viper (*Daboia russelii*)

Russell's Viper is the most widely distributed Viper family member which is infamous for its fascinating whistle and long fangs. This is one of the most bite and death causing venomous snake in Indian subcontinent and the member of Big Four of India. It can be easily identified by checking oval shaped hollow or solid spots in three rows in dorsal body and highly keeled non-shiny scales. However even with specific body patterns layman sometime assume it to be juvenile of Python.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Reptilia
Order	Squamata
Family	Viperidae
Species	*Daboia russelii*
Common Name	Russell's viper



Indicative Photograph

PHYSICAL DESCRIPTION:

Vipera russelli is 5.5 feet in length and averages about 4 feet. These Indian Russell's viper is distributed throughout Asia. It has a triangular-shaped and flattened head which is quite distinct from the neck; the snout in front of the mouth is rounded, raised, and blunt. The nostrils are large, and the lower edge of the national scale touches the nasorostral scale. The crown of the head is covered with very distinctly fragmented scales and Larry regular. The scales are very narrow and are separated by 6 to 9 scales across the head and are single. Heads are quite large, and the colour is yellow or golden yellow and surrounded by 10 to 15 circumorbital scales. Three or four rows of sub oculars separate the eyes. The two maxillary bones support the fangs, and at most, they have six pairs of fangs at a time.

HABITAT:

The snake is usually found in open grassy areas and found in scrub jungles of forests and plantations, and farmlands. It is most common in the plain's coastal areas and hills, which have a suitable habitat. It is generally not found in higher altitudes and humid environments such as mass forms and rainforests. These are abundant in highly urbanized areas in settlements in the countryside as they are attracted by the rodents found in settlements. As a result, this many of the victims of the snakes are from well-settled areas, but it is not closely associated with humans as cobras and kraits.

BEHAVIOUR:

Russell's Viper is a nocturnal species which choose nights for foraging and other life activities. Seen at daytime during basking which can retain for most of the day during winters. Shows terrestrial activity and choose drier surrounding. Locomotion usually slow but creeps in somewhat jumpy manner after threatening. Behaviour alert and aggressive if one comes under its attacking

range or sitting site. On provocation make a plate like rounded coil with head at center and produce whistle or pressure cooker like sound to alarm its enemy. On further disturbance gives random attacks to scratch enemy's body parts and may or may not deliver its hemotoxic venom.

FOOD HABITS:

The preys of Russell's viper snakes mostly include rodents, although they can even feed on small reptiles, land crabs, scorpions, and other arthropods. Juveniles are crepuscular and can feed on lizards. As they grow and become adults, they begin to specialize in hunting rodents.

They have a fearsome reputation within the natural environment. They can mimic their appearance according to the environment and blend very well with the surroundings, so they are successful as a species.

PREDATION:

Feeds chiefly on rodents; also feeds on birds, lizards, frogs and small mammals.

REPRODUCTION:

This species is oviparous, and mating generally occurs during the year, although the females may conceive at any time of the year. The gestation period is more than six months for this species, and the young ones are hatched from May to November but mostly from July and June. It is an adamant breeder. All the fear of spring may occur as few as one litter of 20 to 40 are most common. The minimum length for a gravid female is about a hundred centimetres, and they gain sexual maturity by 2 to 3 years.

THREATS FOR RUSSELL'S VIPER:

Road kill mortality, killing due to its venom potency and aggression on encounter with humans on field are two most commonly known threats. Illegal venom trade for various use including medical and research use is regularly noticed in parts of its range. In many parts of country it is exploited for skin and edible use.

ACTION PLAN FOR THE CONSERVATION OF RUSSELL'S VIPER:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Indian rat snake during awareness programs like rally, student competition, community meeting and training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Russell's Viper.

Coupled with education and awareness programs, the project proponent implements site-specific mitigation measures which could minimize negative interactions with snakes. These include the following efforts: wearing proper footwear at night, using mosquito nets while sleeping, carrying a light while walking at night to avoid stepping on snakes, and promoting simple changes in land use management, such as removal of bushes and garbage that might provide shelter to snakes.

Conservation Plan for Indian jackal (*Canis aureus indicus*)

Commonly called as the Indian or Golden Jackal. It is more similar to the wolf in appearance but is smaller in size. It usually lives in pairs but also singly or in families. They have an omnivorous diet.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Canidae
Species	*Canis aureus indicus*
Common Name	Indian jackal



Indicative Photograph

PHYSICAL DESCRIPTION:

Its fur is a mixture of black and white, with buff on the shoulders, ears and legs. The buff color is more pronounced in specimens from high altitudes. Black hairs predominate on the middle of the back and tail. The belly, chest and the sides of the legs are creamy white, while the face and lower flanks are grizzled with gray fur. Adults grow to a length of 100 cm, 35–45 cm in height and 8–11 kg in weight.

HABITAT:

Indian jackals prefer dry open country, arid short grasslands and steppe landscapes. It is usually seen in the outskirts of human habitation where it leads a nocturnal lifestyle. Urban and semi-urban areas, mangroves, grasslands and forests. Often seen around human settlements and known to be more tolerant of human presence.

BEHAVIOUR:

It is a very useful scavenger, clearing away all garbage and carrion from the neighborhood of large towns, but occasionally committing depredations among poultry and other domestic animals. A wounded antelope is pretty certain to be tracked and hunted to death by jackals. They will however partake freely of vegetable food. It is known to consume large quantities of the ber fruit, *Ziziphus jujuba*. It also is known to devour considerable quantities of ripe coffee-berries. It has an old name of the "lion's provider" and are generally credited tales about one always attending the tiger. Frequently seen in the company of a tiger.

FOOD HABITS:

Indian Jackals feed both on animals and plants. Their carnivorous food includes rodents, hares, young gazelles, young langurs, birds, fish, eggs, insects, reptiles, amphibians, mice, ducks,

pheasants, lizards, snakes, carrion, voles, squirrels, ground cutters and scavenging diet. Their herbivorous food includes fruits, mulberry, apricots, tomatoes, watermelon, muskmelon, grapes and olive fruit. They usually live in packs which include the family members. Jackals are good hunters and they usually hunt the pre in groups. They wait for the scavengers to kill and fill themselves, and then they would feed on the remaining meat left by the scavengers.

REPRODUCTION:

The mating start when the make are two years of age and females are around one year old. The male and howl together once they start their courtship and this happens all round the year. Both male and female remain in pairs until the young is born. The gestation period lasts for about nine weeks after which they give birth to three to six pups in a single litter. The new borns weight around 200-250 grams and have a soft fur. They open their eyes on the 10^{th} day.

The mothers wean their cubes for three to six weeks. They are trained to eat solid food and about three month. They stay with their mother until the age of 5 months. Their lifespan is 14-16 years.

THREATS FOR INDIAN JACKAL:

One of the serious concerns to their population is diseases. Rabies and distemper, for example, occasionally cause high numbers of mortality among these animals. On the other hand, they are hunted and persecuted as livestock predators and pests. However, the major threat is the alteration of traditional land-use practices. Some parts of their habitat are presently turning to industrial areas and agricultural lands, which leads to a reduction of cover and food shortages.

Various studies reveal that the population of Jackal is decreasing in various ranges except in the protected areas like Sanctuaries and National parks.

ACTION PLAN FOR THE CONSERVATION OF INDIAN JACKAL:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Indian jackal during awareness programs like rally, student competition, community meeting and training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Indian jackal.

Conservation Plan for Jungle cat (*Felis chaus*)

One of the most common wild cats in India, the Jungle Cat, also called reed cat and swamp cat is often mistaken for leopards due to physical similarities. This puts these docile cats at risk of being persecuted at the hands of humans who act out of fear and panic.

This species is found in the Middle East, the Indian subcontinent, Central and Southeast Asia, Sri Lanka, and Southern China. Jungle cats inhabit a variety of habitats in India like swamps, wetlands, flood plains as well as human-dominated landscapes. They play the role of nature's pest control as they eat rodents, therefore can be economically beneficial for farmers. However, they often come in conflict with humans residing in close quarters.

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Felidae
Species	*Felis chaus*
Common Name	Jungle cat



Indicative Photograph

PHYSICAL DESCRIPTION:

Jungle cats' range in size from 70 to 120 cm long and 35 to 38 cm tall. They weigh from 4 to 16 kg. Adult males are larger and heavier than adult females. Throughout their range, significant variation in mass occurs. For example, in west Israel, they weigh 43% more than those in east India. This is likely due to increased competition between different cat species in the east. Jungle cats have long, slim faces with white lines above and below their bright yellow eyes with a dark spot just below each eye near the nose. They have long rounded ears, with a distinctive tuft of hair at the tips. Jungle cats have relatively short tails, about 1/3 of their total body length, which have several dark rings along its length and a black tip. Their coat color varies from a reddish or sandy brown to tawny grey. Black jungle cats are regularly seen in southeastern Pakistan and India. Kittens may be striped and spotted, however, these markings typically fade with age and are only retained on the fore and hindlimbs. The muzzle, throat, and belly of the jungle cat are a pale cream color, and their winter coat is darker and denser than their summer coat.

HABITAT:

Jungle cats are usually found in swamps and wetlands, on flood plains, and within dense coastal vegetation at altitudes that are relatively low. Although they are nearly always associated with dense vegetation and water, these cats may also occur in a wide range of other types of habitats, including deserts, where they live near oases and along riverbeds, as well as in woodland, grassland, and dry deciduous forests.

BEHAVIOUR:

Except for breeding season, jungle cats live solitary lives. They are most active at night, but are not strictly nocturnal. They are more often seen at dusk and travel approximately 5 to 6 km per night. They typically rest in dense cover during the day but often sunbathe on cold winter days. Unlike most cat species, jungle cats have an affinity for water and are proficient swimmers that will dive into water to catch fish with their mouths.

FOOD HABITS:

Jungle cats primarily prey on animals that weigh less than 1 kg and commonly consume rodents, lizards, snakes, frogs, birds, hare, fish, insects, livestock, and even fruit during the winter. Rodents are its primary prey item, however, which provides up to 70% of its daily energy intake. Although they specialize on small prey, jungle cats have been known to kill wild pigs (*Sus scrofa*) and chital fawns (*Axis axis*).

PREDATION:

As cubs, jungle cat have markings that help camouflage them from potential predators. Although they may sometimes fall prey to large snakes (Serpentes) or other large mammals (e.g., leopards, *Panthera pardus*), their primary predator is humans (*Homo sapiens*). They are often treated as pests and hunted or poisoned by farmers for attacking poultry. India formerly exported large numbers of jungle cat skins before they came under legal protection in 1976, however, illegal trade continues to this day

REPRODUCTION:

Jungle cat mating season is marked by the shrieks and fighting of male cats. Vocalization rates of males and females increases prior to copulation. Intense mew calls are used by both genders to attract potential mates. They also scent mark territorial boundaries, which may help them find and locate potential mates. Male and female jungle cats may have multiple different mates throughout their lives.

- **Mating System:**

Jungle cats breed twice a year and produce litters of 3 to 6 kittens. Breeding season varies regionally and gestation lasts between 63 and 66 days. Kittens are quite large at birth (136 g) and gain weight at a rate of about 22 g per day. Kittens nurse until they are about 90 days old, but begin to eat solid food around day 49. They are not completely weaned until 15 weeks old. Jungle cats are independent by 8 to 9 months of age and reach sexual maturity at 11 to 18 months of age.

Jungle cats live in families consisting of mother, father, and offspring while cubs are being reared. Paternal investment is limited to territorial defense while mothers provide cubs with food via nursing. Young jungle cats develop predatory skills rapidly and are able to stalk, kill, and eat their own prey by 6 months old. At 8 to 9 months old, although only half the size of a mature adult, they are independent.

In captivity, jungle cats live an average of 15 years, but have been known to live up to 20 years. Lifespan in the wild ranges from 12 to 14 years.

THREATS FOR JUNGLE CAT:

The greatest threat facing this cat is reclamation and destruction of natural wetlands. The Jungle cat is under threat by habitat loss and hunting by humans, and its prey numbers have been reduced by the conversion of its natural habitat. The highly adaptable cat has therefore fed on livestock and this has caused conflict with farmers, who lay traps and poisons.

ACTION PLAN FOR THE CONSERVATION OF JUNGLE CAT:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Jungle cat during awareness programs like rally, student competition, community meeting and training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Indian jackal.

Conservation Plan for Sambar deer (*Rusa Unicolor*)

The sambar (*Rusa unicolor*) is a large deer native to the Indian subcontinent, South China and Southeast Asia that is listed as a vulnerable species on the IUCN Red List since 2008. Populations have declined substantially due to severe hunting, local insurgency, and industrial exploitation of habitat.

The name "sambar" is also sometimes used to refer to the Philippine deer called the "Philippine sambar", and the Javan rusa called the "Sunda sambar".

Classification:	
Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Artiodactyla
Family	Cervidae
Species	*Rusa unicolor*
Common Name	Sambar



Indicative Photograph

PHYSICAL DESCRIPTION:

The appearance and the size of the sambar vary widely across its range, which has led to considerable taxonomic confusion in the past; over 40 different scientific synonyms have been used for the species. In general, they attain a height of 102 to 160 cm (40 to 63 in) at the shoulder and may weigh as much as 546 kg (1,204 lb), though more typically 100 to 350 kg (220 to 770 lb). Head and body length varies from 1.62 to 2.7 m (5.3 to 8.9 ft), with a 22 to 35 cm (8.7 to 13.8 in) tail. Individuals belonging to western subspecies tend to be larger than those from the east, and females are smaller than males. Among all living cervid species, only the moose and the elk can attain larger sizes.

The large, rugged antlers are typically rusine, the brow tines being simple and the beams forked at the tip, so they have only three tines. The antlers are typically up to 110 cm (43 in) long in fully adult individuals. As with most deer, only the males have antlers.

The shaggy coat can be from yellowish brown to dark grey in colour, and while it is usually uniform in colour, some subspecies have chestnut marks on the rump and underparts. Sambar also have a small but dense mane, which tends to be more prominent in males. The tail is relatively long for deer, and is generally black above with a whitish underside.

Adult males and pregnant or lactating females possess an unusual hairless, blood-red spot located about halfway down the underside of their throats. This sometimes oozes a white liquid, and is apparently glandular in nature.

DISTRIBUTION AND HABITAT:

The sambar is distributed in much of South Asia as far north as the south-facing slopes of the Himalayas in Nepal, Bhutan and India, in mainland Southeast Asia including Burma, Thailand, Indochina, the Malay Peninsula, Indonesia (Sumatra and Borneo), Taiwan, and South China, including Hainan. In the Himalayan foothills, Myanmar, Sri Lanka, and eastern Taiwan, it ranges up to 3,500 m (11,500 ft). It inhabits tropical dry forests, tropical seasonal forests, subtropical mixed forests with stands of conifers and montane grasslands, broadleaved deciduous and broadleaved evergreen trees, to tropical rainforests, and seldom moves far from water sources. In 2023, a study showed that sambar deer had returned to Singapore due to several escapes from zoos, after it has been believed to be extinct on the island country.

The sambar prefers the dense cover of deciduous shrubs and grasses, although the exact nature of this varies enormously with the environment because of its wide Asian range. Home range sizes are probably equally variable, but have been recorded as 1,500 ha (3,700 acres) for males and 300 ha (740 acres) for females in India.

HABITS AND LIFESTYLE:

Sambar are nocturnal or crepuscular animals and rest during the day under the cover of heavy forest. The males live alone for much of the year, and the females live in small herds of up to 16 individuals. Males are nomadic and will establish their territory primarily during the breeding season; they wallow and dig their antlers in urine-soaked soil, and then rub against tree trunks. Despite their lack of antlers, female sambar readily defend their young from most predators, which is relatively unusual among deer. When confronted by pack-hunting dholes or feral domestic dogs, a sambar lowers its head with an erect mane and lashes at the dogs. Sambar prefer to attack predators in shallow water. Several sambar may form a defensive formation, touching rumps and vocalizing loudly at the dogs. When they perceive danger, sambar stamp their feet and make a ringing call known as "pooking" or "belling".

BEHAVIOUR:

Unlike many other types of deer species, sambars do not form large herds together. Males in particular tend to have minimal contact with members of the same species. When the breeding season arrives, the males will establish and defend a solitary territory, probably a few square miles in size, whereas females may congregate together in groups of up to eight or 16 individuals. These small female-only herds will sometimes travel together with their offspring for safety and protection. Sambars stick to a fairly simple schedule throughout the day. They feed during the night and rest in cover during the daytime hours. Highly agile, they are considered to be fast runners and excellent swimmers. They do make a few vocalizations to communicate with each other, including many bellowing calls to attract a mate and barking alarm calls when disturbed by predators, but for the most part, they are fairly silent animals without a complex verbal repertoire. Their main means of communication appear to be done through scent. Males will make their territory with secretions and urine. They also stomp their feet when agitated.

FOOD HABITS:

Sambar are herbivores, eating various grasses, foliage, fruits, leaves, water plants, herbs, buds, berries, bamboo, stems, and bark, as well as a wide range of shrubs and trees.

PREDATORS AND THREATS:

Apart from its natural predators, this species is currently threatened by habitat loss, hunting, and local warfare. Humans hunt these wild animals both for sport and to gather their fur and meat. People also kill sambars to prevent them from damaging agricultural crops. This decline has a negative effect on the rest of the ecosystem because this species is such an important part of the food chain.

Hunting and habitat encroachment are the main threats. Sambar have developed more of a nocturnal activity pattern as a response to hunting by humans, who hunt them for trade and for food. Natural predators are leopards, tigers, dholes, wolves, and crocodiles. They are sometimes captured for zoos.

REPRODUCTION:

Sambar are polygynous, meaning that one male mates with multiple females. Males are very aggressive at the time of the breeding season. They guard their breeding territory and attract female deer by means of vocal displays and smell. There is no specific breeding season, though it most commonly takes place between September and January. Usually, just one fawn is born, after a gestation period of about 9 months. Calves at birth are very active. Their hair is brown with lighter spots, which soon disappear. They begin to eat solid food from 5 to 14 days and ruminate once they are 27 to 35 days old. They stay with their mothers for approximately 2 years.

ACTION PLAN FOR THE CONSERVATION OF SAMBAR DEER:

Distribution of pamphlets, booklet, T-Shirts, Hats containing information, picture and conservation message about the Sambar during awareness programs like rally, student competition, community meeting and training workshop.

Create awareness among local people, villagers, district administrative staff through forest personnel, NGOs and educational institutes for the protection, research and monitoring of Indian jackal.

CONSERVATION MEASURES FOR FAUNA WITH RESPECT TO PROJECT PROPONENT

Suggest strategies to minimize negative impacts of changing environment in nearby area of Schedule-I specie's populations and to promote conservation of habitats.

Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.

With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Amendment Act 2022. The Act was amended in December 2022 and punishment and penalty for offences under the Act have been made more stringent.

1) Strategy: Will make it an essential component of the project to look after the well-being of the animal in its natural habitat.
2) Protection and development of habitat: Will keep vigil on illicit felling and illegal grazing in the nearby area. All other activities which may damage the habitat will be kept on watch.
3) Strategy to enhance food supply: Planting of fruit and berries bearing species in the project area will be carried out. In the core zone, the grain-feeding trays will be provided to get feed along with artificial water body.
4) Creation of tree groves: It will help the bird provide very good shelter for resting and roosting. The increased number of trees will increase flowering and hence the insects and butterflies which may serve the assured food supply.
5) Awareness strategy: It will be ensured through regular awareness programs and through publicity by way of signage's, posters, bill distributions, public meetings, announcements, student's awareness sessions etc. with the help of forest department.

HABITAT MANAGEMENT FOR FLORA AND FAUNA

Food Management:

The grasses and palatable shrubs are very sparsely distributed and so unable to fulfil the requirement of herbivores. Hence the area should be managed in such a way that plenty of food should be available round the year for herbivores. It will be done by ensuring habitat protection and its improvement by developing grassland and other browse species like *Zyzyphus, Sissoo, Bauhinia, Karanj, Bamboos* etc, fruit trees such as *Bargad, Pipal, Wild fig, Amla, Bel,* etc. at suitable places.

Similarly, a number of salt licks should be provided at different places in the forest area. *Heteropogon contortus, Chrysopogon species, Dicanthium sp., Saccharum sp.* are the main grasses constituting the ground cover. The grasslands have been deteriorated due to weed infestation. This needs proper management.

The birds mostly feed upon insects and fruits of the species like; *Fiscus bengalensis, Fiscus glomerata, Tendu (Diospyros melanoxylon), Mahua (Madhuca indica), Zizyphus spp., Bridellia retusa* etc. emphasis should be given for plantation of fruit bearing plant species mentioned above especially near water source or reservoir for providing perching and nesting site. Apart from this

the fruit yielding tree species listed in site specific survey should be encouraged for habitat improvement of birds since they are the native flora of the area.

Water Management:

Water is essential not only for animals but also for plants, microbes and all ecological processes. Both in-situ and ex-situ conservation of water should be done by various means. It will be ensured that catchments remain covered with vegetation at all times by protection and plantation, so that erosion and run off will be kept at the minimum. Works like creation of contour trenches; gully plugging etc. will be carried out wherever necessary from time to time through annual plans. De siltation of main reservoirs even in the villages will also be done periodically, so that water will remain available even in summer months.

The water becomes an important threat to wild animals immediately after March. The condition remains same up to July. Water bodies are required around the surrounding areas project site to improve the water regime of the habitat. Since water is an important component for survival of species and requirement of water in increased during summer. So, management of water is a must for improving the water regime for the purpose of Wildlife Conservation.

Cover or Shelter Management:

Cover or shelter is another important requirement for the welfare of the species. The cover may be natural or artificial. It can be said that different kind of covers like winter cover, summer cover, refuse cover, breeding cover, fawning cover, resting cover, ambush cover and nesting cover are required for different animals for different purpose. It can be ensured by strict protection of habitat, that includes dens, caves, rocks, nalas, ravines, vegetal cover etc and further, by improvement of habitat by planting in blanks with suitable plant species listed in site specific survey for rehabilitation of degraded forest areas as well as habitat change.

The project has included in its design planting of trees. The program will be implemented in collaboration with the Forest Department who have forestry offices and nurseries in their jurisdiction. Recommended types of trees will be determined by the Forest Department. The program shall be community based and accompanied by awareness and sensitization of the people.

Fire Management:

With the onset of dry season in sensitive areas people will be educated to prevent intentional fires and to extinguish them completely. Most of the fires in forest are intentional fires set by villagers for obtaining new flush of grasses for grazing and for the collection of Tendu leaves suitable for bidi making. In addition, sometimes accidental fires are caused by throwing of cigarette butts or bidis without extinguishing. These fires naturally go against the conservation values of the area as the food and cover base of the wild fauna is destroyed and the soil is exposed to the danger of erosion and run off, weed infestation and, therefore, replacement of natural flora with unnatural and unpalatable species.

Fire is harmful because it leads to loss of cover of herbivores as well as destruction of eggs and nests of ground birds like Quail and bush living birds. Besides it accelerates soil erosion, deteriorate the forest and ultimately reduce the aesthetic value of the forest.

The adverse impact of fire should be highlighted by signboard & distribution of pamphlets. For combating the menace of fire, a firefighting squad will be employed on daily wage every year during

summer for the purpose of early detection and control. Occurrence of fires, location, causes, extent of damage etc. will be properly documented for improving the fire management plan periodically.

ECO - Development Work in Surrounding Villages to Reduce Conflict:

The conservation of wildlife or forest cannot be dealt in isolation. The need of the people who were traditionally depended on forest for their livelihood, should get benefit from the project so that their support in wildlife conservation measures can be obtained. Eco-development measures can help in wining confidence of local people.

(i) Cattle Grazing: The surrounding village's economy is heavily dependent on animal husbandry. Goats have been a traditional source of income generation for poor people. Since the locals are mostly landless or marginal farmers, they can't produce fodder for their own cattle and practice stall-feeding. Low productivity of the traditional breeds of milking cows also makes it economically unviable to feed them on farm-produced fodder. The locals, therefore, are left with no choice but to send their cattle to adjoining forests for regular grazing.

(ii) Need for firewood and small timber: In the absence of firewood and small timber availability from their private or community lands, the local villagers have to solely depend on the forest for their regular supply. The major use of timber is in making ploughs and fencing the farmlands.

(iii) Agricultural Productivity: The local villager economy is mostly dependent on agriculture. However, due to small and fragmented land holdings, lack of proper irrigation facilities, monsoon based single-crop cultivation pattern, use of traditional farming methods etc., agricultural productivity is too low to sufficiently meet the basic needs of the local population.

(iv) Apathy / unawareness to wildlife: The common people are unaware about the importance of wildlife in day-to-day life so they remain unconcern about its importance. There is the need to establish link with wildlife through conservation awareness programme.

CONSERVATION STRATEGIES FOR LOCAL/RESIDENT BIRDS:

M/s. APML shall be planting 5000 plants in 2 ha., which is continuous activity, in consultation with forest department and the native species will be planted. Trees of different varieties within lease area premises act as oxyzone for the surrounding living biota. These positive steps will helpful to serve as a roosting, breeding and nesting ground for various resident/local birds. Thus, it will helpful for enrichment of local biodiversity.

Various birds are opportunists and are able to live wherever there are suitable nesting sites, roosting sites and enough food availability. Thus, implementation of artificial nest boxes, bird feeders and water pot within the project premises will be helpful to enhance the bird population and also add aesthetic value to the surrounding environment.

Suggested Conservation Strategies:

- **Artificial Nest Boxes:**

In the recent years, artificial nest boxes have been promoted in gardens and plantation area to provide a safe and secure place for birds to build their nest and lay eggs. These boxes have proved extremely valuable for the birds because they provide alternative nesting site for them.

Artificial Nest boxes are of following types:

- Shoe box as sparrow nest
- Earthen pot as nest boxes

- Wooden nest boxes, etc.

The wooden boxes are constructed under water-proof plywood with scientific measurements. Other material such as dust ply or cardboards can also be used.

➢ **Installation Nest Boxes:**

- Location of nest boxed should be safe so that they cannot be approached by predators. The assembling and nailing should be so systematically to provide strength
- Installation should be done with proper drilling and heavy nail with holder
- Nest box should be tied up with metallic wires so that it does not get removed from its fixed place due to small jerks, ensuring safety from attack of predators
- The boxes should be fixed at an average height of 6-24 feet
- The nest boxes should be fixed under shaded portion of the house to prevent direct rainfall, dew and sunlight
- Ensure, it does not move too much in windy and stormy weather.
- The boxes should be fixed such that they are supported by the wall. This reduces the free movement of the nest box when approached by the nesting birds.
- The nest boxes should never be installed on trees as they are always associated with humans and construct nest in man-made buildings.

➢ **Bird Feeder:**

- A bird feeder is the devices placed outdoors to supply bird food to birds (bird feeding). The success of a bird feeder in attracting birds depends upon its placement and the kinds of foods offered as different species have different preferences.

➢ **Placing Bird Feeders for the Birds:**

- The most important factors to consider when choosing the best bird feeder placement are those that affect how the birds will see and use the feeder.
- If the birds do not find the feeder placement comfortable, safe or convenient, they will not use it as frequently.

➢ **Natural Feeding:** The best place to put a feeder will simulate a bird's natural feeding preferences. Feeder should place near tree trunks or thick branches. Platform feeders for ground-feeding birds do best in areas where those birds will normally feed. Nectar feeders will be more popular if placed near nectar producing flowers.

➢ **Earthen/clay pot:**

Birds need water for drinking and bathing, they are attracted to water just as they are to feeders. Bird bath or simply use dishes or shallow earthen pans of shallow pot.

➢ **Placing of Earthen/clay pot or Dishes for water**

Birds seem to prefer baths that are at ground level, but raised baths will attract birds as well. For drinking and bathing purposes earthen shallow pot can be hang through wire at multiple strong branches of trees within the plant premises.

INDICATIVE PHOTOGRAPHS



Artificial Wooden water proof Nest



Coconut shell nest





Indicative photographs of bird feeders




Indicative photographs of water pot/bath for birds.

Literature review:

1. A house for the house sparrow ~Akhilesh Kumar, et.al.
2. *https://feederwatch.org/learn/feeding-birds/*
3. *http://www.birds.cornell.edu/AllAboutBirds/notes/BirdNote09_ProvideWater.pdf*

BUDGET FOR CONSERVATION:

The provisions in the budget have been designed to improve the habitat in terms of food, water and shelter. Attempt has been taken to reduce the human-animal interface conflicts by habitat improvement for wildlife, awareness programme and training programme for the villagers. The total budgetary provision has been summarized in following table.

Sr. No.	Component	Capital Cost in Lakhs	Recurring Cost in Lakhs
1)	Plantation of fruit bearing trees in association with Chief wildlife warden and Eco - Development Work in Surrounding Villages to Reduce Conflict	5	1
2)	Habitat management for Flora and Fauna	4	0.8
3)	Awareness generation programs in consultation with Chief Wildlife warden like in schools, setting up of interpretation zones, etc. for next five years. (Includes farmers and local villagers)	1	0.2
	Total =	**10**	**2.0**

The overall objective of environmental and social monitoring is to ensure that mitigation measures are implemented. Environmental monitoring will be carried out to ensure that all activities comply and adhere to environmental provisions and standard specifications.

ANNEXURE VIII
SOCIO-ECONOMIC STUDY

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ANNEXURE VIII-A

DEMOGRAPHIC DETAILS

S.No	Name	No_HH	TOT_P	TOT_M	TOT_F	P_06	P_SC	P_ST	P_LIT	P_ILL
0-2km										
1	Surabardi	409	1866	980	886	270	187	75	1406	460
2	Gondkhairi	1519	6035	3142	2893	732	1381	585	4593	1442
3	Ketapar	136	602	317	285	62	84	4	452	150
4	Kalambi	302	1336	700	636	124	224	59	1095	241
5	Sahuli	209	845	416	429	105	211	87	660	185
6	Alesur	114	496	265	231	54	16	0	351	145
Total		**2689**	**11180**	**5820**	**5360**	**1347**	**2103**	**810**	**8557**	**2623**
2-5km										
7	Waddhamana (CT)	1348	6148	3133	3015	775	771	526	4674	1474
8	Khapri	240	1040	548	492	112	272	215	777	263
9	Pendhari	140	593	299	294	84	0	200	404	189
10	Drugdhamna	407	1862	924	938	272	579	126	1192	670
11	Davlameti (CT)	3404	14545	7529	7016	1572	6201	553	11901	2644
12	Khangaon	35	172	86	86	13	31	0	129	43
13	Ambazari	181	801	449	352	98	12	577	501	300
14	Khairi	88	339	215	124	34	30	170	211	128
15	Mangrul	156	498	266	232	65	34	176	340	158
16	Vyahad	396	1600	859	741	186	136	54	1247	353
17	Pethkaldongari	379	1567	820	747	180	135	71	1216	351
18	Ashti	78	336	168	168	35	163	23	248	88
19	Gumthala	122	564	282	282	65	46	89	414	150
20	Selu	158	751	388	363	90	19	4	534	217
21	Dahegaon	118	463	240	223	54	9	30	291	172
22	Nimji	312	1141	600	541	137	137	67	843	298
Total		**7562**	**32420**	**16806**	**15614**	**3772**	**8575**	**2881**	**24922**	**7498**
5-10km										
23	Wanadongri (CT)	9169	37667	20171	17496	4863	5423	1897	29296	8371
24	Wadi (CT)	12842	54048	28143	25905	6398	14658	2232	44188	9860
25	Kalameshwar	19950	85457	43904	41553	9051	13620	8019	63599	21858
26	Ghogali	136	558	276	282	53	470	20	427	131
27	Uparwani	394	1676	904	772	176	57	18	1268	408
28	Khairi (Harji)	146	637	328	309	62	118	31	503	134
29	Nimboli	48	194	103	91	21	0	14	130	64
30	Lonara	222	908	474	434	99	98	40	659	249
31	Zunki	133	511	268	243	44	64	50	374	137
32	Bamhni (CT)	2450	10341	5407	4934	1171	1241	594	8276	2065
33	Khairi (Desh)	53	220	118	102	30	1	176	114	106
34	Pardi	164	737	393	344	87	60	10	517	220
35	Ashti	78	336	168	168	35	163	23	248	88
36	Borgaon	239	1103	573	530	128	228	52	843	260
37	Mahurzari	373	1716	870	846	183	463	566	1246	470
38	Godhani (Railway)	2158	9804	5039	4765	1012	2203	512	7981	1823

39	Fetari	570	2559	1314	1245	280	495	292	2048	511
40	Yerla	381	1626	836	790	186	383	247	1258	368
41	Chicholi	208	915	490	425	97	16	111	708	207
42	Bodhala	81	368	196	172	47	2	12	249	119
43	Lava	1411	6113	3246	2867	755	2097	426	4843	1270
44	Dabha	124	535	263	272	58	21	72	358	177
45	Sonegaon	241	1025	545	480	98	153	8	840	185
46	Digdoh	197	775	407	368	62	55	268	579	196
47	Nildoh	98	426	220	206	47	5	161	353	73
48	Raipur	1891	8653	4469	4184	996	1284	1048	6789	1864
49	Sukali (kalar)	139	591	302	289	53	92	168	425	166
50	Hingna	1794	7668	4005	3663	910	309	677	6022	1646
51	Kinhi	169	781	415	366	74	115	27	644	137
52	Nanda kh	12	40	23	17	6	0	5	22	18
53	Mandavghorad	262	1143	587	556	115	73	495	804	339
54	Zilpi	15	45	24	21	7	5	19	29	16
55	Mohgaon	375	1653	842	811	183	327	548	1206	447
56	Mangli	135	579	288	291	45	22	238	443	136
57	Dhanoli	236	952	483	469	95	162	109	710	242
58	Junewani	232	1017	515	502	118	115	151	807	210
59	Ukhali	139	990	536	454	86	30	757	826	164
60	Metaumari	365	1538	784	754	181	23	120	1085	453
61	Turagondi	94	376	200	176	52	26	189	269	107
62	Neri	317	1405	709	696	132	134	90	1046	359
63	Kinhi	54	195	106	89	28	11	107	143	52
64	Nildoh	98	426	220	206	47	5	161	353	73
65	Nandera	50	151	76	75	19	0	138	88	63
Total		58243	248458	129240	119218	28190	44827	20898	192616	55842
Grand Total		68494	292058	151866	140192	33309	55505	24589	226095	65963

Note: No_ HH: Number of household, TOT_ M: Total Male, TOT_F: Total Female, P_06: Population 0-6, F_06: Female 0-6, P_SC: Population SC, P_ST: Population ST, P-LIT: Population Literate, P_ILL: Population Illiterate

ANNEXURE VIII-B

EMPLOYMENT PATTERN

S. No	Name	TOT_WORK_P	MAINWORK_P	MARGWORK_P	NON_WORK_P	MAIN_CL_P	MAIN_AL_P	MAIN_HH_P	MAIN_OT_P
0-2km									
1	Surabardi	651	628	23	1215	19	154	11	444
2	Gondkhairi	2568	2363	205	3467	277	956	27	1103
3	Ketapar	225	205	20	377	51	133	1	20
4	Kalambi	628	483	145	708	227	211	14	31
5	Sahuli	415	410	5	430	66	255	7	82
6	Alesur	262	244	18	234	70	134	0	40
Total		**4749**	**4333**	**416**	**6431**	**710**	**1843**	**60**	**1720**
2-5km									
7	Waddhamana (CT)	2347	2166	181	3801	106	337	34	1689

8	Khapri	532	485	47	508	175	228	3	79
9	Pendhari	281	253	28	312	137	85	0	31
10	Drugdhamna	748	694	54	1114	13	8	8	665
11	Davlameti (CT)	5109	4633	476	9436	9	42	117	4465
12	Khangaon	81	73	8	91	34	27	0	12
13	Ambazari	397	392	5	404	21	353	3	15
14	Khairi	247	105	142	92	10	54	8	33
15	Mangrul	343	318	25	155	40	260	2	16
16	Vyahad	728	544	184	872	121	180	3	240
17	Pethkaldongari	596	371	225	971	49	133	2	187
18	Ashti	120	118	2	216	39	43	1	35
19	Gumthala	271	271	0	293	98	164	1	8
20	Selu	430	404	26	321	137	232	4	31
21	Dahegaon	214	175	39	249	8	22	13	132
22	Nimji	664	660	4	477	96	340	4	220
Total		13108	11662	1446	19312	1093	2508	203	7858
5-10km									
23	Wanadongri (CT)	13099	12259	840	24568	149	358	339	11413
24	Wadi (CT)	18728	16574	2154	35320	38	83	451	16002
25	Kalameshwar	43211	37137	6074	42246	11076	18405	562	7094
26	Ghogali	295	163	132	263	16	119	0	28
27	Uparwani	886	655	231	790	185	333	14	123
28	Khairi (Harji)	366	358	8	271	91	255	0	12
29	Nimboli	112	74	38	82	36	20	0	18
30	Lonara	524	365	159	384	152	148	2	63
31	Zunki	236	86	150	275	40	38	0	8
32	Bamhni (CT)	3855	3559	296	6486	274	572	130	2583
33	Khairi (Desh)	102	97	5	118	5	76	0	16
34	Pardi	442	410	32	295	111	236	12	51
35	Ashti	120	118	2	216	39	43	1	35
36	Borgaon	451	409	42	652	154	174	1	80
37	Mahurzari	799	787	12	917	66	398	2	321
38	Godhani (Railway)	3452	2802	650	6352	168	224	100	2310
39	Fetari	1218	999	219	1341	100	424	17	458
40	Yerla	831	790	41	795	68	366	16	340
41	Chicholi	419	375	44	496	114	215	2	44
42	Bodhala	201	157	44	167	47	87	0	23
43	Lava	2196	2116	80	3917	106	328	60	1622
44	Dabha	187	186	1	348	90	84	0	12
45	Sonegaon	546	543	3	479	102	404	4	33
46	Digdoh	419	415	4	356	130	208	3	74
47	Nildoh	179	169	10	247	107	60	0	2

48	Raipur	3111	2827	284	5542	198	371	203	2055
49	Sukali (kalar)	289	276	13	302	69	149	0	58
50	Hingna	2816	2478	338	4852	328	831	70	1249
51	Kinhi	376	358	18	405	133	183	3	39
52	Nanda kh	25	25	0	15	0	24	0	1
53	Mandavghorad	626	618	8	517	158	384	2	74
54	Zilpi	22	22	0	23	0	2	0	20
55	Mohgaon	844	696	148	809	130	445	2	119
56	Mangli	301	231	70	278	53	139	5	34
57	Dhanoli	528	518	10	424	120	318	5	75
58	Junewani	578	515	63	439	226	236	1	52
59	Ukhali	331	327	4	659	19	199	2	107
60	Metaumari	830	704	126	708	207	354	3	140
61	Turagondi	233	233	0	143	11	177	8	37
62	Neri	680	623	57	725	149	358	10	106
63	Kinhi	100	99	1	95	8	85	0	6
64	Nildoh	179	169	10	247	107	60	0	2
65	Nandera	110	109	1	41	31	78	0	0
Total		**104853**	**92431**	**12422**	**143605**	**15411**	**28051**	**2030**	**46939**
Grand Total		**122710**	**108426**	**14284**	**169348**	**17214**	**32402**	**2293**	**56517**

Note: TOT_WORK_P: Total Workers Population, Main workers Population, MARGWORK_P: Marginal Workers, NON_ Work_ P: Non Workers, MAIN_CL_P Main Cultivator worker, MAIN_AL_P - Main Agricultural Worker, MAIN_HH_P, Household Industry Worker, MAIN_OT_P – Main other worker

ANNEXURE VIII-C

INFRASTRUCTURES FACILITIES

S.No	Village Name	**Education**	**Medical**	**Water**	**Drainage**	**Communication**	**Transportation**	**Road**	**Recreation**	Electricity
0-2km										
1	Surabardi	GPS,GMS, PMS,PSS	NIL	TWT,HP	OKD	T,PCO,MPC	PB,A/MA	BTPR, FP	ACS,SHG,DNS	ED,EAG,EC,EA
2	Gondkhairi	GPS,PPS,GMS,PMS,GSS,PSS,GSSS	PHC,PHSC,M/CWC,TB,HA,DP,VH,FWC	TWT,CW,UCW,HP	OPDUC	PO,P/TO,T,PCO,MPC,IC/CSC,PCF	PB,PBS,A/MA,TX,V	BTPR,GKR,FP	CB,COB,ACS,SHG,PDS	ED,EAG,EC,EA
3	Ketapar	GPS	NIL	TWT,CW	NIL	T,PCO,MPC	PB,A/MA	BTPR, FP	SHG	ED,EAG,EC,EA
4	Kalambi	GPS,GMS, GSS	PHSC	TWT,CW	OKD	PO,SPO,P/TO,T,PCO,MPC,PCF	PB,A/MA	BTPR, FP	ACS,SHG,DNS	ED,EAG,EC,EA
5	Sahuli	GPS,GMS	NIL	TWT,UCW,HP,TW/BH	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
6	Alesur	GPS	NIL	CW,UCW,HP,TW/BH,T/P/L	OKD	T,MPC	TX	BTPR,GKR,FP	SHG	ED,EAG,EC,EA
2-5km										
7	Drugdhamna	GPS,GMS	NIL	TWUT,UCW,H	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	ACS,SHG,DN	ED,EAG,E

				P,TW/BH,T/P/L					S	C,EA
8	Khangaon	GPS	NIL	TWUT,UCW,HP,TW/BH,T/P/L	NIL	T	PB	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
9	Ambazari	GPS	NIL	TWT,UCW,HP	OKD	T,MPC	PB,A/MA	BTPR,FP	CB,SHG,PDS	ED,EAG,EC,EA
10	Khairi	GPS	NIL	UCW,HP	NIL	MPC	TX	BTPR,GKR,FP	COB	ED,EAG,EC,EA
11	Mangrul	GPS,GMS	NIL	TWUT,UCW,HP,T/P/L	NIL	T,MPC	PB	BTPR,FP	NIL	ED,EAG,EC,EA
12	Vyahad	GPS,GMS,PMS,GSS	PHC,M/CWC,TB,HA,DP,FWC	TWUT,CW,UCW,HP,TW/BH,R/C	OKD	PO,P/TO,T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
13	Pethkaldongari	GPS,GMS	NIL	TWT,CW,UCW,HP,R/C,T/P/L	OKD	PO,P/TO,T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	COB,ACS,SHG,PDS	ED,EAG,EC,EA
14	Ashti	GPS,PPS,PMS,PSS	NIL	TWUT,UCW,HP	OKD	T,MPC	TX	BTPR,FP	NIL	ED,EAG,EC,EA
15	Gumthala	GPS	NIL	TWT,UCW,HP,TW/BH	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
16	Selu	GPS,GMS	NIL	TWT,UCW,HP	OKD	T,MPC	PB,A/MA	BTPR,FP	PDS	ED,EAG,EC,EA
17	Daheggaon	GPS	NIL	UCW,HP,TW/BH,T/P/L	OKD	T,MPC	PB	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
18	Nimji	GPS,GMS	NIL	TWT,UCW,HP,T/P/L	OKD	T,PCO,MPC	PB,A/MA	BTPR,FP	ACS,SHG,PDS	ED,EAG,EC,EA
19										
5-10km	Khapri	GPPS,GPS,GMS	NIL	TWT,CW,HP,T/P/L	OKD	PBS,A/MA	BTPR,GKR,FP	ACS	NIL	EA,EAG,EC,ED
20	Pendhari	GPPS,GPS	NIL	TWT,CW,HP	NIL	PBS,A/MA	BTPR,GKR,FP	NIL	NIL	EA,EAG,EC,ED
21	Ghogali	GPS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	PO,P/TO,T,PCO,MPC	PB,A/MA	BTPR,FP	ACS,PDS	ED,EAG,EC,EA
22	Uparwani	GPS,GMS,GSS	PHSC	TWT,CW,HP,TW/BH,R/C	OKD	PO,SPO,P/TO,T,PCO,MPC	PB,A/MA	BTPR,FP	ACS,SHG,PDS	ED,EAG,EC,EA
23	Khairi (Harji)	GPS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	PO,P/TO,T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
24	Nimboli	GPS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	T,MPC	NIL	BTPR,GKR,FP	NIL	ED,EAG,EC,EA

25	Lonara	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	PDS	ED,EAG,EC,EA
26	Zunki	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	T,MPC	A/MA	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
27	Khairi (Desh)	GPS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	NIL	TX	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
28	Pardi	GPS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,MPC	A/MA	BTPR,FP	PDS	ED,EAG,EC,EA
29	Ashti	GPS,PPS,PMS,PSS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,MPC	TX	BTPR,FP	NIL	ED,EAG,EC,EA
30	Borgaon	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,FP	COB,ACS,SHG,PDS	ED,EAG,EC,EA
31	Mahurzari	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	PO,SPO,P/TO,T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	ACS,SHG,PDS	ED,EAG,EC,EA
32	Godhani (Railway)	GPS,PPS,GMS,PMS,GSS,GSSS	NIL	TWT,CW,HP,TW/BH,R/C	OPDUC	PO,P/TO,T,PCO,MPC	PB,RS,A/MA,TX	BTPR,GKR,FP	CB,ACS,SHG,PDS	ED,EAG,EC,EA
33	Fetari	GPS,PPS,GMS,PMS,PSS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	PO,SPO,P/TO,T,PCO,MPC	PB,PBS,A/MA,TX,V	BTPR,GKR,FP	CB,COB,ACS,SHG,PDS	ED,EAG,EC,EA
34	Yerla	GPS,PPS,GMS,PMS,PSS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,FP	SHG	ED,EAG,EC,EA
35	Chicholi	GPS,PPS,GMS,PMS,PSS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	T,MPC	PB,A/MA	BTPR,GKR,FP	PDS	ED,EAG,EC,EA
36	Bodhala	GPS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,MPC	A/MA	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
37	Lava	GPS,GMS,GSS,GSSS	PHSC	TWT,CW,HP,TW/BH,R/C	OPDUC	SPO,T,PCO,MPC,IC/CSC,PFC	PB,A/MA	FP	ACS,SHG,PDS	ED,EAG,EC,EA
38	Dabha	GPS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	PO,P/TO,MPC	PB,A/MA	BTPR,GKR,FP	ACS	ED,EAG,EC,EA
39	Sonegaon	GPS,PPS,GMS,GSS,GSSS	PHSC,DP,VH	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC,IC/CSC,PFC	PB,A/MA	BTPR,GKR,FP	SHG	ED,EAG,EC,EA
40	Digdoh	GPS	PHSC	TWT,CW,HP,TW/BH,R	OKD	T,MPC	PB,A/MA	BTPR,GKR,FP	NIL	ED,EAG,EC,EA

				/C						
41	Nildoh	GPS,GMS,GSS	PHSC	TWT,CW,HP,TW/BH,R/C	OKD	T,MPC	TX	FP	NIL	ED,EAG,EC,EA
42	Raipur	GPS,PPS,GMS,PMS,GSS,PSS,GSSS	PHC,PHSC,M/CWC,TB,HA,DP,FWC	TWT,CW,HP,TW/BH,R/C	OPDUC	PO,P/TO,T,PCO,MPC,IC/CSC,PFC	PB,PBS,A/MA,TX,V	BTPR,FP	CB,COB,ACS,SHG,PDS	ED,EAG,EC,EA
43	Sukali (kalar)	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	MPC	PBS,A/MA	BTPR,FP	SHG,PDS	ED,EAG,EC,EA
44	Hingna	GPS,PPS,GMS,PMS,GSS,PSS,GSSS	PHSC,M/CWC,TB,HA,DP	TWT,CW,HP,TW/BH,R/C	OPDUC	PO,P/TO,T,PCO,MPC,IC/CSC,PFC	PB,PBS,A/MA,TX,V	BTPR,GKR,FP	CB,COB,ACS,SHG,PDS	ED,EAG,EC,EA
45	Kinhi	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
46	Nandakh	NIL	NIL	TWT,CW,HP,TW/BH,R/C	NIL	NIL	NIL	FP	NIL	ED,EAG,EC,EA
47	Mandavghorad	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
48	Mohgaon	GPS,GMS,PMS,GSS,GSSS	PHSC	TWT,CW,HP,TW/BH,R/C	OKD	PO,P/TO,T,PCO,MPC,IC/CSC,PFC	PB,A/MA	BTPR,FP	CB,COB,ACS,SHG,PDS	ED,EAG,EC,EA
49	Mangli	GPS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG	ED,EAG,EC,EA
50	Dhanoli	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
51	Junewani	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,FP	SHG,PDS	ED,EAG,EC,EA
52	Ukhali	GPS,GMS,GSS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,MPC	PB,A/MA	BTPR,GKR,FP	NIL	ED,EAG,EC,EA
53	Metaumari	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
54	Turagondi	GPS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	MPC	TX	GKR,FP	NIL	ED,EAG,EC,EA
55	Neri	GPS,GMS	NIL	TWT,CW,HP,TW/BH,R/C	OKD	T,PCO,MPC	PB,A/MA	BTPR,GKR,FP	SHG,PDS	ED,EAG,EC,EA
56	Kinhi	GPS	NIL	TWT,CW,HP,T	NIL	MPC	NIL	BTPR,GKR,	NIL	ED,EAG,E

				W/BH,R/C				FP		C,EA
57	Nildoh	GPS,GMS,GSS	PHSC	TWT,CW,HP,TW/BH,R/C	OKD	T,MPC	TX	FP	NIL	ED,EAG,EC,EA
58	Nandera	GPS	NIL	TWT,CW,HP,TW/BH,R/C	NIL	MPC	NIL	BTPR, FP	SHG	ED,EAG,EC,EA

Note:

Education

GPS- Govt Pre-Primary School (Nursery/LKG/UKG, GPS- Govt Primary School, PPS-Private Primary School, GMS-Govt Middle School, PMS-Private Middle School, GSS- Govt Secondary School, PSS-Private Secondary School , GSSS-Govt Senior Secondary School, PSSS-Private Senior Secondary School

Medical

PHC-Primary Health Centre, PHSC-Primary Health Sub Centre, MCWC-Maternity and Child Welfare Centre, TB-TB Clinic, HA- Hospital Allopathic, DP-Dispensary, VH-Veterinary Hospital, MHC-Mobile Health Clinic, FWC- Family Welfare Centre

Water

TWT- Tap Water-Treated, TWUT-Tap Water Untreated, CW-Covered Well, UCW-Uncovered Well, HP- Hand Pump , TW/B- Tube Wells/Borehole, R/C River/Canal, T/P/L-Tank/Pond/Lake

Drainage

OD - Open Drainage, ND-No Drainage, OKD-Open Kuccha Drainage

Communication

PO- Post Office, SPO-Sub Post Office, P/TO- Post And Telegraph Office , PCO- Public Call Office, MPC- Mobile Phone Coverage, IC/CSC- Internet Cafes / Common Service Centre, PCF- Private Courier Facility

Transportation

PBS- Public Bus Service, A/MA- Auto/Modified Autos, TX-Taxi, V-Van

Road

BTPR- Black Topped (pucca) Road, GKR- Gravel (kuchha) Roads, FP- Footh path

Social Security

COM- Commercial Bank
COP- Cooperative Bank
ACS- Agricultural Credit Societies

Recreation

PL- Public Library
DNP- Daily Newspaper Supply

Electricity

ED- Electricity Supply for Domestic Use
EAG- Electricity Supply for Agriculture Use
EC- Electricity Supply for Commercial Use
EA- Electricity Supply for All Users

ANNEXURE IX
TRAFFIC ASSESSMENT STUDY REPORT

GONDKHARI UNDERGROUND COAL MINE (KAMPTEE COALFIELD

REPORT

ON

TRANSPORTATION RELATED OPTION STUDY TO OPTIMIZE THE TRANSPORTATION SYSTEM THROUGH RAIL/ROAD.

November 2023

PROJECT PROPONENT

M/S. ADANI POWER MAHARASHTRA LIMITED (APML)

ENVIRONMENT CONSULTANT
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EXECUTIVE SUMMARY

1.0 Introduction

Government of India, Ministry of Coal has allocated the Gondkhari Coal Block to M/s. ADANI POWER MAHARASHTRA LIMITED (APML) vide vesting order no: NA-104/7/2021-NA; dated 18th November 2021.

The proposed Gondkhari Coal Block of 2 MTPA capacity is an underground coal mine allotted as commercial mine to accelerate economic development of the nation. The total requirement of land is 862 ha, which includes 87.351 ha of forest land and 774.648 ha of non-forest land. Mining plan was approved by Ministry of Coal vide letter dated 09th Jan 2023.

Forest application for diversion of 87.351 ha of forest land submitted vide proposal no. FP/MH/MIN/QRY/408247/2022 dated 06th January 2023.

ToR has been granted on 13th February 2023 vide letter No. IA –J-11015/46/2022-IA.II(M).

2.0 Justification/reasons & need for transport of coal through road and Rail

Rail cum road Transportation for Gondkhari Coal block proposed from the mine to nearest public railway siding/Goods Shed (Kalmeshwar) to handle 2 MTPA at its peak.

The selected transportation mode (RCR) is the best outcome in terms of performance with minimum infringement of Gondkhari Coal block, minimum environmental impact.

Performance in this context refers not only to the operational and engineering feasibility but also reflects the siding measured against the social, environmental, and engineering criteria defined in the route selection process.

3.0 Traffic Survey

The traffic survey was conducted as per IRC: 64-1990. The traffic density was monitored at the up and down sides of the locations namely:

Location No: T1 State Highway 248 Nagpur to Dohegaon.

Location No: T2 Kalmeshwar City Bypass Road

The locations can be seen in Fig 1.3. The monitoring was done for a period of 24 hours continuously. The observed traffic density has been processed for an interval of 1 hour. The total no. of vehicles was calculated on hourly basis as well as for 24 hours. The monitoring plan included the following vehicles namely Car, Buses, trucks, Tractors, Two wheelers, Three wheelers.

Current PCU on SH248 and Kalmeshwar city Bypass Road are 2070 PCU and 1338 PCU as per traffic study done by Vardan Envirolab, Manesar. Total 810 PCU due to transportation of coal from Gondakhari mine are expected to increase in current PCU. Projected traffic on SH248 and Kalmeshwar bypass road will be 2880 PCU and 2148 PCU.

The Level of Service (LOS) will remain same i.e. A (Excellent) after projected traffic volume on SH248 and Kalmeshwar bypass road. (Based on the Indian Roads Congress (IRC) standards sourced from Guidelines for Capacity of Urban Roads in Plain Areas IRC 64-1990).

4.0 Conclusion

The study found that all the roads were black topped and in good condition. The roads at the different locations had variable width ranging from 6 m to 19 m. No bottle necks and issues were found at any location at the time of study.

When the PCU projections for the future percent utilization were estimated it was found that the carrying capacity (as per IRC 64-1990) at all Census points was within limits.

_____X_____

1.0 ABOUT THE PROJECT

Adani Power Maharashtra Limited (APML), a Private company wholly owned by the Adani Power Limited (APL). It has been planned to conduct mining operations through underground mining with capacity of 2 MTPA at Kamptee Coalfield, Nagpur District, Maharashtra.

Adani Group has been in sync with the needs of the nation. Our vision is to make India self-reliant and reduce the dependency on coal imports saving foreign exchange reserves for the country.

Project has been allotted to Adani Power Maharashtra Limited (APML) vide vesting order no. NA-104/7/2021-NA, Dated 18.11.2021 under the commercial coal mining auction process for sale of coal, including sale to Affiliates and related parties, utilization of coal ·for any purpose including but not limited to captive consumption, Coal Gasification, Coal Liquefaction and export of coal.

Government of India, Ministry of Coal has allocated the Gondkhari Coal Block to M/s. ADANI POWER MAHARASHTRA LIMITED (APML) vide vesting order no: NA-104/7/2021-NA; dated 18th November 2021.

The proposed Gondkhari Coal Block of 2 MTPA capacity is an underground coal mine allotted as commercial mine to accelerate economic development of the nation.

The total requirement of land is 862 ha, which includes 87.351 ha of forest land and 774.648 ha of non-forest land.

Mining plan was approved by Ministry of Coal vide letter dated 09th Jan 2023.

Forest application for diversion of 87.351 ha of forest land submitted vide proposal no. FP/MH/MIN/QRY/408247/2022 dated 06th January 2023.

ToR has been granted on 13th February 2023 vide letter No. IA –J-11015/46/2022-IA.II(M). ToR is attached as Annexure II.

The Gondkhari Underground coal mine Project covers an area of 862 ha bounded by latitude 21°07’57”N to 21°10’56” N and longitude 78°54’45”E to 78°56’26” E and located in eight villages Gondkhairi, Kalambi, Pendhari, Surabardi, Nanda, Karali, Alesur, Waddhamna, Tehsil-Kalmeshwar, Nagpur Gramin & Hingana District-Nagpur, (Maharashtra).

1.1 Location of the project

The Gondkhari Underground coal mine Project covers an area of 862 ha bounded by latitude 21°07’57”N to 21°10’56” N and longitude 78°54’45”E to 78°56’26” E and located in eight villages Gondkhairi, Kalambi, Pendhari, Surabardi, Nanda, Karali, Alesur, Waddhamna, Tehsil-Kalmeshwar, Nagpur Gramin & Hingana District-Nagpur, (Maharashtra). The index map of the project is shown in Figure-1.1.

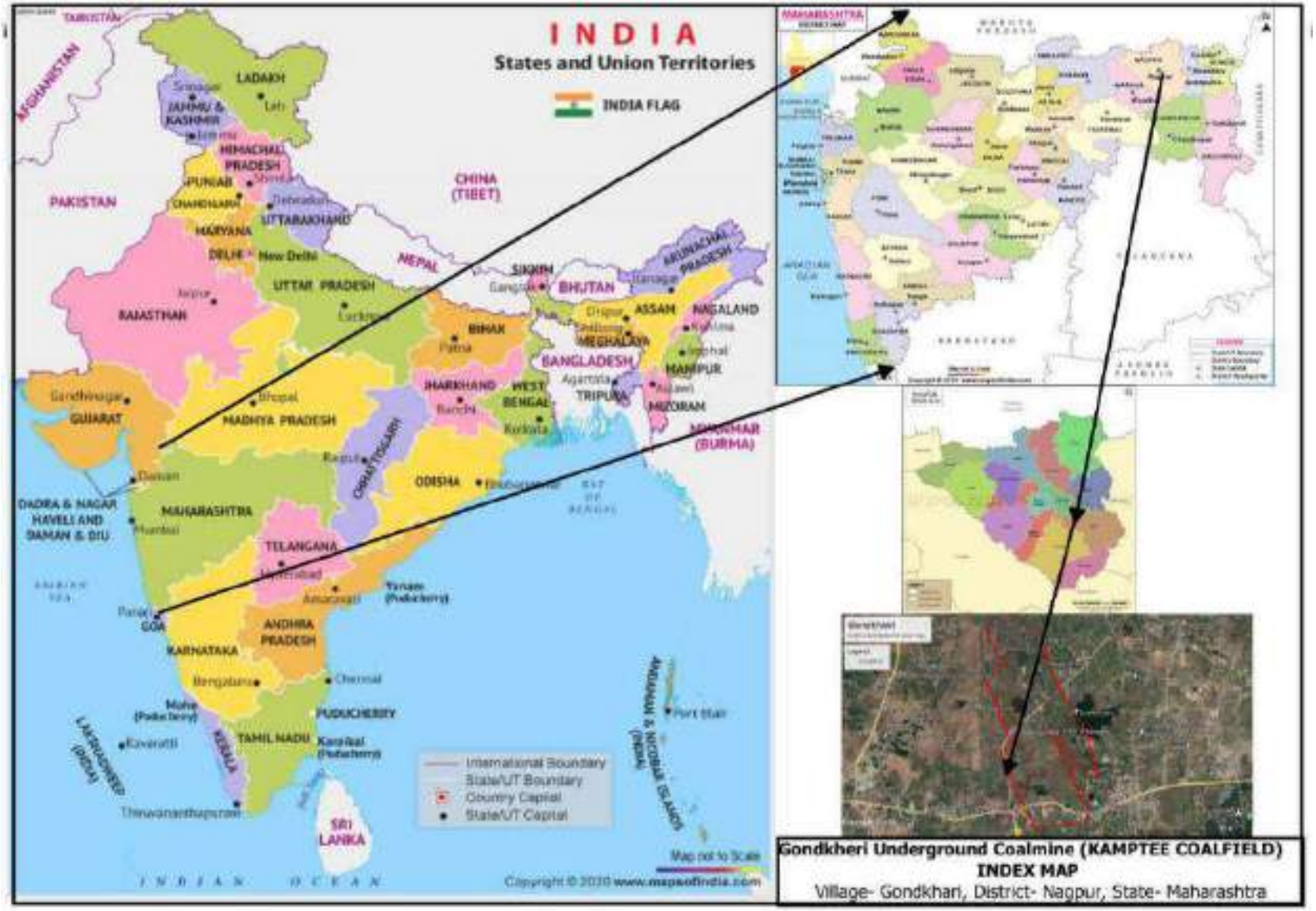


Figure 1.1 Location Index Map

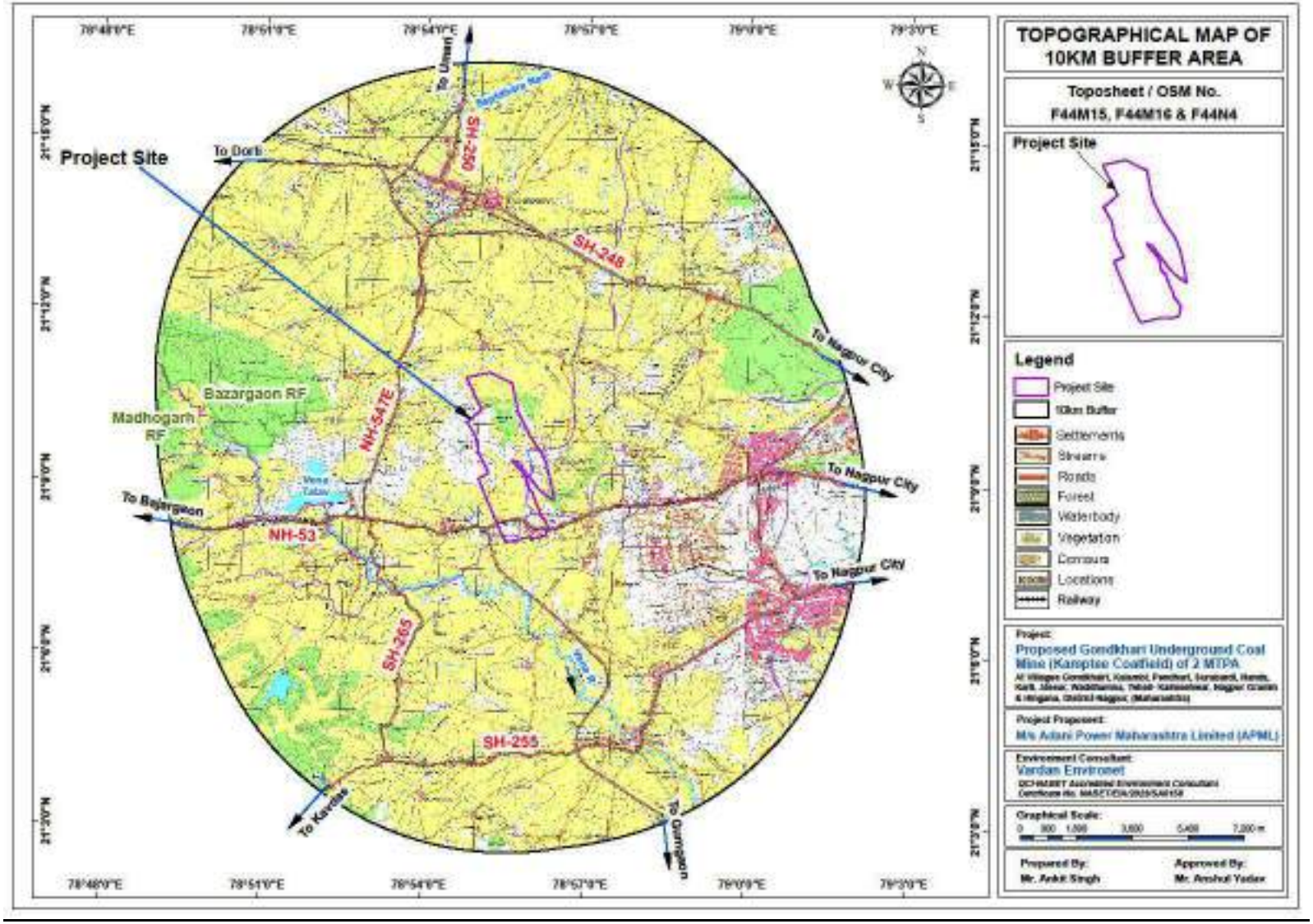


Figure 1.2 Study Area Map of the Project

1.2 Justification/reasons & need for transport of coal through road and Rail

Rail cum road Transportation for Gondkhari Coal block proposed from the mine to nearest public railway siding/Goods Shed (Kalmeshwar) to handle 2 MTPA at its peak.

The selected transportation mode (RCR) is the best outcome in terms of performance with minimum infringement of Gondkhari Coal block, minimum environmental impact.

Performance in this context refers not only to the operational and engineering feasibility but also reflects the siding measured against the social, environmental, and engineering criteria defined in the route selection process.

Primary Cargo:

The availability and growth of traffic for the Gondkhari coal block will be a function of the production ramping plans of the mines operated by ADANI POWER MAHARASHTRA LIMITED (APML).

Primary cargo proposed to be moved through the Road cum Rail mode shall be coal.

Advantages of RCR Mode of Transportation (Road cum Rail Mode):

- Rail cum Road transportation is almost 9 times cheaper for carrying bulk commodities like coal over longer distances in comparison to road transportation.
- Transporting coal by Rail cum road is less polluting vis-a-vis by road and thus environment friendly.
- Transportation by rail is faster as compared to road.
- Rail is better suited for large quantities of commodities to be moved.

With these advantages Road Cum Rail transport is the most preferred mode of transporting the commodities such as coal.

Traffic Forecast:

Mainly coal traffic is expected to be handled through RCR mode from Gondkhari mines to through road up to the Railway Goods Shed/Public Siding at Kalmeshwar Railway station (19 km), Bhopal–Nagpur section under Nagpur Division of Central Railway.

As indicated by M/s APML, the anticipated traffic comprising of Coal, to be moved by RCR mode is 2 MTPA at its peak of operation,

The extracted Coal will be dispatched to Adani Power, Tiroda and at other locations as required.

The overall mine life is of 24 Years as per the Mining Plan and from 3rd year to 21st Year the coal production will be at its peak of operation for 2 MTPA. Further the production of coal till 24th Year will decrease gradually to the zero level.

The proposed loading yard shall be utilized for movement of Outward traffic of coal only. As projected by APML, requirement of traffic for movement per annum are as under.

Outward Traffic	**Destination**			
	25-26	**26-27**	**27-28**	
Total Coal (As per production plan)MTPA	0.35	0.90	2.00	Adani Power Tiroda and other location as required

The Yearly projection for the proposed outward traffic of APML from Gondkhari Coal Mine to be dealt from the Kalmeshwar Good Shed when converted into number of rakes (60 BOXN) @68T/Wagon on the basis of 330 working days in a year is tabulated as under;

Traffic Projection	Year	Coal (MTPA)	No. of Rakes/Day	Proposed Destination
Year 1	2025-26	0.35	0.26	Adani Power Tiroda and Other Location of the country as required
Year 2	2026-27	0.9	0.67	
Year 3	2026-28	2	1.49	
Year 4	2026-29	2	1.49	
Year 5	2026-30	2	1.49	
Year 6	2026-31	2	1.49	
Year 7	2026-32	2	1.49	
Year 8	2026-33	2	1.49	
Year 9	2026-34	2	1.49	
Year 10	2026-35	2	1.49	
Year 11	2026-36	2	1.49	
Year 12	2026-37	2	1.49	
Year 13	2026-38	2	1.49	
Year 14	2026-39	2	1.49	
Year 15	2026-40	2	1.49	
Year 16	2026-41	2	1.49	
Year 17	2026-42	2	1.49	
Year 18	2026-43	2	1.49	
Year 19	2026-44	2	1.49	
Year 20	2026-45	2	1.49	
Year 21	2026-46	2	1.49	
Year 22	2026-47	1.9	1.41	
Year 23	2026-48	1	0.74	
Year 24	2026-49	0.796	0.59	

Mode of Transport:

- Gondkhari Coal Mine is situated in the close vicinity of Nagpur at a distance of 19 km approx. The Proposed Outer Ring Road of Nagpur City is passing nearby the Coal Mine and found to be best feasible Road Connectivity from the Mines.
- Proposed outer Ring Road facilitates the connectivity to all the directions such as Amravati, Mumbai, Wardha, Butiburi, Umred, Mauda, Ramtek, Koradi, Saoner & Katol.
- Road is available up to Kalmeshwar public railway siding from Gondkhari coal block.
- The most suitable option is to transport the coal by road from Gondkhari coal mines to Kalmeshwar public siding via outer ring road which is under construction and SH 248, which is the most suitable and financially viable option.
- As Gondkhari coal block is only 2 MTPA and identified as commercial coal block there will no certainty of the Dedicated Rail used Consumers therefore the Dedicated railway siding up to mine end is not Operationally nor financially viable.
- Cyan Color depicting approach road from Mine via Outer ring road & SH-248 up to Kalmeshwar siding.

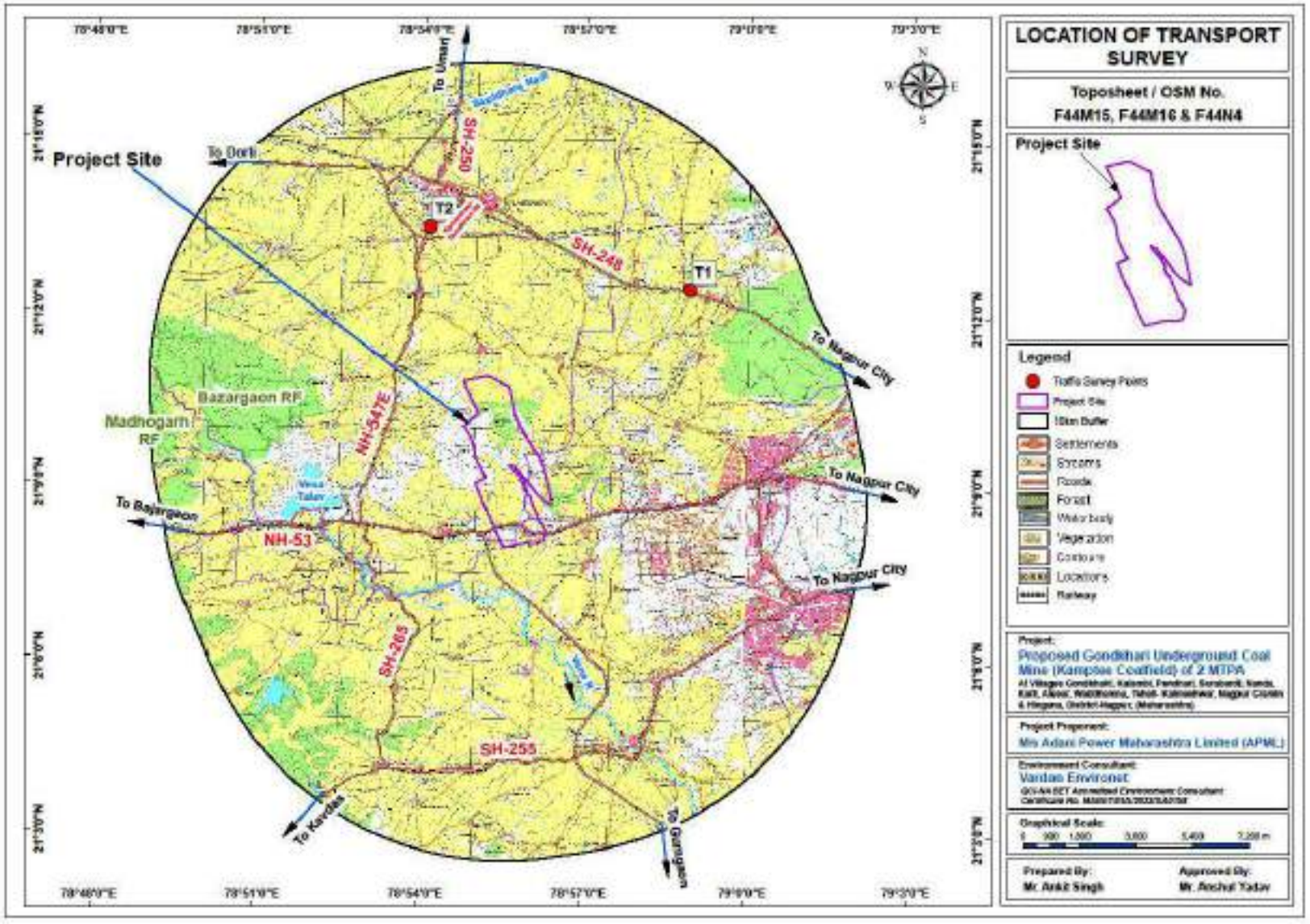


Figure 1.3 Location of Transportation Survey Map

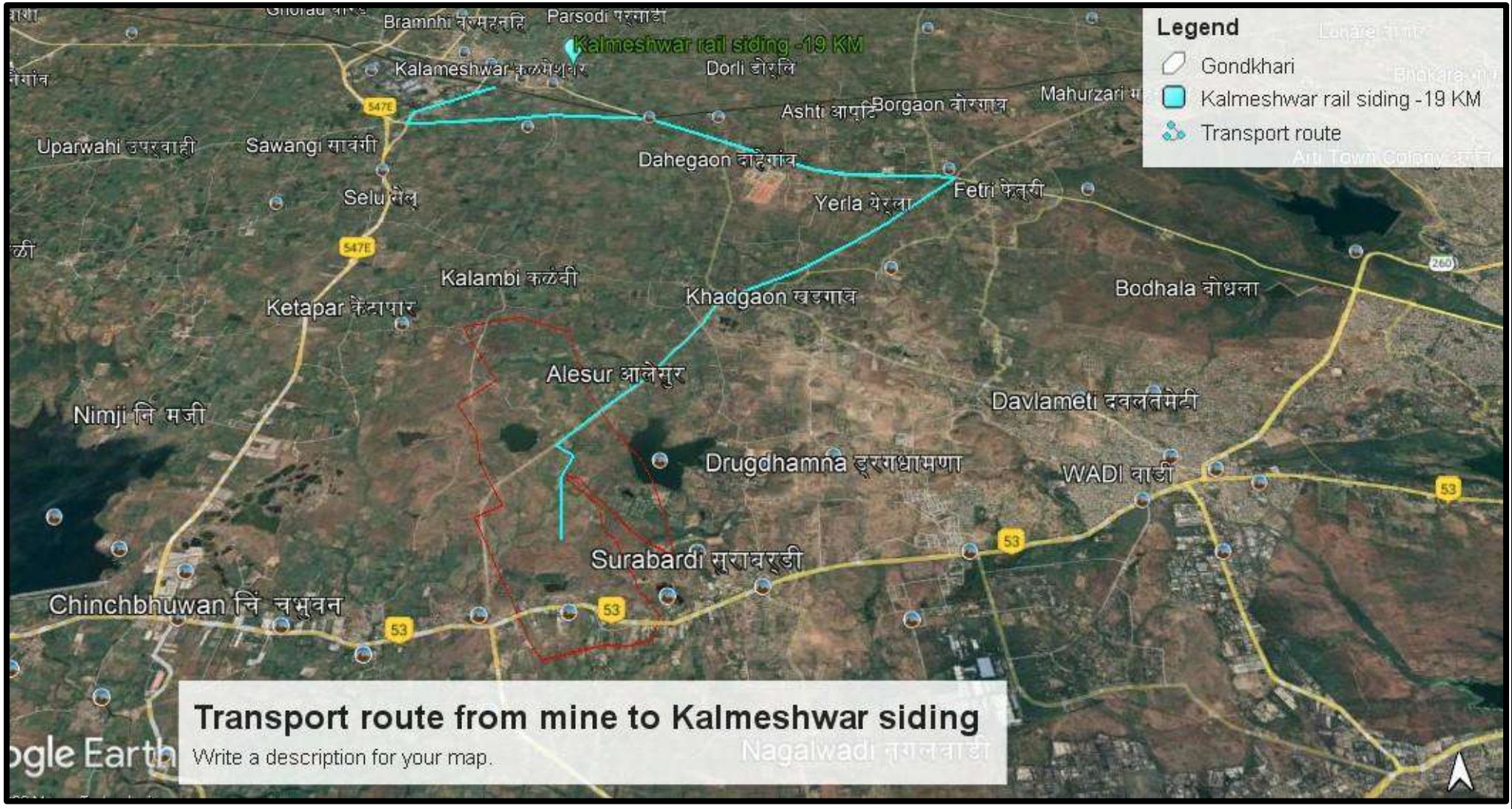


Figure 1.4 Transportation route from Mine to Kalmeshwar Siding

2. Traffic Survey

The traffic survey was conducted as per IRC: 64-1990. The traffic density was monitored at the up and down sides of the locations namely:

Location No: T1 State Highway 248 Nagpur to Dohegaon.
Location No: T2 Kalmeshwar City Bypass Road

The locations can be seen in Fig 1.3. The monitoring was done for a period of 24 hours continuously. The observed traffic density has been processed for an interval of 1 hour. The total no. of vehicles was calculated on hourly basis as well as for 24 hours. The monitoring plan included the following vehicles namely Car, Buses, trucks, Tractors, Two wheelers, Three wheelers.

2.1 Traffic Load Carrying Capacity of the Road

Table-2.1 Recommended Design Service Volumes for Plain Roads with Low Curvature As Per IRC: 64-1990

Type of Road	Description	Recommended Design Service Volume in PCU/day
Single Lane Roads	A single lane bi-directional road should have at least 3.75 metre wide paved carriageway with good quality shoulders such as moorum shoulders of minimum 1.0 metre width on either side.	2000
Intermediate Lane Roads	Intermediate lane roads should have a pavement width of around 5.5 metre with good usable shoulders on either side	6000
Two Lane Roads	Two lane roads shall have a 7 metre wide carriageway and good earthen shoulders	15000
Two Lane Roads +	Two lane roads + paved & surface shoulders of at least 1.5 m width on either side	17250

2.2 Current Load on Proposed Route

The current traffic load on the proposed route was monitored as per procedure outlined in IRC: 9-1972. Slow moving vehicles produce interference to the free movement of traffic. Hence, to account for the interaction of the different kinds of vehicles moving on the route, the capacity of the roads has been converted into Passenger Car Unit (PCU) as per IRC: 64-1990 and the current traffic load was found after applying the conversion factors which is given in Table 2.2. Photographs of traffic survey are enclosed as Annexure-I.

Table 2.2: Roads and Highways in the Study Area

Name of State Highway/District Road	Direction		Dispatched Ratio in Percentage
	Up	Down	
Kalmeshwar City Bypass Road	Kalmeshwar	Nagpur	100*
State Highway 248	Nagpur	Dohegaon	100*

**100% coal will transfer through both SH 248 and Kalmeshwar City Bypass road.*

Existing traffic scenario

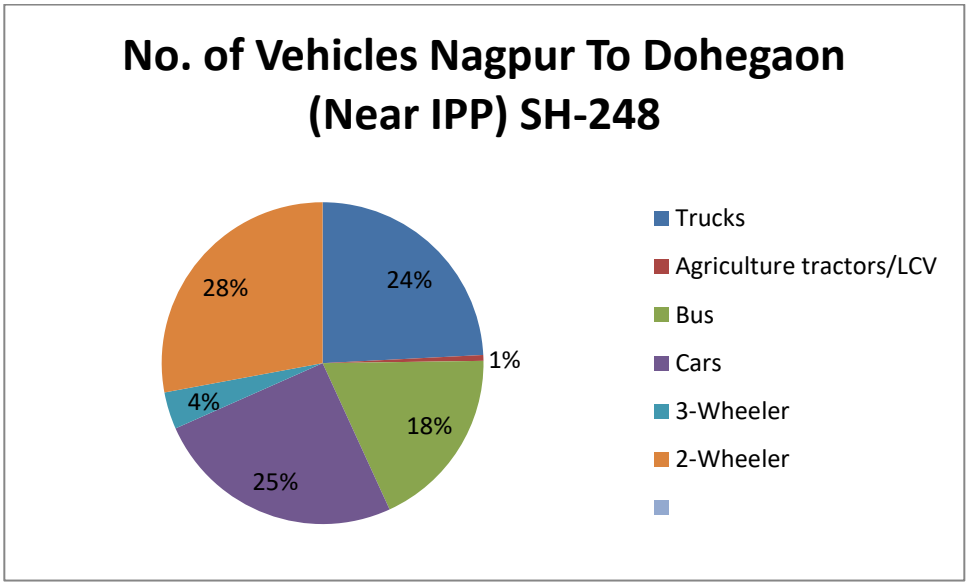
The Level of Service (LOS) and the capacity of the Roadway segments computed is based on the Indian Roads Congress (IRC) standards sourced from Guidelines for Capacity of Urban Roads in Plain Areas IRC 64-1990. Following table provides the LOS standards adopted based on the volume to capacity (V/C) ratios at the intersections and its performance.

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

Table 2.3: Summarized Traffic data

Type of Vehicles	No. of Vehicles		Equivalent PCU	PCU/day	
Road	SH 248 Nagpur to Dohegaon	Kalmeshwar City Bypass Road		SH 248 Nagpur to Dohegaon	Kalmeshwar City Bypass Road
Trucks	292	179	3	876	537
Agriculture tractors/LCV	7	11	1.5	10.5	16.5
Bus	222	122	3	666	366
Cars	304	186	1	304	186
3-Wheeler	45	111	1	45	111
2-Wheeler	337	243	0.5	168.5	121.5
Total PCU/day	**1207**	**852**		**2070**	**1338**

(Source: IRC 64:1990)



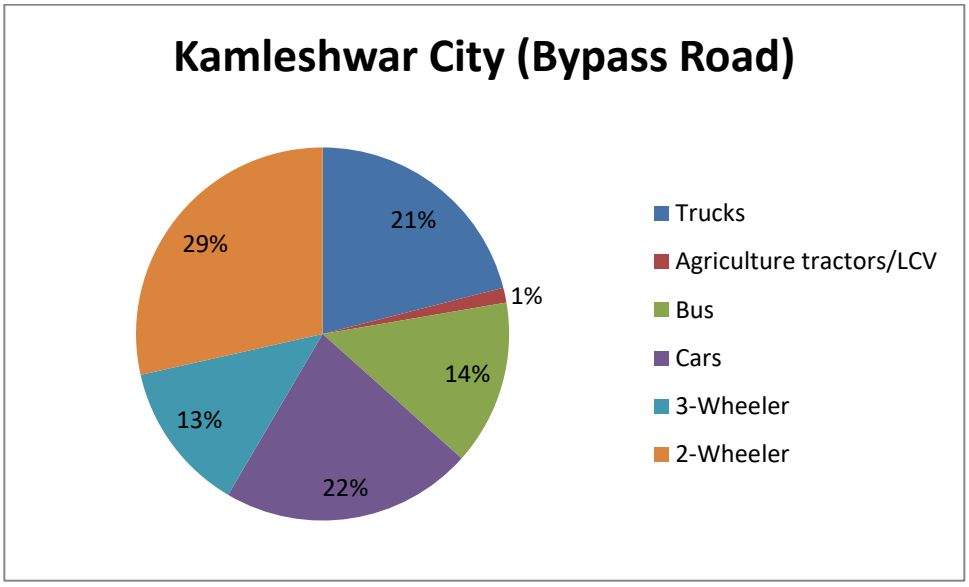


Figure -2.1 Pie chart representations for Total vehicular data -2 monitoring location

Table 2.4: Existing Traffic Scenario and LOS

Type of Road	Existing Volume in PCU	(Capacity in PCU/day)	V/C Ratio	
SH 248 Nagpur to Dohegaon	2070	15,000	0.13	A
Kalmeshwar City Bypass Road	1338	15,000	0.08	A

Additional Traffic: The projected traffic volume due to the movement of dumpers (45 T) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time (45 T dumpers) is 270 which is equivalent to 810 PCU (2700x3).

Table 2.4: Traffic Scenario and LOS after the addition of vehicles

Road	Increased PCU's- State/National Highway	Volume (V)	Capacity (C)	Modified V/C Ratio	LOS
SH 248 Nagpur to Dohegaon	810 x 100% = 810	2070+810=2880	15000	0.2	A
Kalmeshwar City Bypass Road	810 x 100% = 810	1338+810=2148	15000	0.15	A

Conclusion

Current PCU on SH248 and Kalmeshwar city Bypass Road are 2070 PCU and 1338 PCU as per traffic study done by Vardan Envirolab, Manesar. Total 810 PCU due to transportation of coal from Gondakhari mine are expected to increase in current PCU. Projected traffic on SH248 and Kalmeshwar bypass road will be 2880 PCU and 2148 PCU.

The Level of Service (LOS) will remain same i.e. A (Excellent) after projected traffic volume on SH248 and Kalmeshwar bypass road. (Based on the Indian Roads Congress (IRC) standards sourced from Guidelines for Capacity of Urban Roads in Plain Areas IRC 64-1990)

3.0 Impact on Air Quality

The projected traffic volume due to the movement of dumpers (45 Ton) for transportation of coal from mine to railway sidings has been assessed and Maximum Trips per day to be taken at a time (45 Ton dumpers). These movements of trucks are expected to contribute to oxides of nitrogen, carbon monoxide and particulate matter. The predictions of traffic volume incremental concentrations of CO and NO2 due to additional traffic assumed are estimated based on site specific meteorological conditions and line source. The emission rates as inputs to the line source model are calculated based on the emission factor in gm/km of Trucks / Trailer / Bus (Source: Central Pollution Control Board).

4.0 Details of Air Dispersion Model

The mathematical Model AERMOD was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. In 1991, the U.S. Environmental Protection Agency (EPA) in conjunction with the American Meteorological Society (AMS) formed the AERMOD. AERMOD is a steady-state plume model aimed at short-range (up to 50 km) dispersion from stationary industrial-type sources.

The impact of a source or group of sources on air quality is evaluated using mathematical models. The widely accepted interpretation models simulate the relationships between air pollutant emissions and its impact on air quality. For the present study, this model is used for the prediction of maximum ground level concentrations. The inputs used for modeling area given in Table 4.1

Table 4.1 Parameters Considered For Modeling

Sr. No.	Parameter	Description
1	Truck capacity (Ton)	45
2	Number of trips	270

3	Emission norms for Heavy Diesel vehicles	
	CO (gm/km-hr)	4.5
	HC (gm/km-hr)	1.1
	NOx (gm/km-hr)	8.0
	PM 10	{K (SL)^0.91x(W)^1.02}
4	Emission Rate (gm/sec)	
	CO	6
	HC	1.46
	NOx	10.66
	PM 10	0.82

Meteorological Input

The hourly meteorological data recorded at the project site for one season and used to compute the periodical incremental concentration due to operation of the proposed project. Onsite meteorological data collected was used to process the AERMET file. The surface and profile met data were prepared for use in AERMOD using the AERMET meteorological data pre-processor and windrose presented in Figures 4.1.

Meteorological inputs required are hourly wind speed and direction, ambient temperature, Pressure, precipitation, Relative Humidity, cloud cover, radiation, stability class and mixing height.

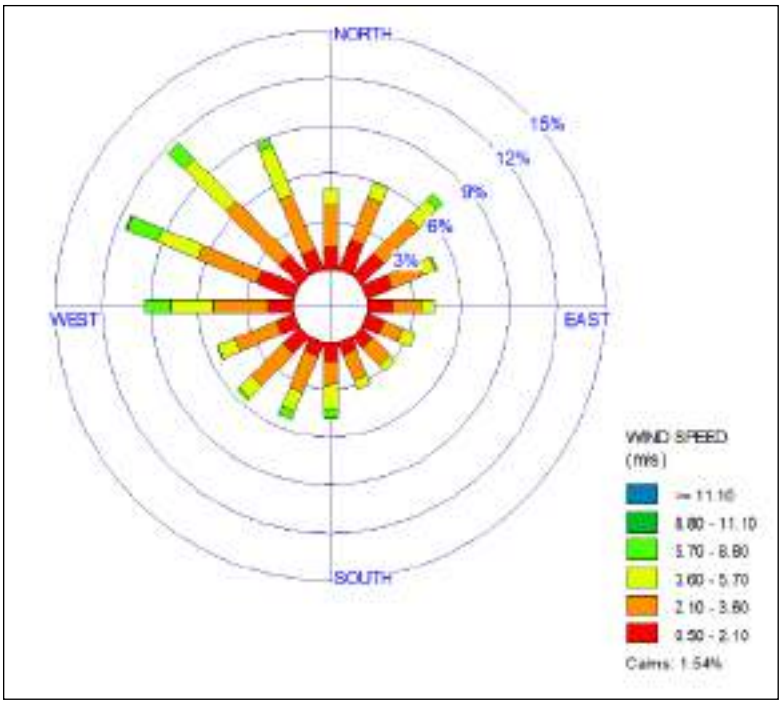


Figure 4.1: Wind Rose (Surface Data)

Terrain Data

AERMOD is designed to calculate air pollutant concentrations in all types of terrain, from flat prairie to complex mountainous situations. AERMOD does not process its own terrain. A preprocessor program called AERMAP, process this terrain data in conjunction with a layout of receptors and sources which are used in AERMOD control files.

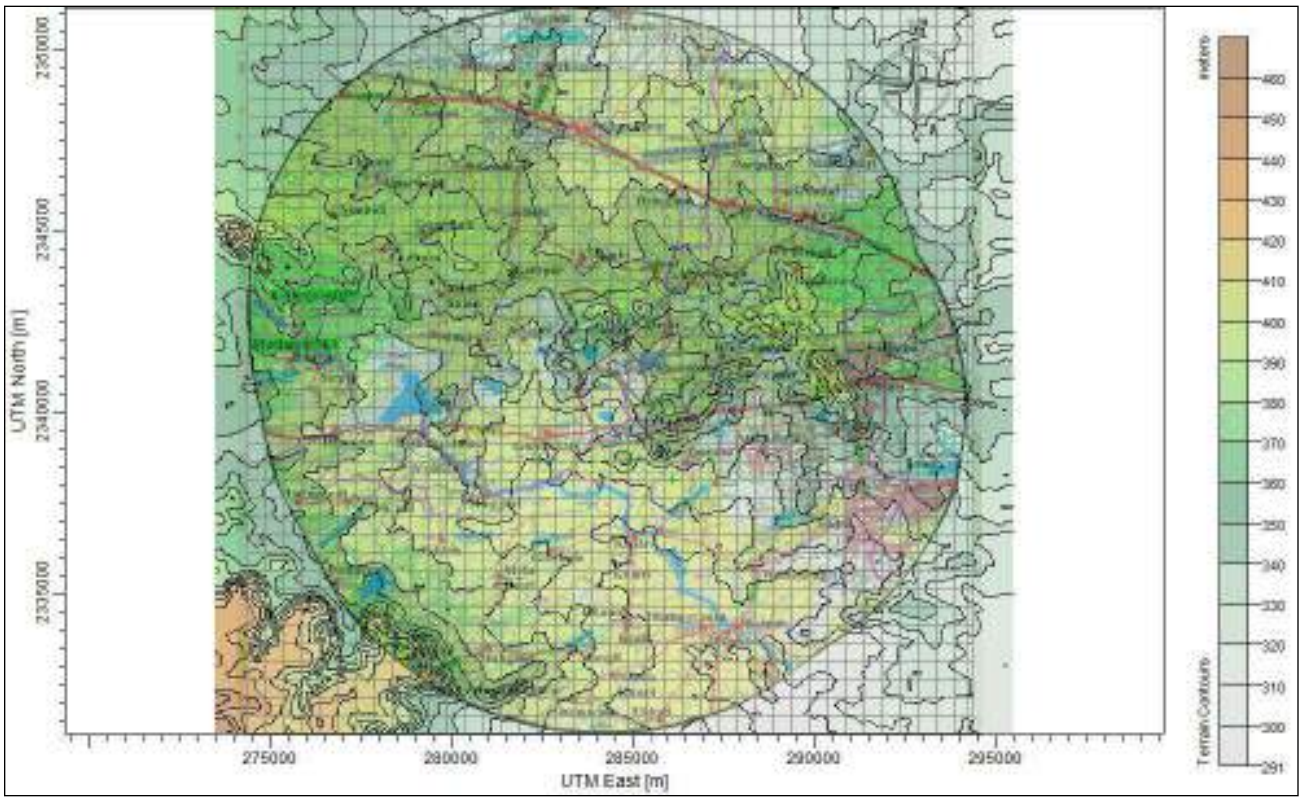


Figure 4.2: Terrain Map

Model Prediction

The model simulations are done for the air pollutants mainly CO, HC & NOx emitted directly from vehicles. Impact on the ambient air quality of study area is assessed and predicted results are presented in Table 4.2

Table 4.2 Predicted Incremental Concentrations Due To Traffic

Sr. No.	Parameter	Concentration (µg/m3)
1	Carbon Monoxide	23.50
2	Hydrocarbon	3.03
3	Oxides of Nitrogen	29.10
4	Particulate Matter	1.71

The observation from predictions reveals that the maximum GLC of pollutants presently occur at 20 m from the center of the road.

The isopleths showing the dispersion of Ground level concentrations are given in Figures 4.3 to 4.6

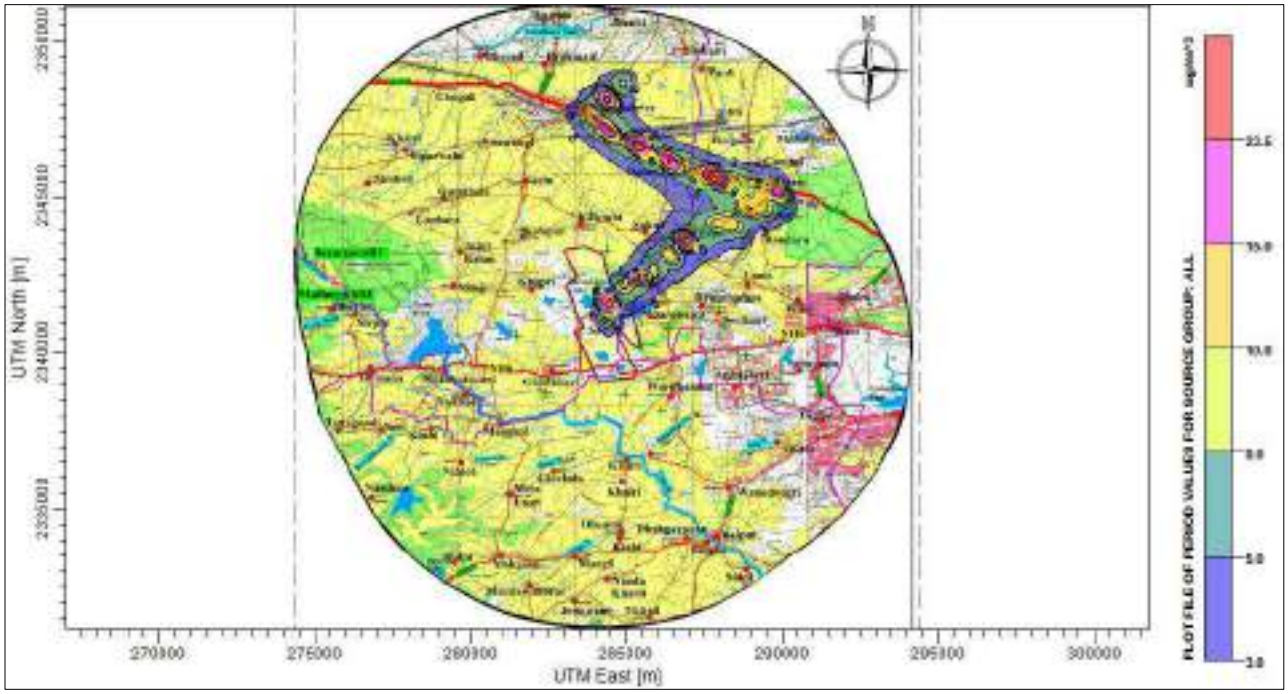


FIGURE 4.3: PREDICTED INCREMENTAL GLC OF CO

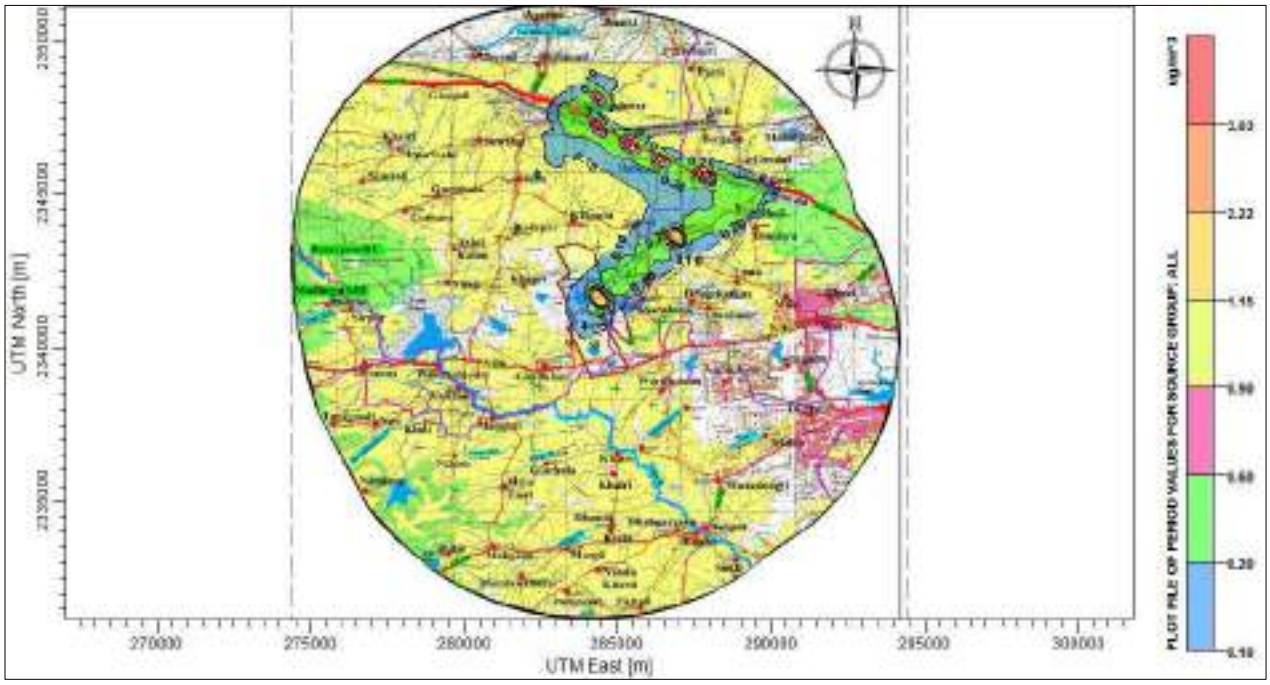


FIGURE 4.4: PREDICTED INCREMENTAL GLC OF HC

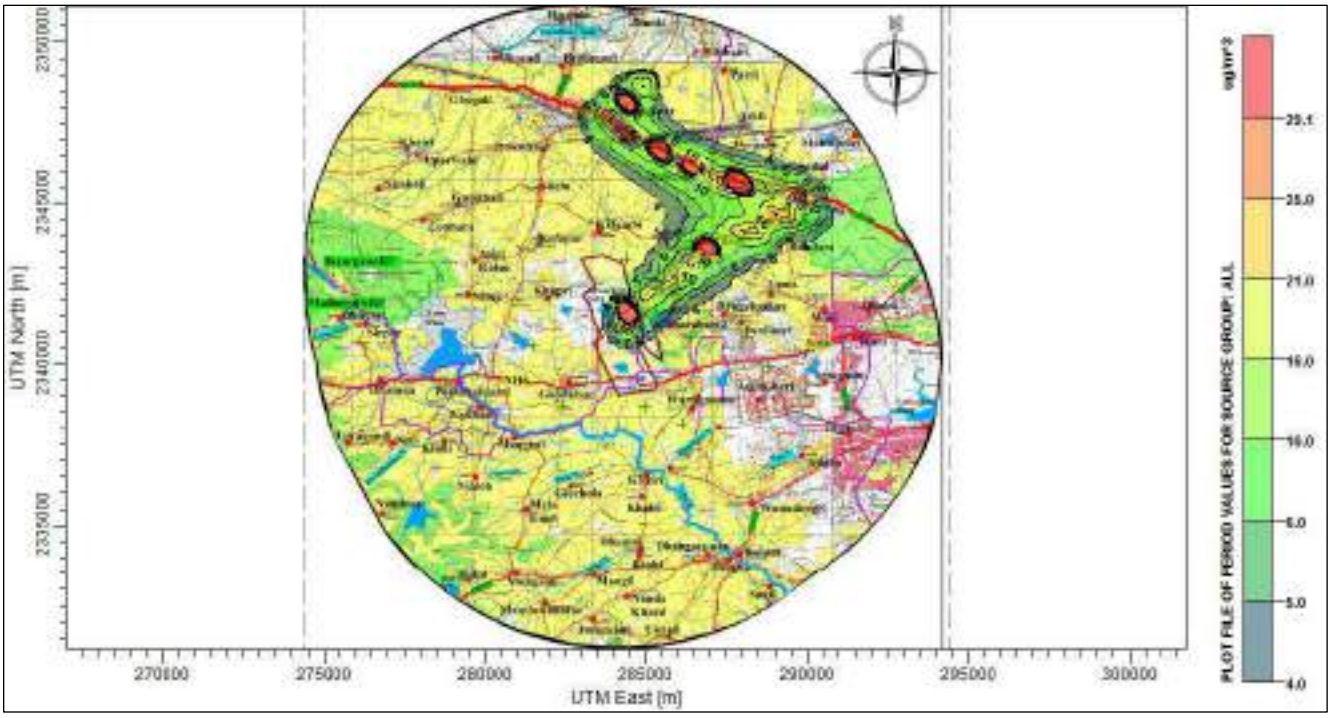


FIGURE 4.5: PREDICTED INCREMENTAL GLC OF NOx

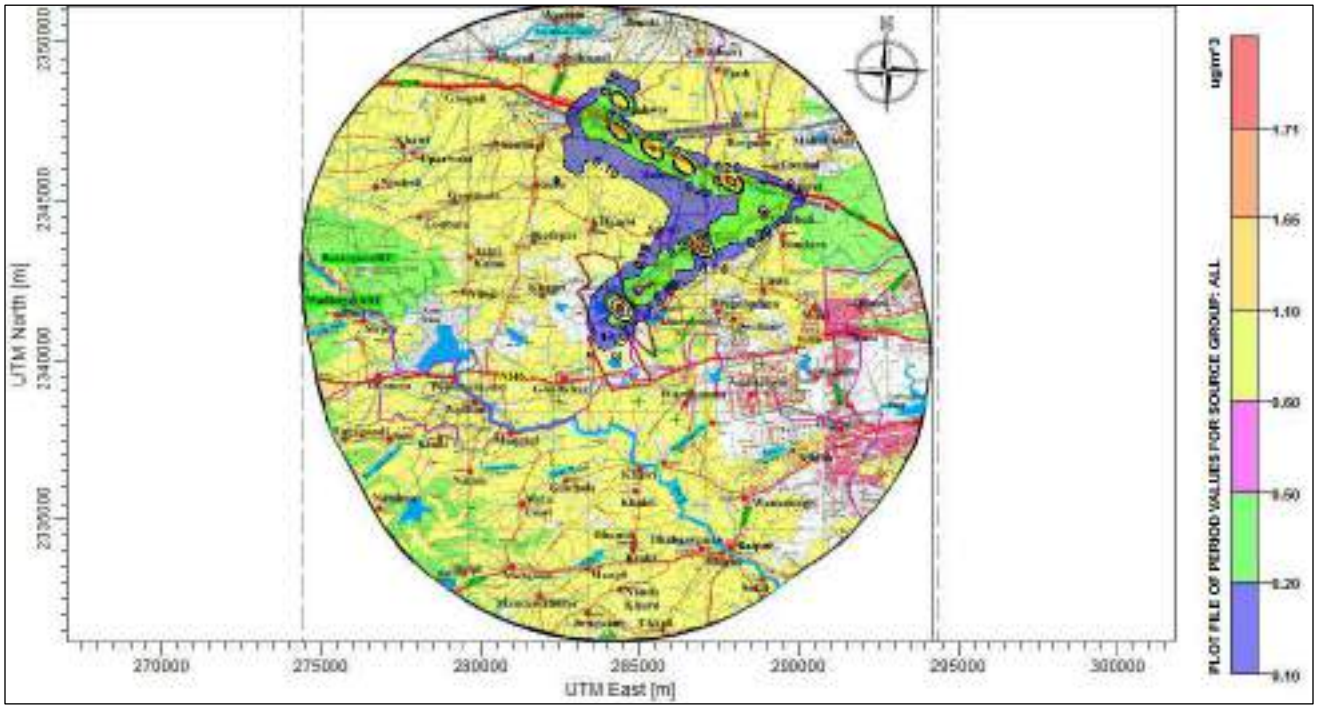


FIGURE 4.6: PREDICTED INCREMENTAL GLC OF PM_{10}

Impact on Habitation

Detailed traffic studies and air quality monitoring studies have been carried out for assessment of background air quality conditions in the proposed transportation route. The existing traffic has been estimated by conducting traffic surveys and proposed additional traffic and its impact on habitation has been determined by air dispersion modeling studies. The impact on habitation due to the transportation of coal through trucks is provided in Table 4.3.

Table 4.3 Predicted GLC

Receptor	PM10 in µg/m³ (Limit 100)			CO in µg/m³ (Limit 2000)			NOx in µg/m³ (Limit 80)		
	Max Baseline	Incremental	Resultant	Max Baseline	Incremental	Resultant	Max Baseline	Incremental	Resultant
Project site-Location at North end	74.3	0.06	74.36	369	1.24	370.24	28.9	2.18	31.08
Project site-Location at South end	67.4	0.02	67.42	286	0.53	286.53	20.3	0.94	21.24
Kalambi	56.6	0.05	56.65	258	0.99	258.99	15.1	1.77	16.87
Waddhamna	77.2	0.01	77.21	421	0.59	421.59	26.6	1.05	27.65
Carmel Academy CBSE	70.2	0.01	70.21	388	0.43	388.43	25.8	0.76	26.56
Ketapar	63.9	0.03	63.93	376	0.52	376.52	19.9	0.92	20.82
Alesar	71.6	0.43	72.03	423	22.25	445.25	23.5	16.75	40.25
Gondkhairi	88.4	0.05	88.45	419	0.39	419.39	31.1	0.70	31.80
Surabardi	76.7	0.03	76.73	387	1.16	388.16	23.1	2.07	25.17
Khapri	60.6	0.03	60.63	319	0.45	319.45	20.3	0.80	21.10
Sahuli	59.8	0.13	59.93	328	3.31	331.31	12.1	5.82	17.92
Drugdhamna	62	0.01	62.01	435	0.86	435.86	17.6	1.52	19.12

5.0 OBSERVATIONS

The study found that all the roads were black topped and in good condition. The roads at the different locations had variable width ranging from 6 m to 19 m. No bottle necks and issues were found at any location at the time of study.

When the PCU projections for the future percent utilization were estimated it was found that the carrying capacity (as per IRC 64-1990) at all Census points was within limits.

6.0 RECOMMENDATIONS

As per the traffic survey & the measured road widths along the entire transportation route, the current road is having sufficient carrying capacity to accommodate the additional traffic, hence, transportation of coal through road can be undertaken. However, following additional precautions/measures are recommended-

- The vehicles used for transportation of coal shall be covered with tarpaulin.
- Wheel washing arrangements shall be made at mine exit point.
- All the Vehicles shall have their PUC certificates.
- Periodic maintenance of the vehicles shall be ensured.

- GPS tracking and speed monitors shall be installed in the Vehicles.
- The drivers shall be sensitized to their specific work to minimize accidents and pollution.
- All the vehicles used for transportation of coal shall be covered with tarpaulin to avoid dust pollution.
- With stringent traffic management system within the coal mine lease area, scope for air pollution due to movement of coal transports will be minimized. The layout of the project has generous area earmarked for greenery development. This will act as effective media for arresting the emissions within the coal mine lease area.
- The vehicular traffic plying in and out of the project site is being one of the significant sources of air pollution. If the site is not properly regulated, it can create disruption in free traffic movement leading to air pollution problems. This difficulty can be tackled to a great extent by properly regulating the traffic and by following strict and disciplined vehicular movement and operation at the project site. By imposing vehicular emission standards, this problem can be further curbed to a large extent.
- BS-6 trucks/dampers will be used for the transportation of coal.
- The Trucks which are found to have Pollution under Control Certificates only will be allowed. Every other vehicle used in the plant even for passenger transport will be checked for Pollution under Control at the prescribed frequency.
- Adequate and planned road network will be set up at the project site for smooth movement of the goods vehicles.
- It would be ensured that all the vehicles plying in the working zone are properly tuned and maintained to keep emissions within the permissible limits. At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will be minimized further.
- All the internal roads within the plant are metaled; hence dust arising from the internal roads will be insignificant. The greenbelt development shall further help in reduction in fugitive emissions.

Annexure I: Traffic Survey Photographs







*Annexure II: ToR

File No. IA-J-11015/46/2022-IA. II(M)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)
*****

Indira Paryavaran Bhawan,
Jorbagh Road, N Delhi – 3
Email: lk.bokolia@nic.in; Tel: 011-20819417

Dated: 13th February, 2023

To

M/s Adani Power Maharashtra Limited
Adani Corporate House Shantigram,
Near Vaishno Devi Circle, S.G. Highway,
District Ahmedabad-382421 (Gujarat)
Email: gondkhari@adani.com

Sub: Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2 MPTA (rated capacity)/3.0 MTPA (Peak capacity) in the mine lease area of 862.00 Ha of M/S Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) - For Terms of Reference –reg.

Sir,

This has reference to your Online Proposal No. IA/MH/CMIN/401870/2022 dated 5th January,2023 on the above-mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has considered the proposal for grant of Terms of Reference to Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2 MPTA (rated capacity)/3.0 MTPA (Peak capacity) in the mine lease area of 862.00 Ha of M/S Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).

3. The proposal was considered by the sectoral Expert Appraisal Committee (EAC) in the Ministry in its 39th EAC meeting held on 12 -13 January, 2023 through Video Conferencing. The details of the project, as per the documents submitted by the project proponent, and also as informed during the meeting, are reported to be as under: -

(i) The project area is covered under Survey of India Topo Sheet No 55K/16 (New-F44M16) and is bounded by the geographical coordinates ranging from 210 07' 57.737" N to 210 10' 55.196" N and longitudes 780 54" 45" E to 780 56" 26" E.
(ii) Coal linkage of the project is allocated 18.11.2021 under the commercial coal mining auction process for sale of coal, allotment order vide Letter No. NA-104/7/2021-NA dated: 18 November 2021.
(iii) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.
(iv) Employment generation, Direct and Indirect employment to 863 Persons will be provided from the project.

(v) The project is reported to be beneficial in terms of energy security for the development of country.

(vi) Total mining lease area as per block allotment is 862ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved Ministry of Coal, Government of India on 22.12.2022.

(vii) The land usage pattern of the project is as follows:

Pre-mining land use details (Area in 862 Ha)

S. no.	Ownership	Type of land (Within Mine lease)	Area (ha)
1	Tenancy Land	Agricultural	687.347
2		Barren	
3		Water bodies	
4		Road	
5		Community	
A	Sub-Total		687.347
1	Govt Non-Forest Land	Agricultural	87.301
2		Barren (Road)	
3		Other	
B		Sub total	87.301
1	Forest Land	Revenue Forest land	87.351
C	Sub total		87.351
	Grand Total (A+B+C))		862.00

Post Mining

Mining Activity	Proposed Land Use Area (ha)	Land Use (End of Life) Area	Post Mining Land Use (ha)						
			Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	Total
Excavation Area	-	-	-	-	-	-	-	-	-
Backfilled Area (in Excavation Area)	-	-	-	-	-	-	-	-	-
Excavated Void (in Excavation Area)	-	-	-	-	-	-	-	-	-
Topsoil Dump	-	-	-	-	-	-	-	-	-
External Dump	-	-	-	-	-	-	-	-	-
Safety Zone	-	-	-	-	-	-	-	-	-
Haul Road between quarries	-	-	-	-	-	-	-	-	-
Road diversion	-	-	-	-	-	-	-	-	-
Settling pond	0.08	0.08	0.08	-	-	-	-	-	0.08

Road & Infrastructure area	13.845	13.845	13.845	-	-	-	-	-	13.845
Garland drains				-	-	-	-	-	
Embankment	0.075	0.075	0.075	-	-	-	-	-	0.075
Green Belt	2	2	2	-	-	-	-	-	2.000
Water Reservoir				-	-	-	-	-	
UG entry	2	2	2	-	-	-	-	-	2.000
Total (excluding rights for UG mine) (1)	18	18	18	-	-	-	-	-	18
Undisturbed/UG mining right (2)	844	-	-	-	-	-	-	-	844.00
Grand Total (1+2)	862								862.00

(viii) Total geological reserve reported in the mine lease area is 98.5030 MT with 52.496 M mineable reserve. Out of total mineable reserve of 52.596 MT, 42.946 MT are available fo extraction. Percent of extraction is 43.5990%.

(ix) 4 seams with thickness ranging from 0.93 m to 5 m are workable. Grade of coal is G8 whil gradient is 90 to 220.

(x) Method of mining operations envisages by Underground Mining: Longwall retreating metho with caving by deploying DERDS and Road Headers for tunneling.

(xi) Life of mine is 30 years. (Including construction).

(xii) Transportation of coal has been proposed by series of conveyors in mine pit head, fro surface to siding by Conveyer/Trucks and at sidings by Haulage trucks.

(xiii) 87.351 ha of forest land has been reported to be involved in the project. Approval under th Forest (Conservation) Act, 1980 for diversion of 87.351 ha of forest land for non-forestu purposes has been submitted dated 06.01.2023.

(xiv) Please mention any National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall withi 10 km boundary of the project. -Not applicable.

(xv) Wildlife conservation plan for schedule – I species has been submitted –Not Applicable

(xvi) The ground water level has been reported to be varying between 0.08 m bgl to 15.59 m b during pre-monsoon and between 0.60 m bgl to 10.60 m bgl during post-monsoon.

(xvii) Total water requirement for the project is 496 KLD. (436 KLD from mine seepage and 6 KLD from borewell.

(xviii) Application for obtaining the approval of the Central Ground Water Authority to b submitted.

(xix) No River/nalla is flowing within the boundary of lease. The nallah will be/not be diverted consultation with the Water Resource Department of the State Government. -No Na diversion is proposed.

(xx) No court cases, violation cases are pending against the project of the PP.

(xxi) The project does not involve violation of the EIA Notification, 2006 and amendment issu

thereunder. The coal production from the mine was started from the year onwards. No excess production of coal from the sanctioned capacity has been realized since the commencement of mining operations.

(xxii) The project involves no project affected families. R&R of the PAPs will be done as per prevailing laws.

(xxiii) Total cost of the project is Rs. 130300 lakhs. Cost of production is Rs 2800/- per tonne., CSR cost is Rs. 5/- per tonne, R&R cost if applicable. Environment Management Cost is: Capital Rs.10 crores; & Recurring 2.5 crores.

4. The Expert Appraisal Committee in in its 39th EAC meeting held on 12 -13 January, 2023, through Video Conferencing has recommended the proposal for grant of Terms of References (ToR). Based on the recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby grants approval to the Terms of References for **Gondkhari Underground Coal Mine (Kamptee Coalfield) of Production Capacity 2 MPTA (rated capacity)/3.0 MTPA (Peak capacity) in the mine lease area of 862.00 Ha of M/S Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra),** for preparation of EIA/EMP reports with public consultations, under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto, subject to the compliance of the following terms and conditions as specified/notified in the standard ToR applicable for opencast coal mines, along with the additional conditions as under:-

(i) Public Consultation, including public hearing, shall be conducted through concerned SPCB in the concerned districts as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.

(ii) The PP shall submit the lake rejuvenation plan to conserve the existing water bodies in core zone as well as in Buffer Zone.

(iii) The PP shall submit the transportation related option study to optimize the transportation system through rail/road.

(iv) PP shall submit Letter of Intent from concerned State Government based on allocation of coal block from Ministry of Coal.

(v) PP to submit the Mining plan approved by the Ministry of Coal for the peak capacity of 3 MTPA.

(vi) Forest Clearance of total 87.351 ha for diversion for non-forestry activity shall be submitted.

(vii) PP should submit the real time aerial footage and video of the Mining lease area made through drone with a special focus on the area adjacent to the rivers.

(viii) PP shall not plan any non-essential infrastructure of mining operation on non-coal bearing forest area.

(ix) PP shall conduct detailed study the subsidence, its impact due to mining activity and propose mitigation/management measures.

(x) PP shall submit detailed project report for implementation of railway siding for evacuation of coal with its target date of completion. Forest Clearance shall be submitted if railway siding land comes under forest land.

(xi) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. 12 nos of Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.

(xii) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.

(xiii) PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.

(xiv) Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity shall be proposed with timeline and allotted fund with the approval of District Commissioner/collector. A need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.

(xv) Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.

(xvi) Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory.

(xvii) PP should clearly bring out that what is the specific diesel consumption – (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.

(xviii) PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.

(xix) PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers. Also, It should include with certified map with exact distance from any Wildlife Sanctuary.

(xx) Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.

4.1. This grant of Terms of References(ToR) for the said project is further subject to the general conditions as under

(i) All documents should be properly indexed, page numbered.

(ii) Period/date of data collection should be clearly indicated.

(iii) Authenticated English translation of all material provided in Regional languages.

(iv) After the preparation of the draft EIA-EMP Report as per the aforesaid TOR, the proponent shall get the Public Hearing conducted as prescribed in the EIA Notification 2006 and take necessary action for obtaining environmental clearance under the provisions of the EIA Notification 2006.

(v) The letter/application for EC should quote the Ministry's file No. and also attach a copy of the letter prescribing the ToR.

(vi) The copy of the letter received from the Ministry on the ToR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.

(vii) General Instructions for the preparation and presentation before the EAC of ToR/EC projects of Coal Sector should be incorporated/followed.

(viii) The aforesaid ToR has a validity of **Four** years only.

(ix) Grant of ToR does not necessarily mean grant of EC.

(x) Grant of ToR to the present project does not necessarily mean grant of TOR/EC to the captive/linked project.

(xi) Grant of ToR to the present project does not necessarily mean grant of approvals under the Forest (Conservation) Act, 1980 or the Wildlife (Protection) Act, 1972.

(xii) Grant of EC is also subject to circulars issued under the EIA Notification 2006, which are available on the Ministry's website: www.envfor.nic.in

5. **Standard ToR:** The EIA/EMP report should contain the information in accordance with provisions & stipulations as given in the standard ToR for Underground coal mine projects (please visit the following link to download the Standard ToR:
http://environmentclearance.nic.in/writereaddata/standardtorreference.pdf

6. You are required to submit the final EIA/EMP prepared as per TORs to the Ministry within 4 years as per this Ministry's Notification vide S.O 751 (E) dated 17th February, 2020 for considering the proposal for environmental clearance.

7. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India/National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization(s)/laboratories including their status of approvals etc. vide Notification of the MoEF dated 19th July, 2013.

This issues with the approval of the competent Authority

(Lalit Bokolia)
Director

Copy to:

1. The Principal Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg, Madam Cama Road, Mantralaya, Mumbai - 32 (Maharashtra)
2. The Additional PCCF (Central), Ministry of Environment Forest and Climate Change, Regional Office (Western Central Zone), Ground Floor, East Wing, New Secretariat Building Civil Lines, Nagpur-1 (Maharashtra)
3. The Chairman, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4thFloors, Sion, Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai - 2
4. The District Collector, **Nagpur**, Government of Maharashtra
5. Monitoring File 6. PARIVESH

(Lalit Bokolia)
Director

A. Generic TOR for an Underground Coalmine project

(i) An EIA-EMP Report should be prepared for a peak capacity of …… **MTPA** over an area …… ha addressing the impacts of the underground coalmine project including the aspec of mineral transportation and issues of impacts on hydrogeology, plan for conservation flora/fauna and afforestation/plantation programme based on the generic structure specifi in Appendix III of the EIA Notification 2006. Baseline data collection can be for any seas except monsoon.

(ii) The EIA-EMP report should also cover the impacts and management plan for the proje specific activities on the environment of the region, and the environmental quality – a water, land, biotic community, etc. through collection of baseline data and informatio generation of baseline data on impacts for ……. MTPA of coal production based on approv of project/Mining Plan.

(iii) A Study area map of the core zone and 10km area of the buffer zone (15 km of the buff zone in case of ecologically sensitive areas) delineating the major topographical featur such as the land use, drainage, locations of habitats, major construction including railway roads, pipelines, major industries/mines and other polluting sources, which shall al indicate the migratory corridors of fauna, if any and the areas where endangered fauna a plants of medicinal and economic importance are found in the area.

(iv) Map showing the core zone along with 3-5 km of the buffer zone) delineating the agricultu land (irrigated and unirrigated, uncultivable land (as defined in the revenue records), for areas (as per records) and grazing land and wasteland and water bodies.

(v) Contour map at 3m interval along with Site plan of the mine (lease/project area with abo 3-5 km of the buffer zone) showing the various surface structures such as buildin infrastructure, CHP, ETP, Stockyard, township/colony (within/adjacent to the ML), gre belt and undisturbed area and if any existing roads, drains/natural water bodies are to be l undisturbed along with details of natural drainage adjoining the lease/project a modification of thereof in terms of construction of embankments/bunds, propos diversion/rechannelling of the water courses, etc., highways, passing through t lease/project area.

(vi) Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of t area. Impacts of project, if any on the landuse, in particular, agricultu land/forestland/grazing land/water bodies falling within the lease/project and acquired mining operations. Extent of area under surface rights and under mining rights.

S.N.	ML/Project Land use	Area under Surface Rights (ha)	Area Under Mining Rights (ha)	Area under Bot (ha)
1.	Agricultural land			
2.	Forest Land			
3.	Grazing Land			
4.	Settlements			
5.	Others (specify)			

Area Under Surface Rights

S.N.	Details	Area (ha)	Forest Land	Agr. land	Wasteland	Settle ments	Other s
1.	Buildings						
2.	Infrastructure						
3.	Roads						
4.	Others (specify)						
	TOTAL						

(vii) Study on the existing flora and fauna in the study area carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. The flora and fauna details should be furnished separately for the core zone and buffer zone. The report and the list should be authenticated by the concerned institution carrying out the study and the names of the species scientific and common names) along with the classification under the Wild Life Protection Act, 1972 should be furnished.

(viii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working plan/scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps should also be included.

(ix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.

(x) Collection of one-season (non-monsoon) primary baseline data on environmental quality – air (PM_{10}, $PM_{2.5}$, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, AS, etc), noise, water (surface and groundwater), soil along with one-season met data.

(xi) Map of the study area (core and buffer zone) clearly delineating the location of various monitoring stations (air/water/soil and noise – each shown separately) superimposed with location of habitats, wind roses, other industries/mines, polluting sources. The number and location of the stations should be selected on the basis of the proposed impacts in the downwind/downstream/groundwater regime. One station should be in the upwind/upstream/non-impact non-polluting area as a control station. Wind roses to determine air pollutant dispersion and impacts thereof shall be determined. Monitoring should be as per CPCB guidelines and standards for air, water, noise notified under Environment Protection Rules. Parameters for water testing for both ground and surface water should be as per ISI standards and CPCB classification of surface water wherever applicable.

(xii) Impact of mining and water abstraction and mine water discharge in mine on the hydrogeology and groundwater regime within the core zone and 10km buffer zone including long–term modelling studies on the impact of mining on the groundwater regime. Details of rainwater harvesting and measures for recharge of groundwater should be reflected wherever the areas are declared dark/grey from groundwater development.

(xiii) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.

(xiv) Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users should be provided.

(xv) Impact of choice of mining method, technology, selected use of machinery - and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations.

(xvi) Impacts of mineral transportation – within and outside the lease/project. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, and their impacts on air quality should be shown in a flow chart with the specific points where fugitive emissions can arise and the specific pollution control/mitigative measures proposed to be put in place. Examine the adequacy of roads existing in the area and if new roads are proposed, the impact of their construction and use particularly if forestland is used.

(xvii) Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral and their impacts.

(xviii) Examine the number and efficiency of mobile/static water sprinkling system along the main mineral transportation road within the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality.

(xix) Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.

(xx) Conceptual Final Mine Closure Plan along with the fund requirement for the detailed activities proposed there under. Impacts of change in land use for mining operations and whether the land can be restored for agricultural use post mining.

(xxi) Greenbelt development should be undertaken particularly around the transport route and CHP. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.

(xxii) Details of cost of EMP (capital and recurring) in the project cost and for final mine closure plan and these include the specific costs (capital and recurring) of each pollution control/mitigative measures proposed in the project until the end of mine life and a statement that this is included in the project cost should be given

(xxiii) The Env. Management Plan should be integrated with measures for minimizing the use of natural resources - water, land, energy, raw materials/mineral, etc

(xxiv) Detailed project specific R&R Plan with data on the existing socio-economic status (including tribals, SC/ST) of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be provided.

(xxv) Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project

(xxvi) Corporate Environment Responsibility:

a) The Company must have a well laid down Environment Policy approved by the Board of Directors.

b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.

c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

(xxvii) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.

(xxviii) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated

(xxix) Status of any litigations/ court cases filed/pending in any Court/Tribunal on the project should be provided

(xxx) Details on sample test analysis of: Characteristics of coal: This should include details on grade and other characteristics such as ash content, and heavy metals including levels of Hg, As, Pb, Cr etc. should be given

(xxxi) Copies of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval, NOC from Flood and Irrigation Dept. (if req.), etc. should be provided wherever applicable

(xxxii) FORESTRY CLEARANCE: Details on the forest clearance the details should be given as per format

Total ML / /Project Area (ha)	Total Forest Land (ha)	Date of FC	Extent of forest land	Balance area for which FC is yet to be obtained	Status of appl. for diversion of forestland
		If more than one, provide details of each FC			

ANNEXURE IX (A)
ENVIRONMENT, HEALTH &
SAFETY POLICY

adani

ENVIRONMENT, HEALTH & SAFETY POLICY

We at Adani, strive to make our businesses sustainable, that benefits our customers, our employees, our shareholders and society in general. We believe that in addition to integrated infrastructure business, there is a bottom line in performing our operations according to prescribed standards, specifications and regulations on governance, which are safe in working and environmental friendly for the well-being of the working community.

As a responsible corporate, we at ADANI have a firm conviction that the industrial injuries, occupational hazards as well as safety and environmental incidents are preventable. We recognize and trust people as our most important asset and have commitment to provide safe and healthy work environment impacting not only those, who are working in our industry but also community, which is living in the vicinity.

To achieve this objective, we shall

a. Develop, implement, maintain and sustain EHS Management System across the Group to set up new benchmarks for the respective sector of operations, which superimpose the regulatory and statutory requirements.

b. Verify, audit and periodically review EHS performance and set new targets to revise these benchmarks.

c. Formulate EHS objectives and targets for continual improvement and to have a periodic review for ensuring that these are in conjunction with the individual business and corporate levels.

d. Conduct all our operational activities in such a manner as to avoid harm to employees, contractors, stakeholders and community at large.

e. Inculcate safety & health as a personal value through behavioral intervention and recognize it across levels with continuous correction of unsafe behavior.

f. Provide adequate training and resources so as to bring awareness and ability to carry out work safely.

g. Emphasize responsibility and accountability to all employees and contractor workforce for safe performance on the job and encourage safe behavior off the job.

h. Evolve ways to reduce or eliminate the use or release of toxic and hazardous material and prevent pollution by conserving natural resources, recovering and recycling the raw materials for safe, healthy and clean environment.

GAUTAM S ADANI

Date: 01.01.2016

ANNEXURE X
SOIL CONSERVATION STUDY REPORT

REPORT ON

CATHCHMENT AREA TREATMENT PLAN
&
SOIL MOISTURE CONSERVATION WORK PLAN

FOR

GONDKHAIRI UNDERGROUND COAL MINE

Village Gondkhairi, Nanda, Alesur, kalambi, Karale, Surabardi, Pendhari, Waddhamna
Dist. Nagpur, Maharashtra

PROPONENT

M/S. ADANI POWER MAHARASHTRA LIMITED

At.- Adani Corporate House, Shantigram,
Nr. Vaishno Devi Circle, S G Highway.
Khodiyar, Ahmedabad, Gujarat-382421

PREPARED BY

Nawal Kishore Prasad
Functional Area Expert (GW & Hydrology) by NABET,
Accredited ground water professional by CGWA

&

Shrideep A Chavan
(Hydro-geologist)

On behalf of

SRUSHTI SEVA PRIVATE LIMITED

"Bilvadal" 8 Janta Layout, Deendayal Nagar,
Na ur (Maharashtra) - 440022
Landline: 0712 2971968
Email: srspl15@gmail.com, srushtisewa@yahoo.com

FEBRUARY - 2023

Executive Summary:

- *The Gondkhairi UG Mine Coal Block comprising total lease area of 8.62 km^2 has been allotted to M/s. Adani Power Maharashtra Limited in the district of Nagpur of Maharashtra state. Only 87.351 ha of Revenue Forest Land falling within mine lease area which will be disturbed.*
- *The area is covered in the Survey of India Toposheet No. 55 K/16 (R.F.1:50,000)) and is bound by*

Latitude 21° 07' 57" N to 21° 10' 56" N

Longitude 78° 54' 45" E to 78° 56' 26" E

- *Pre-mining Land use of mining area is 862 ha. Out of which 87.351 Ha comes under forest and remaining area under public road, agriculture and water bodies. The Catchment treatment Plan & Soil Moisture Conservation Plan (SMC Plan) is being prepared for 862 Ha.*
- *The geological formation encountered in Gondkhairi UG Mine and micro basin is mainly Deccan trap underlained by Barakar Formation of Gondwana group. The lithology of formations constitutes sandstone and shale.*
- *Tranmsimissivity of area is 78.45 m2/day and hydraulic conductivity is 0.87 m/day.*
- *Normal rainfall in study area is 1267.4 mm.*
- *The basic relation governing the climatic water balance concept is;*

  P = AE + RO ± ΔS.

  1267.4 = 877.05 + 390.13 – 0
- *The intensity of Rainfall is 90 mm/ hour.*
- *Runoff Coefficient is considered to be 20%.*
- *The capacity of Nala Bridge over National Highway Gndkhairi is 712 m^3/sec. Whereas the peak flood over Gondkhairi micro watershed including mine and two reservoir is estimated as 150 m^3/sec. Thus, the out let for discharge of Peak Flood is near about 5 times higher than the flood discharge anticipated.*
- *The lowest water table contour is 290 m masl and highest is 340 m amsl during both pre-monsoon.*
- *Study area has been divided into 4 number of small micro-watersheds with total area of 8.62 km2 and total surface water available is 1.90 MCM and total peak flood is 42.3 m3/sec.*
- *The erosion or soil loss for this condition is derived above to the tune of 5.53 tone/ ha/year.*
- *Cost estimate for Biological Conservation Plan will be around Rs. 5, 50, 000.*
- *Cost estimate for Engineering Conservation Plan will be around Rs. 9, 00, 000.*

The Total Cost of Catchment Treatment Plan & Soil Moisture Conservation Plan is Rs. 15, 00, 000

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1.0 INTRODUCTION:

1.1 General:

M/s. Adani Power Maharashtra Limited, Khodiyar, Ahmedabad, Gujarat state is engaged in exploration and scientific exploitation of coal block in Maharashtra. Gondkhairi Underground Coal Block is located in Kamtee Coal field covering villages Gondkhairi, Nanda, Alesur, kalambi, Karale, Surabardi, Pendhari, Waddhamna Kalmeshwar tehsil of Nagpur district Maharashtra State for production of coal. The total lease area is 862 ha which is a also geological block area. The mining plan has been approved vide letter no. Gondkhairi Coal MineMHMR019/APP00226/2022.

For the compliance of Gondkhari Forest Clearance “A Soil and Moisture Conservation (SMC) work plan to mitigate the impact of the proposed mining activity on the local rivulets (nallah) shall be prepared by the user agency in consultation with the State Forest Department and the same shall be submitted. The total requirement of land is 862 ha, which includes 87.351 ha of revenue forest land and 774.648 ha of non-forest lnd. Only 18 ha of non-forest land to be acquired for the underground entry, infrastructure road and green belt development. Surface revenue forest land will remain undisturbed. Cost of implementation of the provisions of the said Plan will be deposited into the CAMPA and the same shall be intimated to the Ministry before Stage-II approval".

Accordingly, M.s. Srushti Seva Private Limited has been engaged to prepare report Catchment Area Treatment Plan and Soil Moisture Conservation (SMC) of Gondkhari with following scope of work.

1. Climatic Water Balance
2. Proposed UG mining surface erosion problem if any
3. Catchment Area Treatment & Sediment control technique
4. Soil chemistry of mine area
5. Land use

- Pre mining
- Forest land use
- Land use of mining activities

The project Location map is given in **Figure 1.1**

Latitude 21° 07’ 57" N to 21° 10' 56" N

Longitude 78° 54' 45" E to 78° 56' 26" E

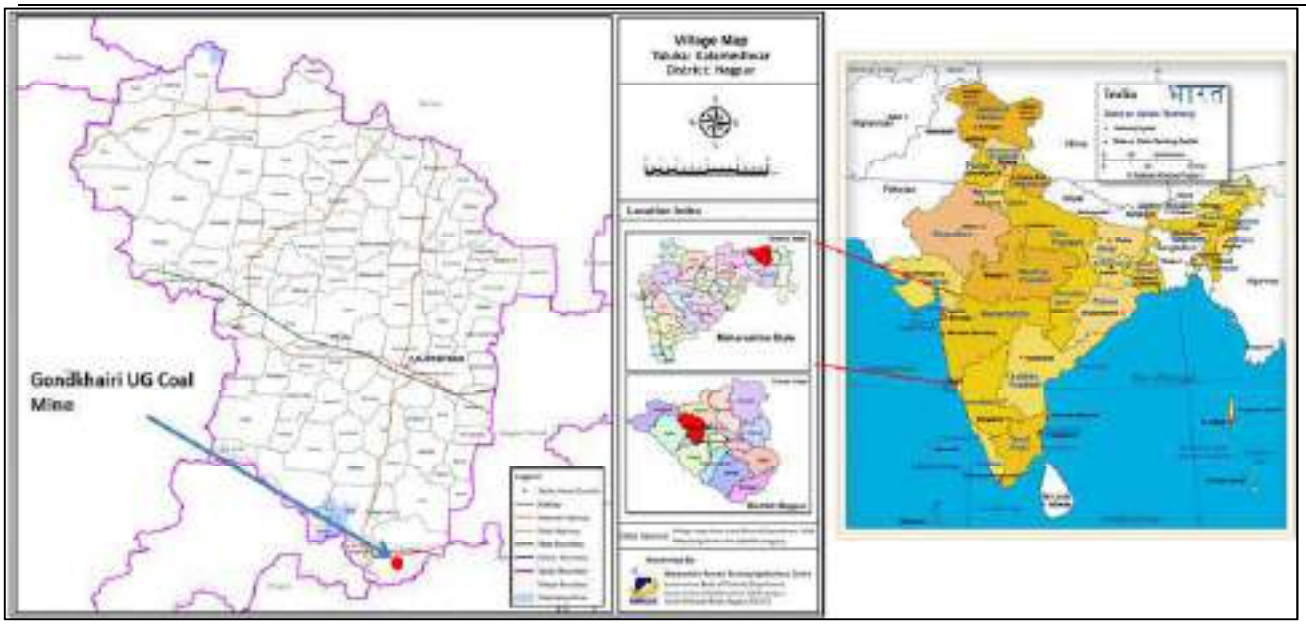


Figure 1.1: Location Map

1.2 Study Area:

As per requirement of study the study area is limited to mine lease area. The location map on toposheet is given in **Figure 1.2.**

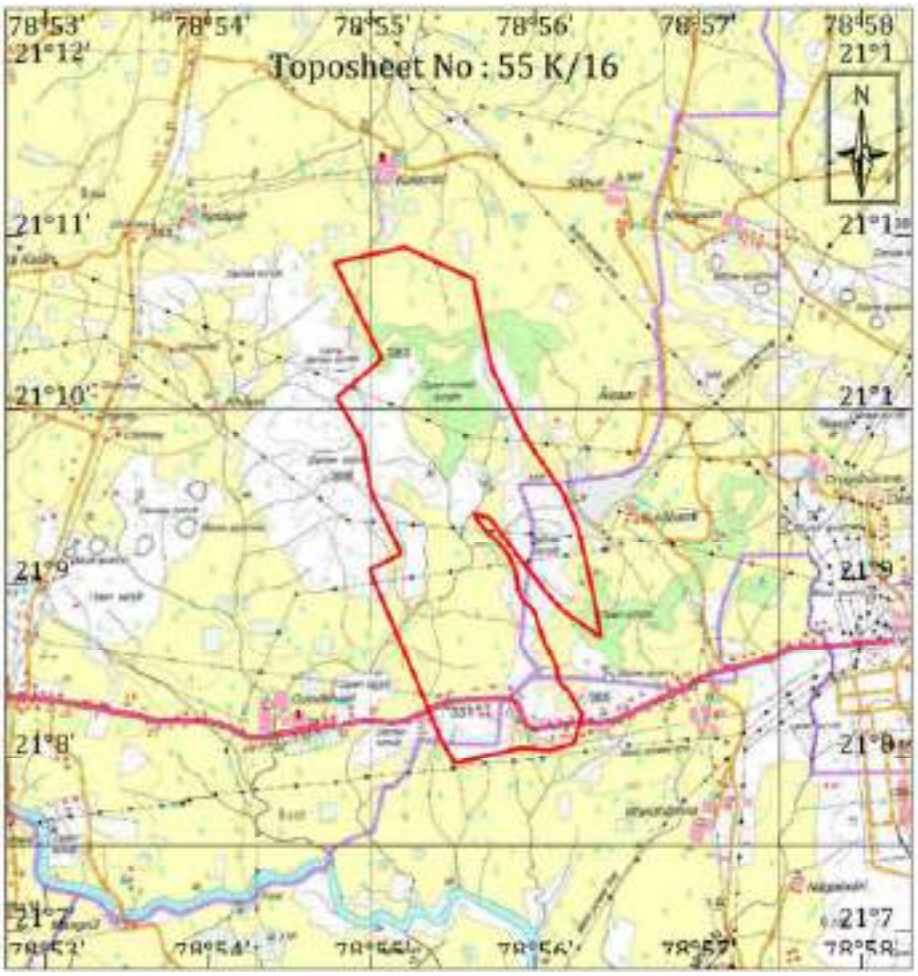


Figure 1.2: Location of study area on Toposheet

1.3 Method of Study:

The objective of CAT & SMC Plan is to rejuvenate various potential and degraded ecosystems in the catchment area. The action plans have been prepared for this purpose with the following method.

1. Land use and land cover
2. Hydrogeology
3. Hydrometeorology
4. Hydrology
5. Soil Erosion
6. Catchment Area Treatment Plan & Soil Moisture Conservation Plan
7. Cost Estimate
8. Conclusion & Recommendations

2.0 LAND USE PLAN:

The land use plan for pre-mining and post- mining including stages of mining is essential input for formation of Soil Conservation Plan. The data in respect of above has been adopted from approved Mine Plan.

2.1 Pre-mining Land use:

2.1.1 Mining Lease Area: Pre-mining Land Use Plan for Mine area is given below in **Table 2.1 & Figure 2.1.**

Table 2.1: Pre-mining Land Use Plan in Mine Lease Area in Ha

Sr no.	Details	Area in Ha
1	Forest Land	87.351
2	Public Road	48.287
3	Agricultural Land	712.472
4	Water Body	13.89
Total		**862.00**

(Source- Mine Plan)

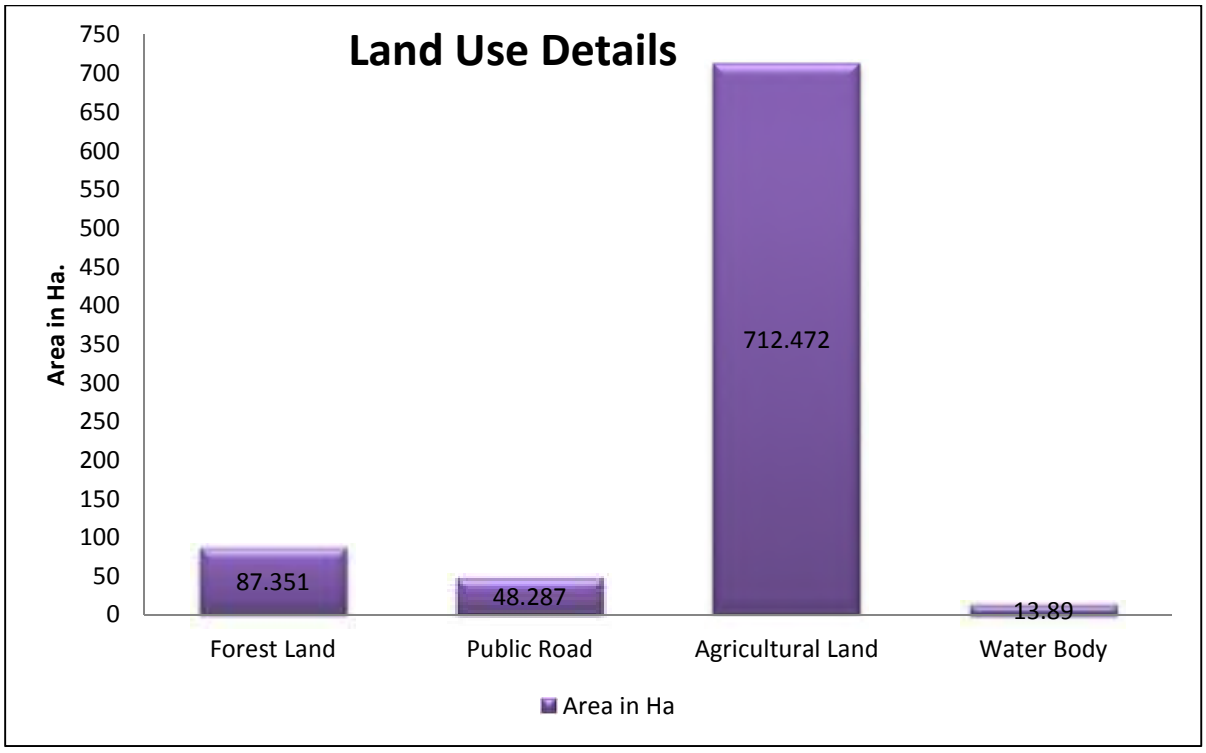


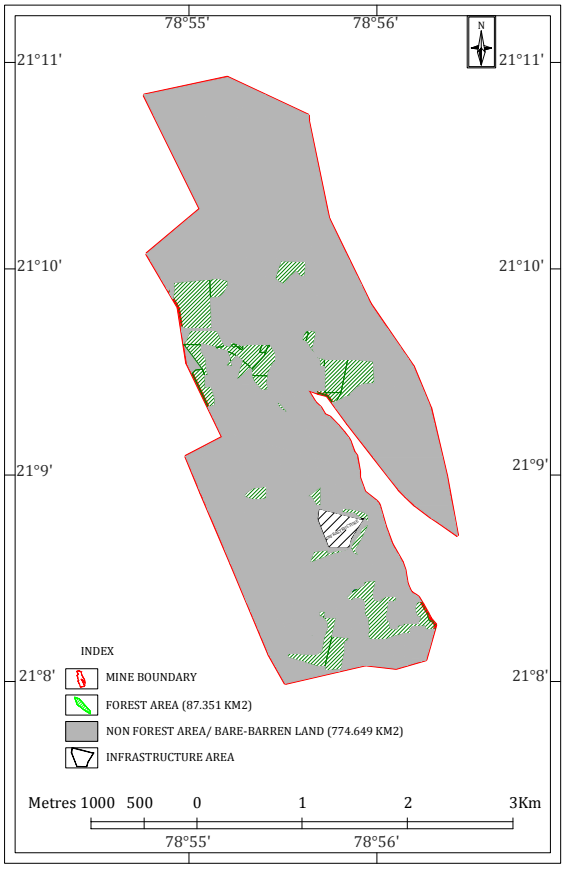
Figure 2.1: Land Use in Mine Lease Area

2.2 Forest land Use:

The catchment treatment plan is being prepared inclusive forest area of 87.351 Ha. The forest and non-forest land for the purpose of CAT in respect of forest area is given below in **Table 2.2** and **Figure 2.2.**

Table 2.2: Forest and Non-Forest Area

Sr No.	Type of Land	Area in Ha	Area in %
1	Forest Land	87.351	10
2	Non-Forest/ Bare –Barren Land	774.649	90
Total Land		**862**	**100**



(Source- Proponent)

Figure 2.2: Forest and Non-Forest map with Infrastructure area

2.2.1 Land use – During Mining Activity:

The entire land coming within lease hold area of coal mine is 862.00 ha will be utilized for mining and ancillary activities are given in **Table 2.3**.

Table 2.3: Land use Cover of Proposed Mine

Sr. no.	Land use	Land use (Post Closure)
1	Settling Pond	0.08
2	Road and Infrastructure	13.8450
3	Embankment	0.0750
4	Green Belt	2.00
5	Underground Entry	2.00
6	Undisturbed or mining right for Underground	844.00
	Total	**862.00**

(Source- Mine Plan)

3.0 HYDROGEOLOGY:

3.1 Geology

The geological formation encountered in Gondkhairi UG Mine and micro basin is mainly Soil/Alluvium followed by Deccan trap underlained by kamthi Formation which is underlained by Barakar formation and then Talchir formation of Gondwana group. The local Geology is schematically given in **Figure 3.1.**

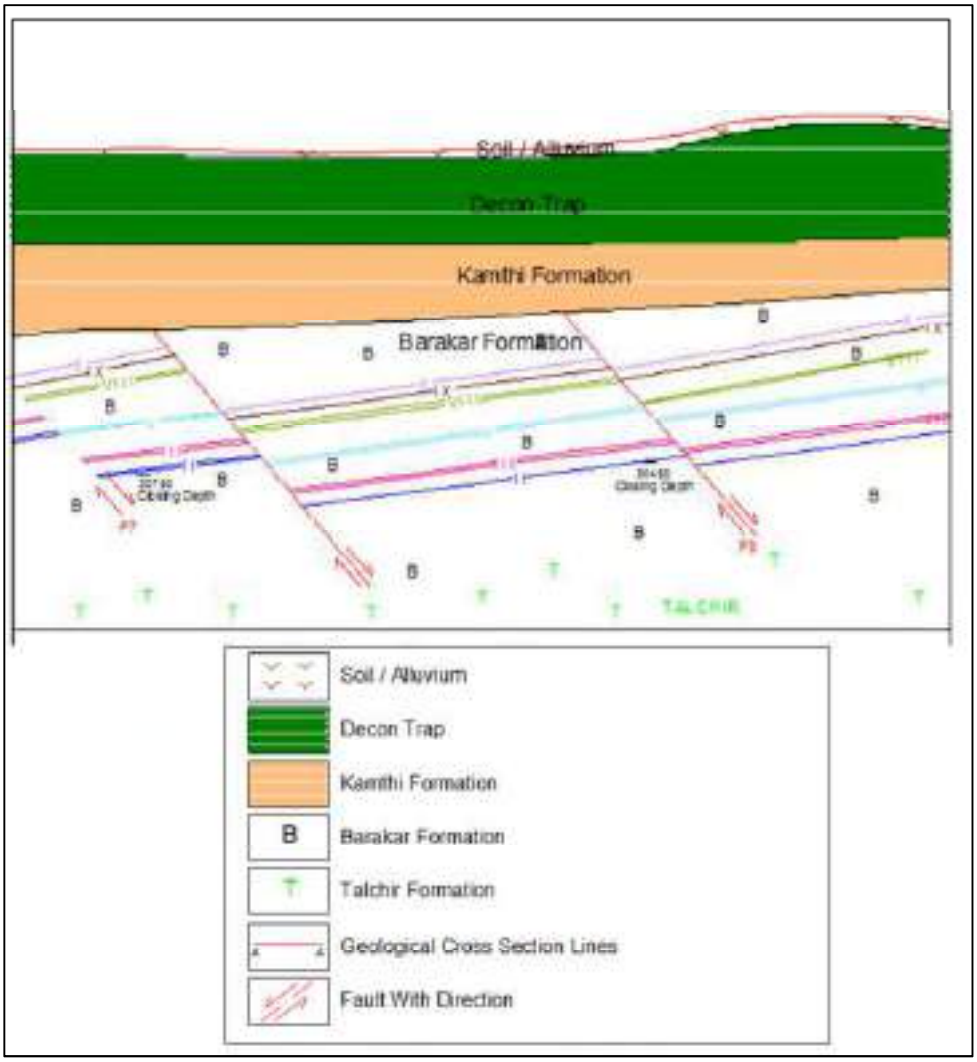


Figure 3.1: Local Geology

3.2 Groundwater:

The groundwater regime of the area under study has been dealt in brief.

Aquifer System:

Ground water occurs under phreatic condition in the exposed lava flows and in the semi confined to confined state in the sub-surface Gondwana sandstone. Ground water is present in pore spaces in the vesicular unit and in the jointed and fractured portion of both basalt and Gondwana Sandstone/shale. However, secondary porosity and permeability developed on account of weathering fracturing and joint. These factors play an important role in the storage and movement of groundwater. This has given rise to good aquifers. The coal seams act as aquitard and also confining bed.

Aquifer Parameter:

A pumping test has been carried out to estimate Aquifer Parameter, the same is reproduced below in **Table 3.1.**

Table 3.1: Aquifer Parameters

Sr No.	Details	Value
1	Aquifer Type	Confined
2	Non Pumping Water Level (m)	21 m
3	Pumping Water Level (m)	44 m
4	Drawdown after 1300 minutes	23 m
5	Discharge (m3/day)	5184
6	Aquifer Thickness (m)	90
7	Tranmsimissivity (m2/day)	78.45
8	Hydraulic Conductivity (m/day)	0.87
9	Storativity	0.02
10	Specific Yield (CGWB)	0.03

*The non-pumping water level is 21 m because yield test had been conducted before pumping test. SO water level has gone down. But the actual water level is 7-10 m

3.3 Water Level of nearby area:

3.3.1 Water Table:

Water level data of surrounding area has been given in **Table 3.2**. Based on data of observation wells a water table map has been prepared for the pre-monsoon period. The pre-monsoon water table map is depicted at **Figure 3.2 r**espectively. The study of map reveals that the water table is following topography of the area. The lowest water table contour is found to be 290 and highest water table contour 340 m amsl. The water table flow direction is towards south direction.

3.3.2 Depth to Water Level Map:

The Hydrogeological Survey of the area has been done to ascertain the Groundwater regime of the study area. Total 5 numbers of dug wells are monitored which is given in Table 5.2. Depth to water level in pre-monsoon varies between 3.00 to 10.00 m bgl average being 6.6 m. while during post monsoon it is 1.7 to 3.9 m bgl and average being 3.0 m. Depth to water level map for pre and post monsoon have been prepared and given in **Figure 3.3** and **Figure 3.4.** Hydraulic gradient in study area is 8×10^{-3}.

Table 3.2: Water Level Data of nearby area

S.N.	Name of Village	Field Code	Type of well	Latitude	Longitude	Dia (m)	Ht. Of Parapet (m)	Depth (m)	Depth of lining (m)	SWL		Fluctuation
										Pre-Mon	Post-Mon.	
1	Surabardi	W-1	DW	21° 9'21.03"	78°56'36.78"	2.60	0.35	6.85	3.95	8.80	3.97	4.83
2	Drugdhamna	W-3	DW	21° 9'35.56"	78°57'35.17"	3.81	0.85	10.70	3.45	4.75	3.51	1.24
3	Alesur	W-5	DW	21°10'7.42"	78°56'39.67"	2.67	0.45	12.55	1.66	9.95	3.85	6.10
4	Dhamana	W-37	DW	21° 9'56.97"	78°54'3.40"	5.60	0.00	6.30	1.70	6.30	1.75	4.55
5	Peth (kaldongri)	W-39	DW	21° 8'7.43"	78°54'18.41"	4.10	0.45	3.55	2.35	3.25	2.35	0.90

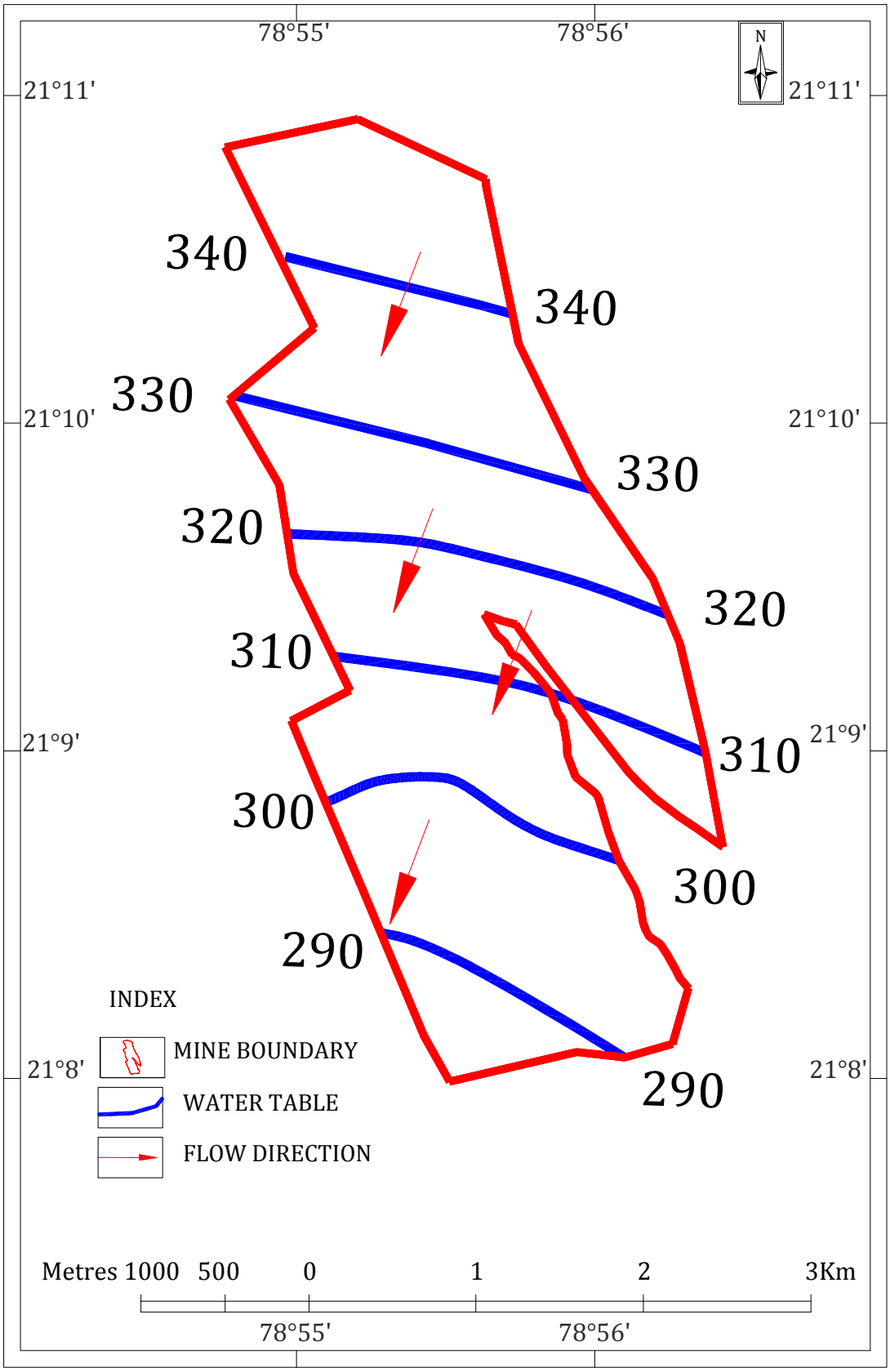


Figure 3.2: Pre-monsoon water table map

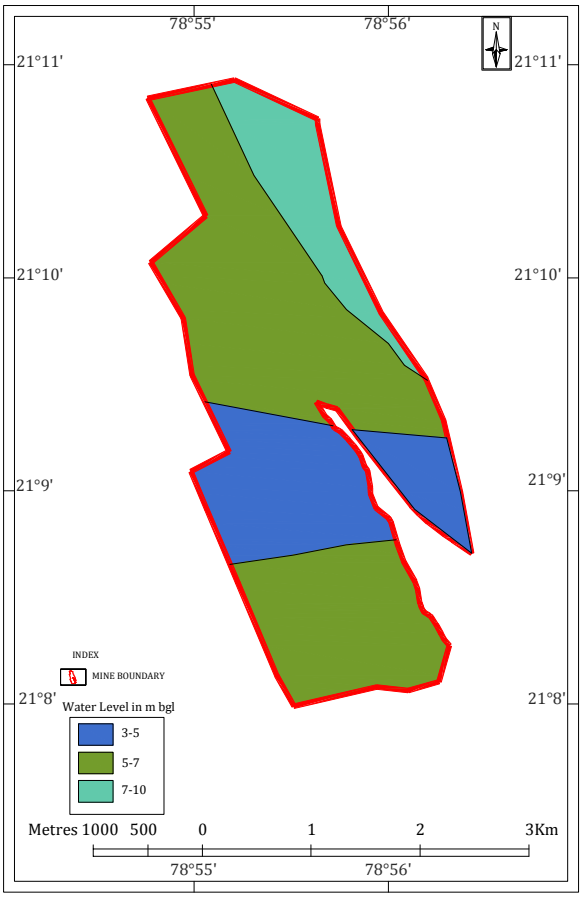


Figure 3.3: Depth to Water Level Pre Monsoon

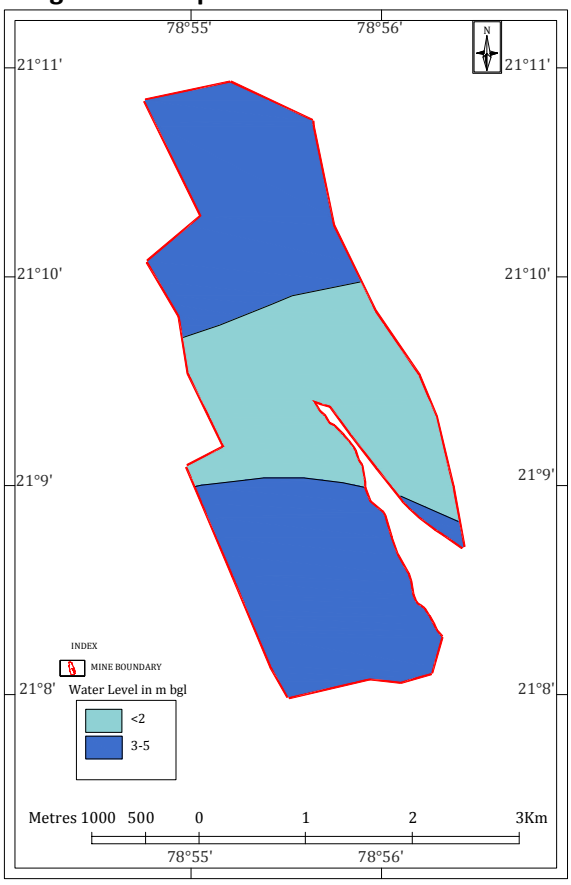


Figure 3.4: Depth to Water Level Post Monsoon

4.0 HYDROMETEOROLOGY

4.1 Precipitation:

Normal rainfall in the study area: The annual normal rainfall is estimated for all stations falling in Wainganga River catchment. Normal rainfall in study area based on 50 years annual data is 1267.4 mm and 1274.6 mm based on 100 year data. The month wise average normal rainfall is given in **Table-4.1** and depicted in **Figure-4.1.** Summarized Rainfall data is given in **Table 4.2**

Table 4.1: Normal rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Catchment area	50	7.6	24.9	14.7	19.6	13.7	194.6	392.9	308.1	215.4	56.4	15.7	3.8	1267.4

Extreme Rainfall: Extreme rainfall occurring in the area has been worked out by analyzing daily rainfall data of the study area. Analysis has been published by IMD and the subsequent available data were also analyzed and the extreme rainfall occurring in the study area is tabulated in **Table 4.3.**

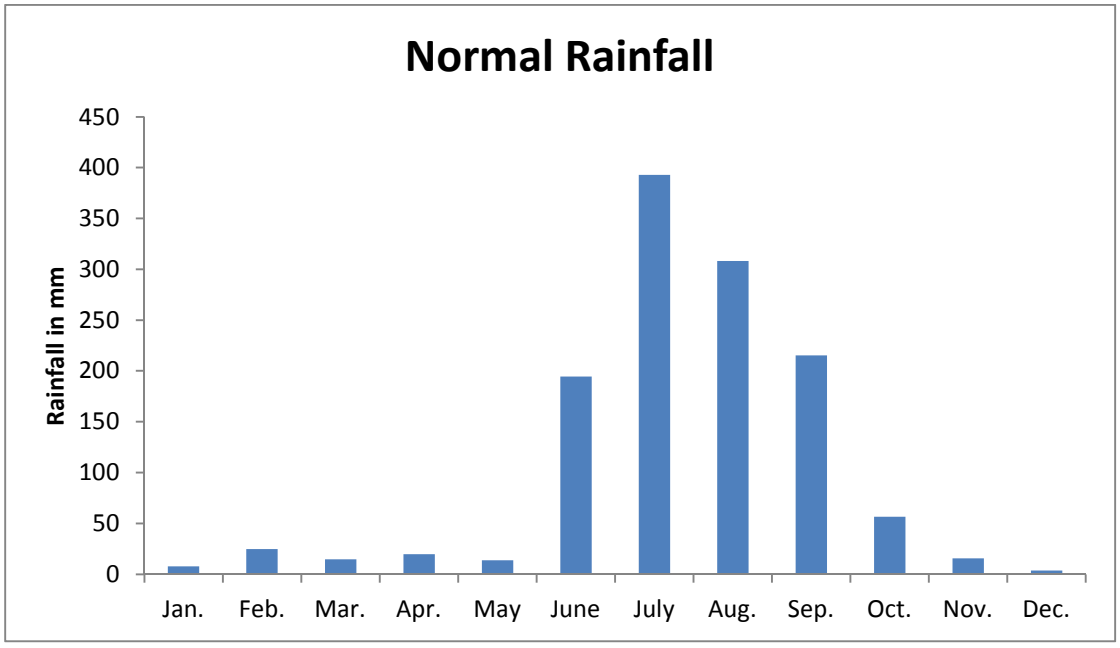


Figure 4.1: Normal Rainfall

Table 4.2: Summarized Rainfall Data

Sl.No.	Type	Months		Normal Rainfall	% of annual normal
		From	To		
1	Late Post-monsoon	Jan.	Feb.	32.5	2.5
2	Pre-monsoon	March	May	48	3.8
3	South-west monsoon	June	Sept.	1111	87.7
4	Post Monsoon	Oct.	Dec.	75.9	6
Annual		**Jan.**	**Dec.**	**1267.4**	**100**

Table 4.3: Extreme Rainfall

Station (Catchment)	Highest annual rainfall as % of normal & year	Lowest annual rainfall as % of normal & year	Heaviest rainfall in 24 hours	
			Amount mm	Date
Wainganga	187 (1990)	49 (1972)	254.0	12th July 1884

4.2 Evapotranspiration:

Under field conditions it is not possible to separate evaporation from transpiration totally. Indeed, we are generally concerned with the total water loss or Evapotranspiration from the basin. The term consumptive use is also used to denote this loss by evapotranspiration. If sufficient moisture is available to completely meet the needs of vegetation fully covering the area, the resulting evapotranspiration is called potential evapotranspiration (PE). The real evapotranspiration occurring in a specific situation is called actual evapotranspiration (AE).

Potential evapotranspiration (PE) is essentially determined by available energy and is for all practical purposes, independent of vegetation, soil or precipitation. A field laboratory method for measuring PE is by Lysimeter. There are various practical difficulties in measuring PE by lysimcters and other devises. Consequently, theoretical methods have been resorted to estimate the PE. Lack of reliable field data and difficulties in obtaining reliable evapo-transpiration data gave rise to a number of methods to predict PE by using climatological data.

4.3 Climatic Water Balance:

Maharashtra state is situated south of 22^{o} N and experiences tropical climate. It is same with the study area. The area witnesses tropical rainy climate. Over Maharashtra, alignment of Isobars is in the north to south direction. The Isobar gradually orients themselves in west to east directions with advances of summer. The climate of the area is characterized by a hot summer and general dryness except during rainy season. Major part of catchment of Wainganga is in the Maharashtra. The basic study includes following parameters;

The idea of climatic water balance was first put forth by Thornthwaite in 1944. Subsequently he developed water balance technique. Elements of climatic water balance for watershed located in and near the project area are computed.

4.3.1 Water Balance Techniques:

It is a climatic balance obtained by comparing the match of precipitation with evapotranspiration, yielding a number of moisture parameters like water surplus, water deficiency, soil moisture change and runoff. The basic relation governing the water balance concept is;

P = AE + RO ± ΔS.

1267.40 = 877.05 + 390.95 – 0.0

Where,

P = Precipitation in mm	Accumulated potential water loss (accumulated negative value of P-PE) = ACC (P-PE)
AE = Actual Evaporation in mm	Storage (S)
ΔS = change of soil moisture in mm	Water surplus (WS)Water deficit (WD)
Ro = Runoff in mm	ACC = 200 mm

An important feature of the water balance concept is the recognition of the part played by soil in the exchange of moisture between the earth's surface and the atmosphere. Soil-acts as a medium for storing water (up to a limit) in times of excessive rainfall and releasing the same (in a restricted manner) at other times for purposes of evaporation and transpiration.

4.3.2 Water Balance Table:

Using the method described in the above paragraph, the climatic water balance has been computed with the following information for the normal rainfall and placed in **Table 4.4.**

Table 4.4: Climatic Water Balance (Unit mm)

Parameter	Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Total
PE	90.00	109.90	156.20	178.40	214.40	177.40	118.60	115.70	111.40	118.80	90.50	78.60	1559.90
P	7.60	24.90	14.70	19.60	13.70	194.60	392.90	308.10	215.40	56.40	15.70	3.80	1267.40
P-PE	-82.40	-85.00	-141.50	-158.80	-200.70	17.20	274.30	192.40	104.00	-62.40	-74.80	-74.80	-292.50
ACCP-PE	-294.40	-379.40	-520.90	-679.70	-880.40	0.00	0.00	0.00	0.00	-62.40	-137.20	-212.00	-3166.40
S	45.89	30.00	14.79	6.68	2.45	200	200.00	200.00	200.00	146.40	100.72	69.29	1035.88
Delta S	-23.40	-15.89	-15.22	-8.10	-4.23	197.55	180.35	0.00	0.00	-53.60	-45.68	-31.43	0.00
AE	31.00	40.79	29.92	27.70	17.93	177.40	118.60	115.70	111.40	110.00	61.38	35.23	877.05
WD	59.00	69.11	126.28	150.70	196.47	0.00	0.00	0.00	0.001	8.80	29.12	43.37	682.85
WS	0.00	0.00	0.00	0.00	0.00	0.00	93.95	192.40	104.00	0.00	0.00	0.00	390.35
Ro	6.99	3.50	1.75	0.87	0.44	0.22	46.98	119.69	111.84	55.92	27.96	13.98	390.13

Water Balance Diagram: The match of monthly potential evapotranspiration, precipitation, actual evapotranspiration is graphically presented in **Figure 4.2.** The plot shows period and amount of water surplus, water deficiency and soil moisture utilization. This plot brings out climatic peculiarity of study area and helps in quick assessment of its water potential.

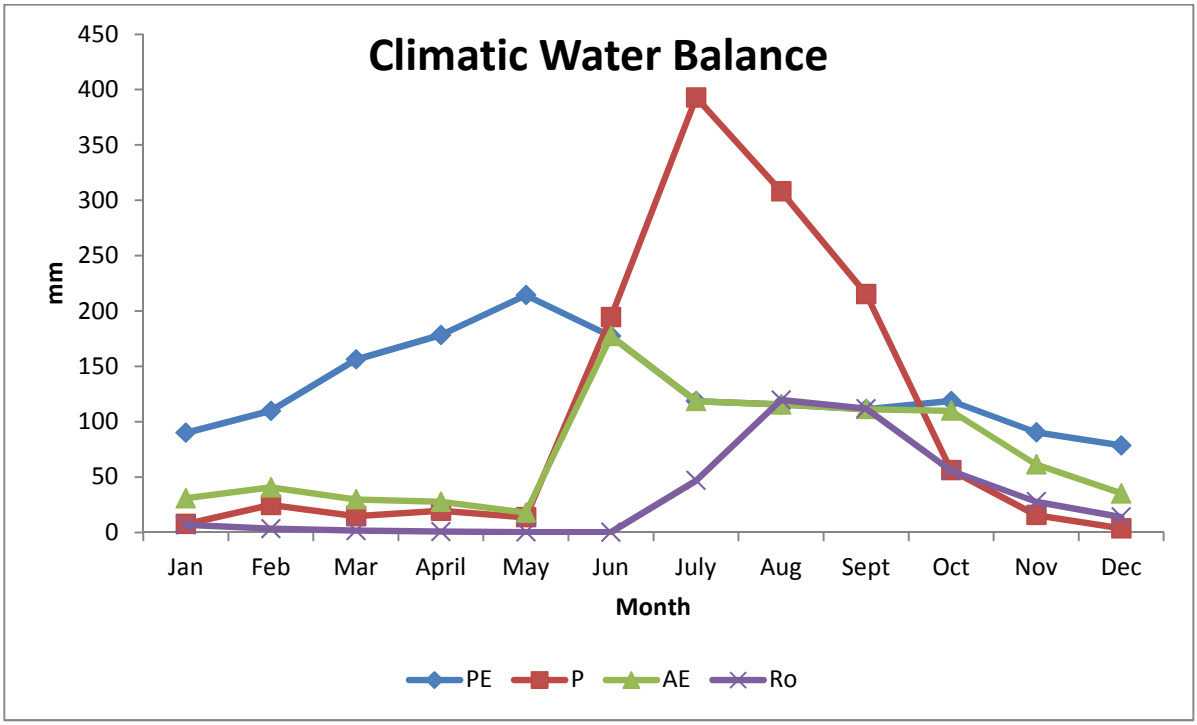


Figure 4.2: Climatic Water balance

Water Balance Equation:

Water balance equation is computed in accordance with the techniques using the earlier described water balance data (**Table 4.5**). The water balance equation is equal for normal rainfall (mm).

P	=	AE + R + ΔS
1267.40	=	877.05 + 390.95 – 0.00
1267.40	=	877+390.95
Total Runoff	=	390.95 / 1267.40 = 30.84%
Surface Water Runoff	=	21%
Groundwater Runoff	=	10%

Table 4.5: Summarized Climatic Water Balance

Year	PE	P	P-PE	ACC(P-PE)	S	ΔS	AE	WD	WS	R
Normal	1452	1267.4	-292	-3166	1036	-0	877	682	390	390

4.4 Intensity of Rainfall:

The rainfall intensity corresponding to a duration and desired probability of exceedance i.e. return period. This is rainfall-frequency duration relationship for the given catchment area. I.M.D has prepared Isopluvial maps for the different return period for given catchment area. C.W.C has also adopted the same for their publication of February 1997 in respect of flood estimation report for Mahanadi sub zone-3.

The Isopluvial maps for 25 year return period, 50 year return period and 100 year return period are taken from CWC publication. The map is enclosed as **Figure 4.3, 4.3 & 4.5.**

The location of mine is marked on above maps and 24 hrs maximum rainfalls for different return period have been estimated and given in **Table 4.6.**

Table 4.6: Intensity of Rainfall – 24 Hrs

Sr. No.	Annual Return Period	24 hrs Highest Rainfall in mm
1	25	200
2	50	240
3	100	280

(Source: CWC)

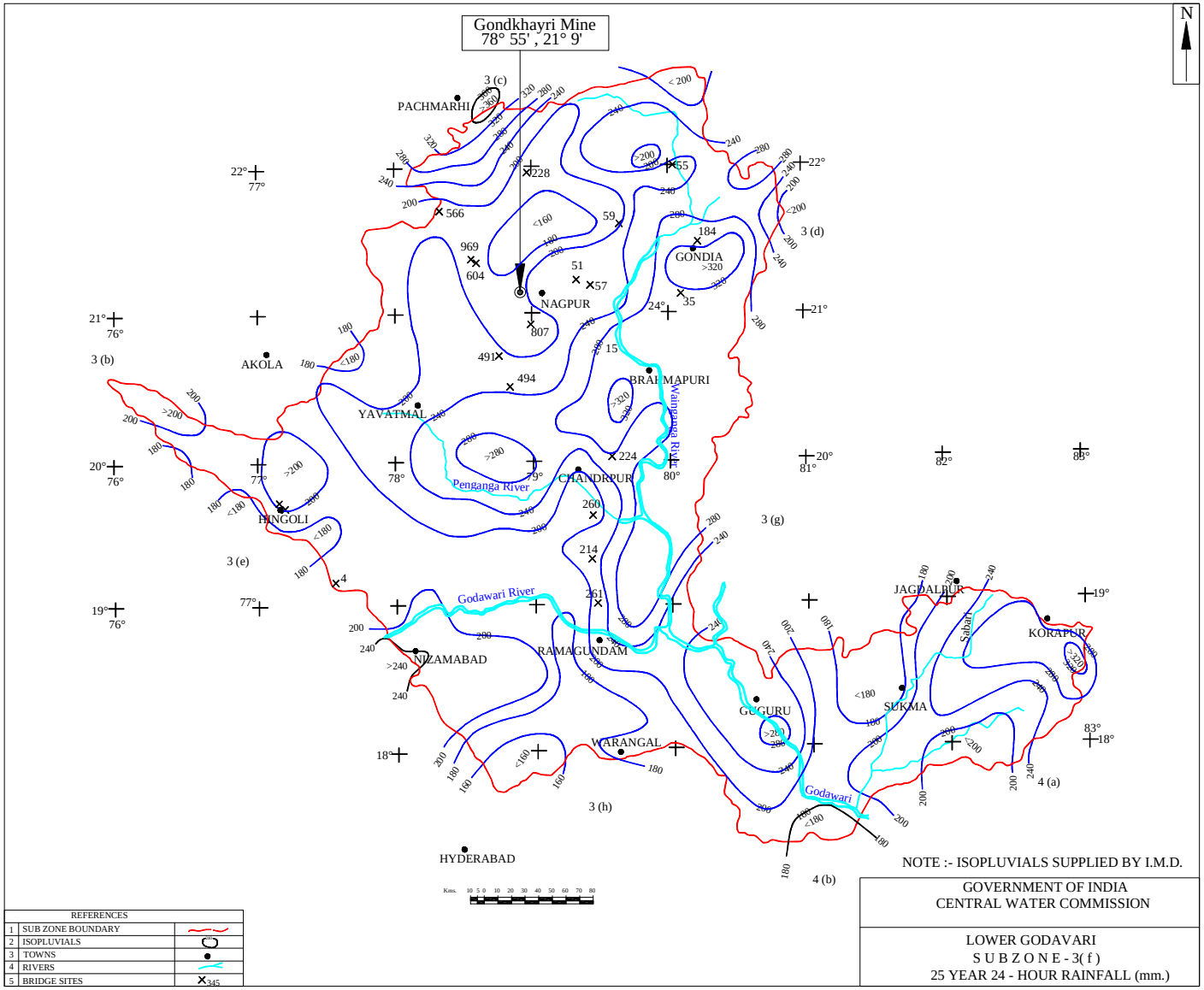


Figure 4.3: The Iso-pluvial maps for 25 year return period

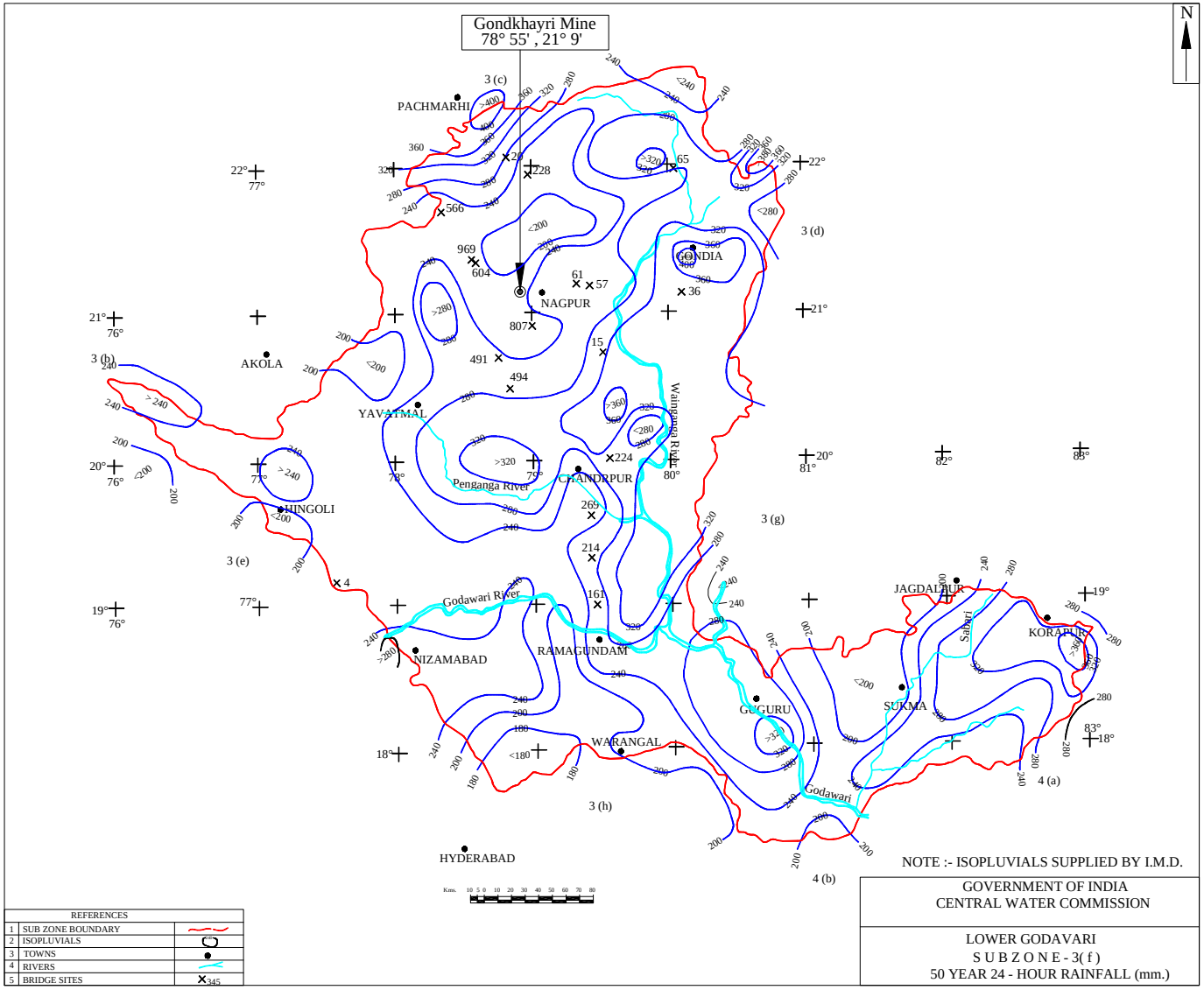


Figure 4.4: The Iso-pluvial maps for 50 year return period

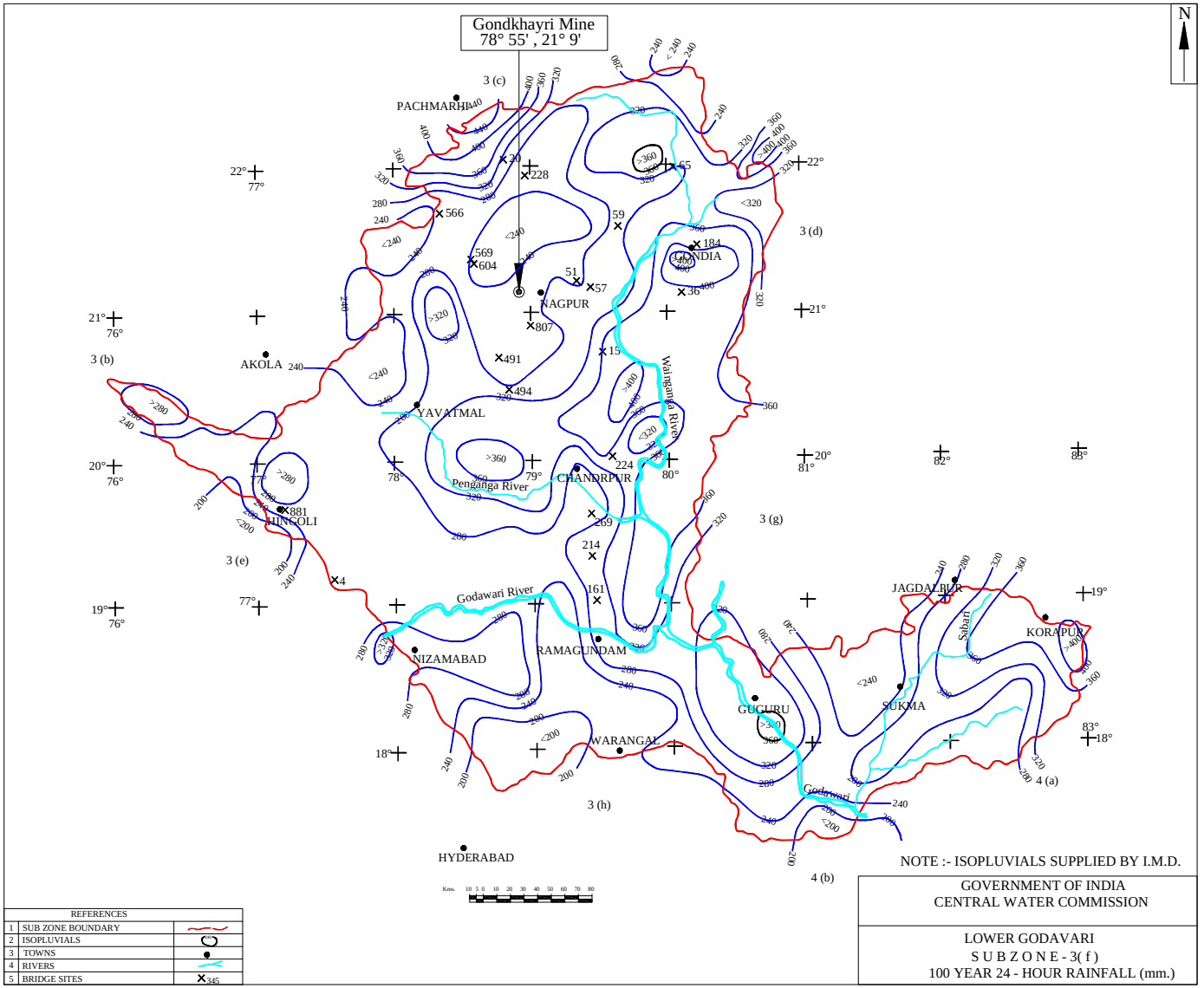


Figure 4.5: The Iso-pluvial maps for 100 year return period

The conversion ratio for different duration of rainfall for Mahanadi sub zone – 3 have been worked out by C.W.C. (1997) and given in **Table 4.7.**

Table 4.7: Conversion ratio

Sr. No.	Rainfall duration in hour	Conversion ratio
1	1	0.320
2	3	0.520
3	6	0.650
4	9	0.730
5	12	0.790
6	15	0.850
7	18	0.910
8	24	1.00

(Source: CWC)

The rainfall intensity for different return period for one hour is estimated by multiplying conversion ratio with 24 hrs maximum rainfall of mine. The intensity of rainfall for 1 hour have been estimated and given in **Table 4.8.**

Table 4.8: Intensity of Rainfall for 1 hrs

Sr. No.	Return Period	24 hrs maximum rainfall	Conversion factor for 1 hr	Intensity of rainfall in 1 hr	Remark
	Year	Mm/24 hrs	Coefficient	Mm/hr	-
1	25	200	0.320	64	-
2	50	240	0.320	76.8	-
3	100	280	0.320	89.6	Use for Study area

The intensity of rainfall for catchment treatment plan has been estimated based on 100 year return period which is 89.6 mm/hr.

Intensity of Rainfall –90 mm/hr

4.5 Runoff Coefficient:

The runoff coefficient is a dimensionless coefficient relating to amount of runoff to the amount of precipitation received. It is larger value for area with low infiltration and high runoff and lower for permeable well vegetated area (forest, flat land). The runoff coefficient as per Climatic Water Balance is 21 %. The runoff coefficient has been considered is 20% as per Central Ground Water Board Report on Godavari Basin and same is considered.

Runoff Coefficient – 20%

5.0 HYDROLOGY

The Micro-watershed of study area falls in Lower Godavari Sub Zone – Wardha River- Vena River- Gondkhairi Watershed- Mine Lease micro-watershed. **Figure 5.1** shows map from Godavari basin to Wardha Watershed to Vena River Watershed and ultimately shows study area.

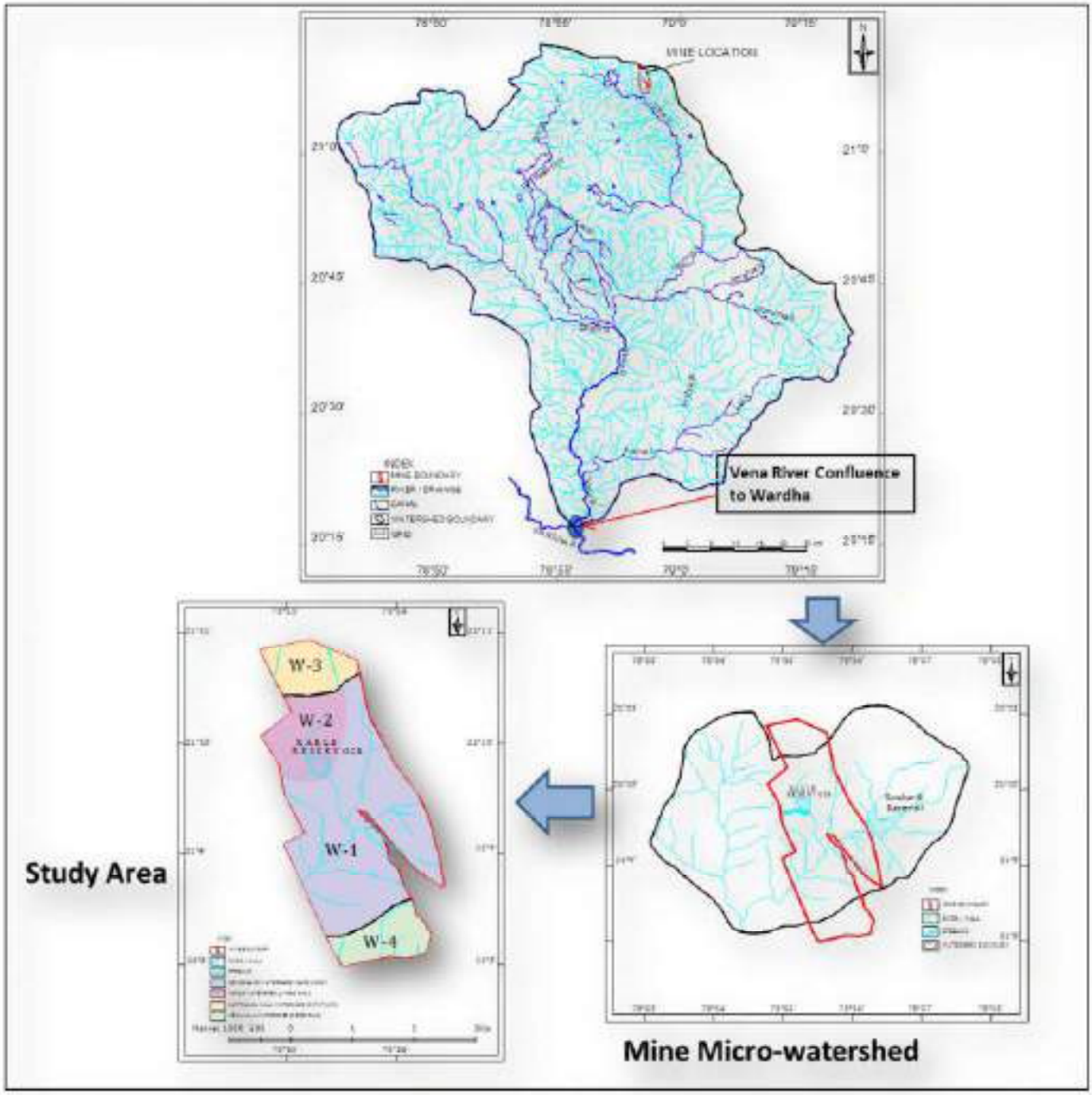


Figure 5.1: Demarcation of Study area

5.1 Gondkhairi Micro-watershed:

Gondkhairi micro-watershed is a part of mine watershed and Surabardi reservoir and Karle reservoir water bodies. In event of any breaching of Surabardi water body and Karle water body. The only escape flood route is at National Highway 46 bridge at Village Gondkhairi. Thus, the estimation of Peak Flood and capacity of Gondkhairi NH 46 bridge is important for this study. The watershed map of Gondkhairi Nala is placed at **Figure 5.2.**

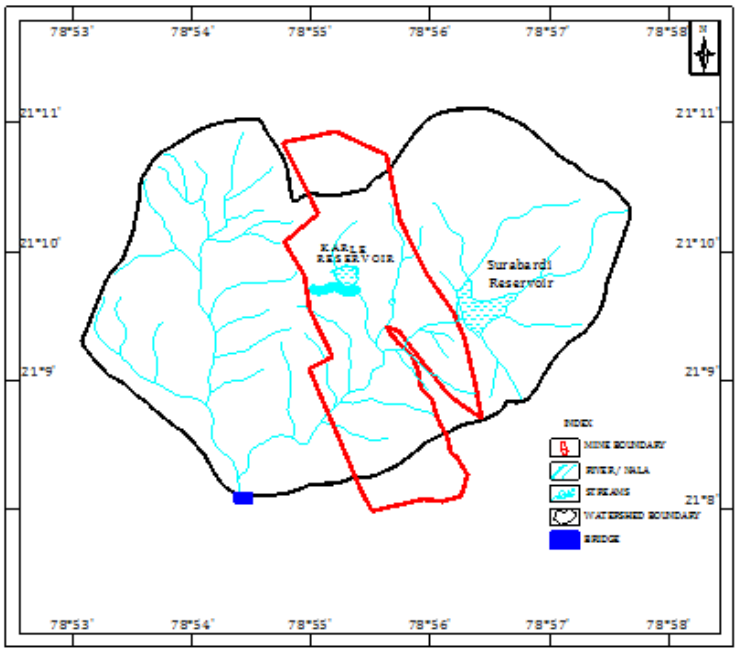


Figure 5.2: Gondkhairi Micro watershed

5.1.1 Annual Yield of Gondkhairi Watershed:

The Gondkhairi micro watershed is considered for total annual yield including mine, Suraburdi reservoir and Karle Reservoir.

Estimation of surface water turned into groundwater during monsoon in micro watershed. The estimation of surface water during monsoon in mine area is done based on CGWB norm for Runoff coefficient. The normal monsoon values in days taken from IMD data. Based on all above parameters surface water resource in micro watershed area has been estimated and given in **Table 5.1.**

Table 5.1: Annual yield of Gondkhairi Micro watershed

S.No.	Type of Land use	Catchment Area	Monsoon period for 120 days Rainfall	Rainfall Coefficient	Surface Water available
		m^2	m		m^3/y
1.	Gondkhairi micro watershed	30000000	1.1	0.20	60000000
	Total	**30000000**	1.1	0.20	60000000
					6.0 MCM

5.1.2 Peak Runoff of Gondkhairi Watershed:

Gondkhairi Micro watershed

The catchment area of Gondkhairi micro watershed is 30 km^2. This is most popular method for peak flood estimation of watershed. The formula for Rational Method is as under.

Where,

Q= Flow in m^3/sec

C= Coefficient of Rainfall

I= Intensity of Rainfall in mm/hr

A= Catchment Area in km^2

The Estimation of parameter:

a. Catchment area

Catchment area is determined from toposheet no. 55 K/16.

The area of catchment = 30 km^2

a) **Intensity of Rainfall (I)**

The intensity of rainfall is determined by using Central Water Commission Isopluvial map for 100 years return period. The value of relevant location is 280 mm/24 hrs. The Central Water Commission flood estimation report for lower Godavari Subzone 3(f) is reported to obtain conversion factor fr 1 hr as 32 percentage of 24 hrs rainfall

I = 280 x 0.32

I = 89.6 $\approx$ 90 mm/hr

b) **Coefficient of Rainfall (C):**

The Central Ground water Authority has established norm for coefficient of rainfall over open land. Accordingly Coefficient of rainfall is 20% (0.20)

Peak flood estimation of Gondkhairi Micro watershed

$$Q = \frac{CIA}{3.6}$$

$$Q = \frac{0.20\ x\ 90\ x\ 30}{3.6}$$

Q = 150 m^3/sec

Peak flood of Gondkhairi Micro watershed = 150 m^3/sec

5.1.3 Capacity of National Highway Bridge Gondkhairi:

The perusal of Gondkhairi Micro watershed reveals that the entire flood water of micro watershed is discharged through this bridge. Now the capacity of bridge is requirement for estimation by Manning's Equation

Manning's Equation

$\frac{1}{n}(R)^{3/4} \times (S)^{1/2}$

Where,

Q= Peak Discharge in m^3/sec

h= Rough ness coefficient considered= 0.04

R= Hydraulic Radius (A/P)

S= Surface gradient

A= Area of Bridge

Parameters determination of Bridge for Manning's Equation

Width of Bridge= 17 m

Height of bridge=6.7 m

Area= 17 x 6.7 = 117.3 m^2

a) Hydraulic perimeter (P) = 6.7 + 17 + 6.7= 30.40 m

b) Hydraulic radius = A/P= 117.3/30.4= 3.86

c) Hydraulic gradient of Nala (S)

Relevant length = 2550 m

Relevant difference of altitude/contour= 20 m

S= 20/2550= 7.8 x 10^{-3}

Putting all values in Manning's equation-

$\frac{1}{n}(R)^{3/4} \times (S)^{1/2} \times A$

Q= $\frac{1}{0.04}(3.86)^{3/4} \times (7.8 \times 10^{-3})^{1/2} \times 117.3$

Q= 6.071 x 117.3

Q= 712.3 m^3/sec

$\approx$ **712 m^3/sec**

Capacity of National highway Bridge Gondkhairi= 712 m^3/sec

Discussion:

The capacity of Nala Bridge over National Highway Gndkhairi is 712 m^3/sec. Whereas the peak flood over Gondkhairi micro watershed including mine and two reservoir is estimated as 150 m^3/sec. Thus, the out let for discharge of Peak Flood is near about 5 times higher than the flood discharge anticipated. The study of hydrology of mine area may be concluded that there will not be any problem from surface water during mine.

5.2 Delineation of watershed of study area:

Drainage Map:

The drainage is mainly falls under Vena River. The Surabardi Reservoir is present in the eastern portion of the mine site. Karle Reservoir present inside mine lease area. The drainage map with location of Gondkhairi UG Mine and Dams is given in **Figure 5.3**.

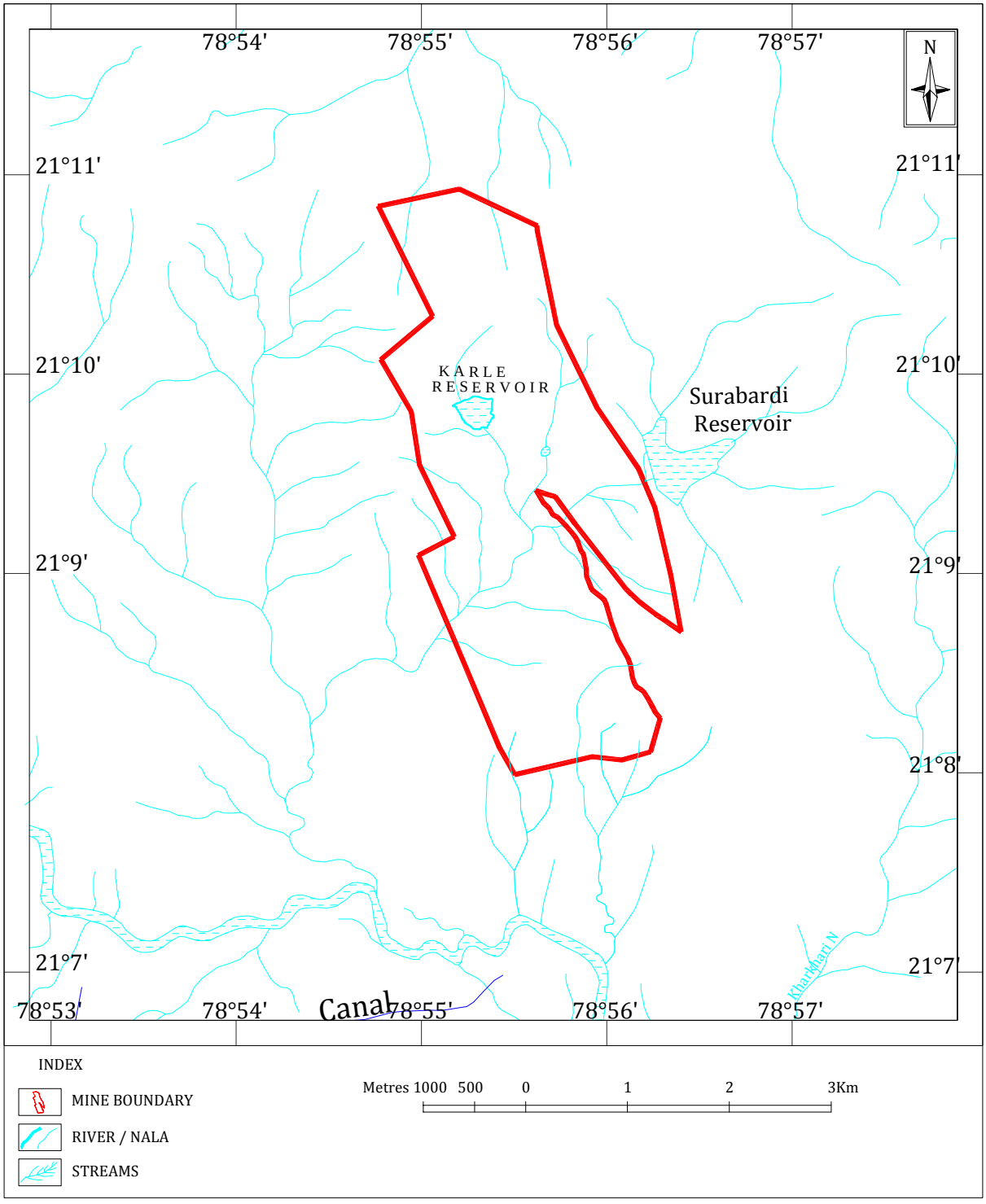


Figure 5.3: Drainage map

5.3 Micro-watershed of Study Area:

The mine lease area is considered as study area. The study area has been divided into four small micro-watersheds which are the smallest sized hydrologic units in the macro level category. Micro-watershed s of study area is placed at **Figure 5.4.**

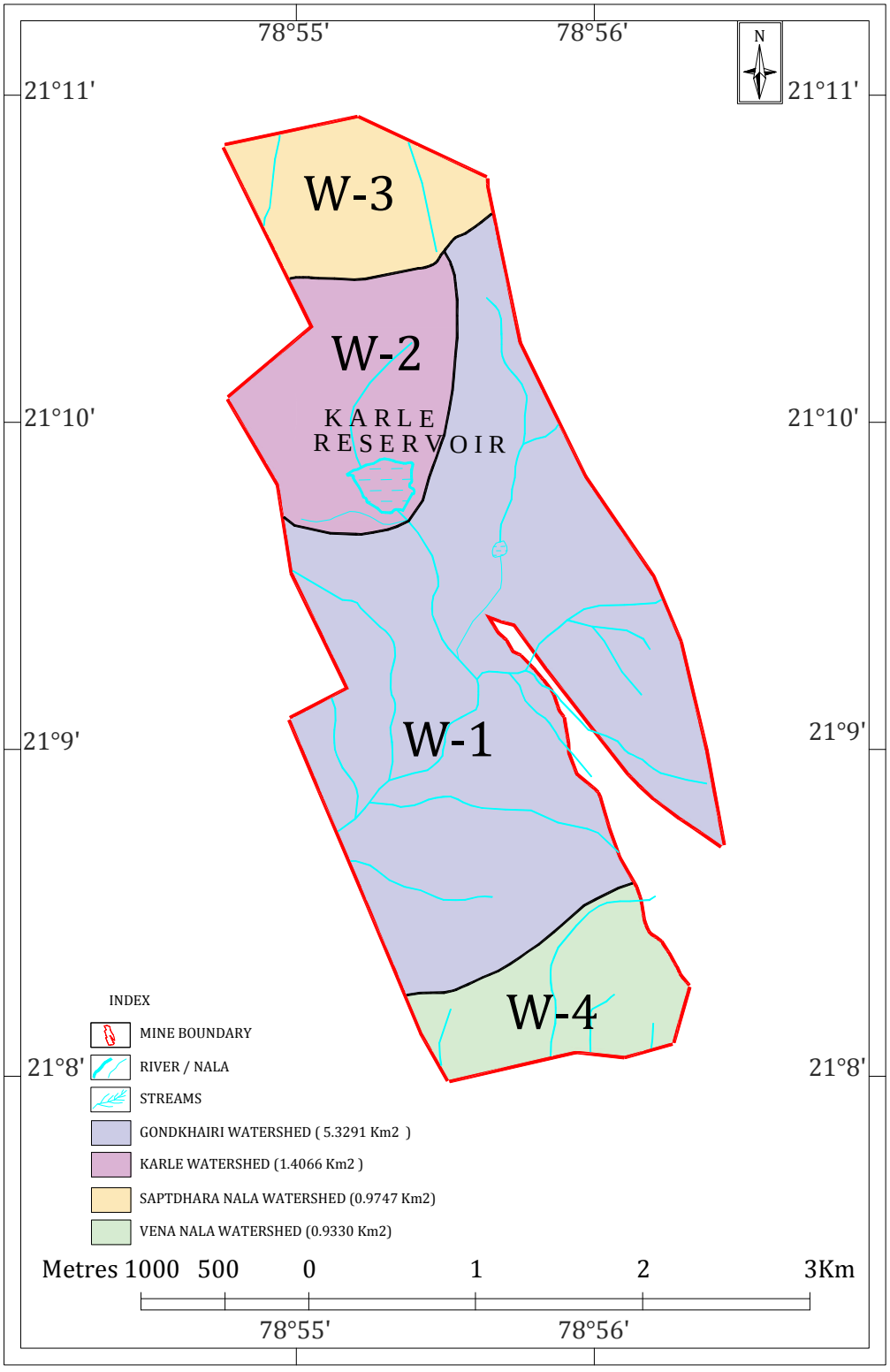


Figure 5.4: Delineation of sub-watershed Map

5.3.1 Micro Watersheds area:

The catchment boundary and code number has been designated for 4 number of micro watershed and their respective areas have been estimated. The area of each micro watershed is given in **Table 5.2**.

Table 5.2: Area of Micro-watershed of CAT & SMC Plan

Sr. No.	Nomenclature of Micro-Watershed	Area in km2	Area in Ha.
1	W-01	5.3291	532.91
2	W-02	1.4066	140.66
3	W-03	0.9747	97.47
4	W-04	0.9320	93.20
8	**Total Area**	**8.62**	**862**

5.4 Annual surface water yield of study area:

The micro watershed is considered for total annual yield of Gondkhairi micro-watershed, Karle micro-watershed, Saptdhara Nala Watershed and Vena Nala micro-watershed.

5.4.1 Annual yield of surface water Micro watersheds:

Estimation of surface water turned into groundwater during monsoon in micro watershed. The estimation of surface water during monsoon in all 4 micro-watersheds in study area have been done based on CGWB norm for Runoff coefficient. The normal monsoon values in days taken from IMD data. Based on all above parameters, surface water resource in micro watersheds area has been estimated and given in **Table 5.3.**

Table 5.3: Annual yield of Micro watersheds

S.No.	Type of Land use		Catchment Area	Monsoon period for 120 days Rainfall	Rainfall Coefficient	Surface Water available
	Micro-Watershed	Code	m^2	m		m^3/y
1	Gondkhairi	W1	5329100	1.1	0.2	1172402
2	Karle	W2	1406600	1.1	0.2	309452
3	Saptdhara Nala	W3	974700	1.1	0.2	214434
4	Vena Nala	W4	933000	1.1	0.2	205260
Total Annual Surface water yield						**1.90 MCM**

5.5 Peak Flood Flow Estimation of study area:

The Total area of micro-watersheds is 8.62 km^2. This is most popular method for peak flood estimation of watershed. The formula for Rational Method is as under.

The Rational method formula for Peak flood:

$$Q = \frac{CIA}{3.6}$$

Where,

Q= Flow in m^3/sec

C= Coefficient of Rainfall

I= Intensity of Rainfall in mm/hr

A= Catchment Area in km^2

The peak flood estimation of mine micro-watersheds are given **Table 5.4.**

Table 5.4: Peak Flood Estimation of study area

Sr no.	Watershed No.	Catchment Area (A) km2	Intensity of Rainfall (I) mm/hr	Runoff Coefficient (C)	Constant to convert into m3/sec	Peak Flow in 100 yrs return period Q= CIA/3.6
1	W1	5.3291	90	0.20	3.6	26.6
2	W2	1.4066	90	0.20	3.6	7.0
3	W3	0.9747	90	0.20	3.6	4.9
4	W4	0.9320	90	0.20	3.6	4.7

Total Peak Flood= 42.2 m^3/sec

6.0 SOIL EROSION:

6.1 General:

A detailed database on natural resources, terrain conditions, soil type of the catchment area, socio- economic status, etc. is a pre-requisite to prepare treatment plan keeping in view the concept of sustainable development. Various thematic maps have been developed and used in preparation of the CAT plan. Due to the spatial variability of site parameters such as soils, topography, land use and rainfall, not all areas contribute equally to the erosion problem. Several Techniques like manual overlay of spatially index-mapped data have been used to estimate soil erosion in complex landscapes.

Geographic Information System (GIS) is a computerized resource data base system, which is referenced to some geographic coordinate system. In the present study, real coordinate system has been used. In order to ensure that latest and accurate data is used for the analysis, satellite data has been used for deriving land use data and ground truth studies too have been conducted.

The various steps covered in the study are as follows:

- Data acquisition,
- Data preparation,
- Ground verification &
- Output presentation

The above mentioned steps are briefly described in the following paragraphs.

6.2 Data Acquisition:

The data on Drainage pattern, Soil Type, Slope of terrain, Watershed boundary super imposed on Topo map, Land use classification, are prepared / collected and ground trothing made through field visit.

6.3 Data Preparation:

The data available from various sources have been collected. The ground maps, contour information, etc. were scanned, digitized and registered as per the requirement. Data has been prepared depending on the level of accuracy required and any corrections required were made. All the layers were geo-referenced and brought to a common scale (real coordinates), so that overlay could be performed. A computer program has been used to estimate the soil loss. The formats of outputs from each layer were firmed up to match the formats of inputs in the program. The grid size to be used was also decided to match the level of accuracy required, the data availability and the software and time limitations.

6.4 Soil Erosion Concept:

Soil erosion may be defined as the defacement and transportation of soil. Water is the major agent responsible for this erosion.

The Catchment Area Treatment Plan highlights the management technique to control erosion in the catchment area. The catchment Area Treatment involves the following parameters.

1. Understanding the erosion characteristics
2. Suggesting remedial measures to reduce the erosion rate
3. Detain the Silt/Charged particles in the runoff in nala on the way and prevent/reduce the transportation of soil to streams/reservoirs.

The result of the modeling was interpreted in pictorial form to identify the areas with high soil erosion rates. The primary and secondary data collected as a part of the field studies have used as an input for the model.

6.4.1 Grain size analysis of soil:

The grain size analysis of the soil in respect of area in and around of study area is given in **Table 6.1** and graphically given in **Figure 6.1.** The data obtain from EIA is adopted for the study area as it has similar soil condition.

Table 6.1: Grain size Analysis in %

Type of Grain	Notation	Gondkhairi	Karli	Average %	Average Percentile
		S1	S2		
Sand	(SAN)	68.92	64.26	66.59	65.25
Silt	(SIL)	23	27.88	25.44	24.93
Clay	(CLN)	8.08	7.86	7.97	7.81
Organic	(C)	2.14	0.48	1.97	1.94
	%	**102.14**	**100.48**	**101.97**	**100**

(Source : EIA)

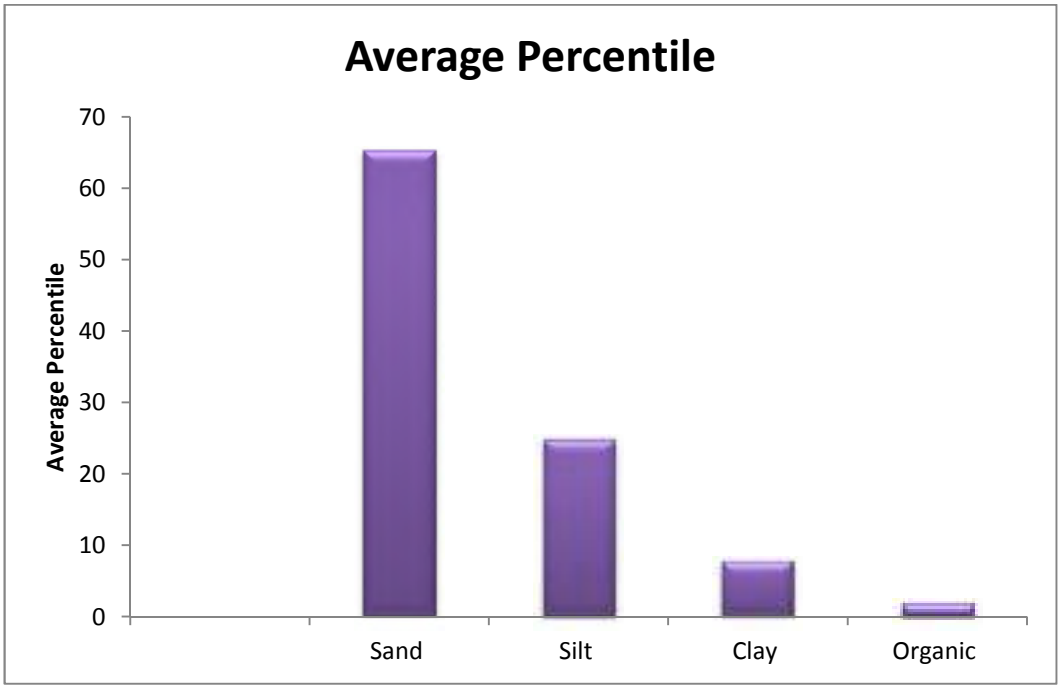


Figure 6.1: Average Percentile

6.4.2 Estimation of Soil Loss Using Silt Yield Index (SYI) Method.

The Silt Yield Index Model (SYI), considering sedimentation as product of erosivity, erodibility and aerial extent was conceptualized in the All India Soil and Land Use Survey (AISLUS) as early as 1969 and has been in operational use since then to meet the requirements of prioritization of smaller hydrologic units. The erosivity determinants are the climatic factors, soil and land attributes that have direct or reciprocal bearing on the unit of the detached soil material. The relationship can be expressed as:

Soil Erosivity = f (Climate, physiography, slope, soil parameters, land use/land cover, soil management)

6.4.3 Silt Yield Index:

The Silt Yield Index (SYI) is defined as the Yield per unit area and SYI value for hydrologic unit is obtained by taking the weighted arithmetic mean over the entire area of the hydrologic unit by using suitable empirical equation.

6.4.4 Prioritization of Watersheds/Sub-watersheds:

The prioritization of smaller hydrologic units within the vast catchments is based on the Silt Yield Indices (SYI) of the smaller units. The boundary values or range of SYI values for different priority categories are arrived at by studying the frequency distribution of SYI values and locating the suitable breaking points. The watersheds/ sub-watersheds are subsequently rated into various categories corresponding to their respective SYI values. The application of SYI model for prioritization of sub watersheds in the catchment areas involves the evaluation of:

a) Climatic factors comprising total precipitation, its frequency and intensity,

b) Geomorphic factors comprising land forms, physiography, slope and drainage characteristics,

c) Surface cover factors governing the flow hydraulics and

d) Management factors

The data on climatic factors are obtained for different locations in the catchment area from the meteorological stations whereas the field investigations information are collected from Secondary source for estimating the other attributes.

The various steps involved in the application of model are:

- Preparation of a framework of sub-watersheds through systematic delineation.
- Rapid reconnaissance surveys on 1:50,000 scale leading to the generation of a map indicating erosion-intensity mapping units.
- Assignment of weightage values to various mapping units based on relative silt-yield potential.
- Computing Silt Yield Index for individual watersheds/sub watersheds.
- Grading of watersheds/sub watersheds into very high, high medium, low and very low priority categories.

The area of each of the mapping units is computed and silt yield indices of individual sub watersheds are calculated using the following equations:

6.4.5 Equation for calculation of Silt Yield Index (SYI).

$$SYI = \frac{\Sigma (Ai \times Wi) \times 100}{Aw} \quad ; \text{where } i = 1 \text{ to } n$$

Where,

Ai = Area of the unit (EIMU)

Wi = Weightage value of i^{th} mapping unit

n = No. of mapping units

Aw = Total area of sub-watershed.

The Weightage value of i^{th} mapping unit has been estimated based on rainfall (mm) slope (deg.), soil texture (numeric), forest land (%) and bare-barren land (%). Thus the value estimated as under from the reference of Hasan Raja Naqvi (2015) size digest ELSEVIER. The relevant input data obtained in preceding chapter is given below.

1) Rainfall – 1267.4 mm
2) Slope (In degree)- 0 to 20
3) Soil Texture- Gravel Sandy Loam
4) Forest Land(%)- 6.7
5) Bare/Barren land (%)- 92.3

The Assigned weightage value is given in **Table 6.2.**

Table 6.2: Assigned Weightage value

S. No.	Parameter/ factor Unit		Category/ class	Assigned weightage value
1	Rainfall	mm	1000-1500	8
2	slope	(deg.),	0-20	2
3	soil texture	(numeric),	Gravel Sandy loam	2
4	forest land	(%)	0-25	8
5	bare-barren land	(%)	75 - 100	8
Total				**28**

The Silt Yield Index (SYI) in respect of micro watershed has been estimated and given in **Table 6.3**

Table 6.3: Silt Yield Index (SYI)

Sr. No.	Nomenclature of Watershed	W1	Area in Ha	Silt Yield Index A1 x W1 x 100/AW
			A1	
1	W-01	28	532.91	1731
2	W-02	28	140.66	457
3	W-03	28	97.47	317
4	W-04	28	93.2	303
	Total AW		**862**	**2807**

6.4.6 Erosion Intensity and Delivery Ratio:

Determination of erosion intensity unit is primarily based upon the integrated information on soil characters, physiographic condition, slope, land-use/land-cover, lithology and structure. This is achieved through super-imposition of different thematic map overlays. Based upon the field data collected during the field survey and published data, weightage value and delivery ratio were assigned to each erosion intensity unit.

In the present study the delivery ratio to the erosion intensity units were assigned upon their distance from the nearest stream (being the most important factor responsible for delivery of the sediments) according to the following scheme. The delivery ratio criteria adopted for the study is presented below.

- **Delivery Ratio (DR) Criteria Adopted.**

  The Criteria for Delivery Ratio is given in **Table 6.4.**

Table 6.4: Criteria for Delivery Ratio

Sr. No.	Nearest Stream distance	Delivery ratio
1	0-0.9 km	1.00
2	1.0-2.0 km	0.95
3	2.1-5.00 km	0.90
4	5.1-15.00 km	0.80
5	15.1- 30 km	0.7

The SYI values for classification of various categories of erosion intensity rates are given below in **Table 6.5.**

Table 6.5: Priority Category

Sr. No.	Priority Category	SYI Values
1	Very High	>1300
2	High	≥ 1200 to 1299
3	Medium	≥ 1100 to 1199
4	Low	≥ 1000 to 1099
5	Very Low	<1000

In order to arrive at priority category, the following parameters are derived / calculated and ground trothing made by experts.

6.4.7 Soil of the Tract.

The soil of this tract is mostly laterite origin. In pockets sandy alluvial, red soil with lateritic origin are seen. On analysis of Soil characteristics the soil types and extent of area is furnished below. The detail soil type is at **Table 6.6.**

Table 6.6: Details of Soil Type

Sr. No.	Soil Type	Area in ha	Percentage.
1	Gravel sandy loam	862	100%

6.4.8 Topography and Slope Analysis

6.4.8.1 Digital Elevation Model (DEM) of study area:

In study area the highest elevation is 390 m amsl in the North-Central part of mine lease while lowest 286 m amsl towards south direction of study area. The Digital Elevation Model (DEM) is prepared by GIS tool and the same is reproduced below as **Figure 6.2.**

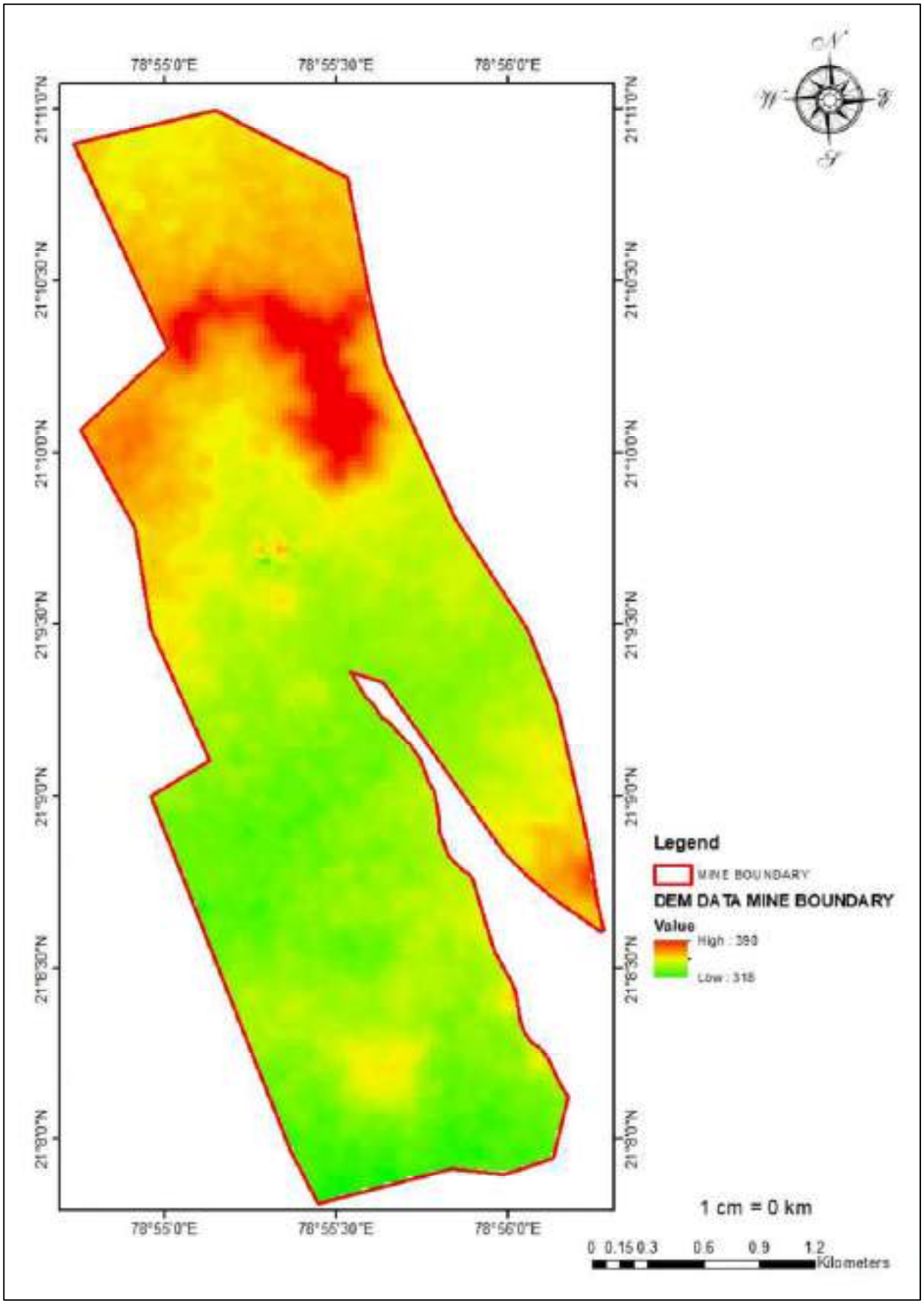


Figure 6.2: Digital Elevation Model (DEM)

6.4.8.2 Slope of the Tract.

From Satellite imagery the slope of the tract has been studied in detail. The slope wise area distribution is furnished below in **Table 6.7** and depicted in **Figure 6.3**.

Table 6.7: Slope of the Tract

Sr. No.	Slope class (Gradient in %)	Area in Ha	Percentage	Remark
1	0-0.5%	480.6	55%	Low soil loss
2	0.5 – 10%	311.4	36%	Medium
3	>10-%	70	9%	High
	Total	**862**	**100**	

The slope of the tract analysis shows that about 91% come under medium to low soil loss. The above study has been considered and average value in respect of average slope length (L) and of slop in degree has been worked out and given in **Table 6.8.**

Table 6.8: Average Slope length (L) and Average Steepness

Sr. No.	Parameter	Value
1	Slope length	100 m
2	Steepness	5°

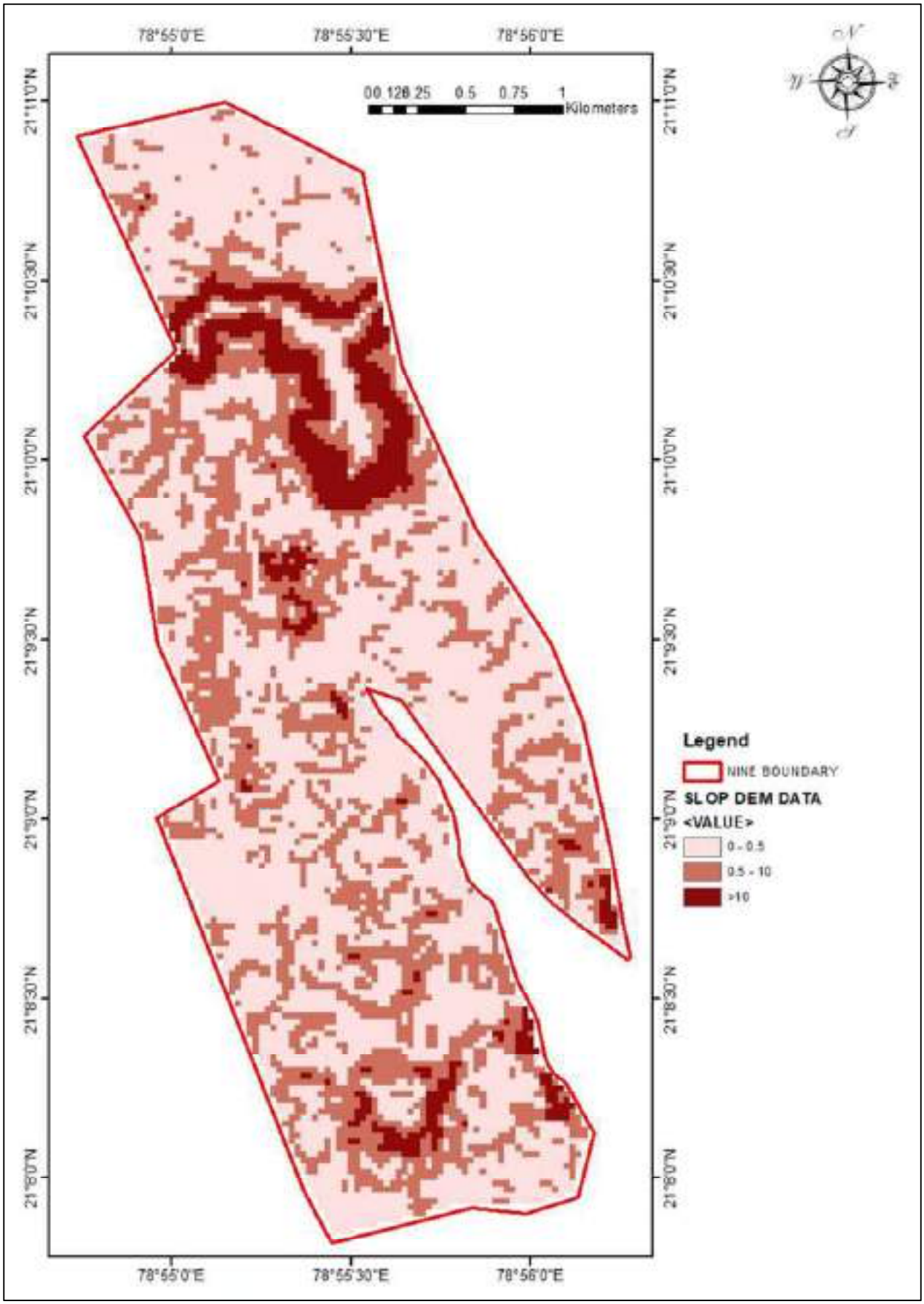


Figure 6.3: Slope of the Tract

6.5 Soil Loss due to Water erosion:

6.5.1 Equation for Soil loss:

The most commonly used model for predicting soil loss from water erosion is the *Universal Soil Loss Equation (USLE)*. It estimates the average annual soil loss *A* in area as

A = RKLSCP

Where R is the rainfall erosivity factor, K is the soil erodibility factor, L and S are topographic factors representing length and slope, C is the cover and management factor and P is the support practices factor.

Despite the USLE's plot-scale spatial focus, the model has often been used to estimate soil erosion on much larger areas, such as watersheds or even whole continents.

The relation between gradient (in %) to Soil loss per ha is represented below in **Figure 6.4.**

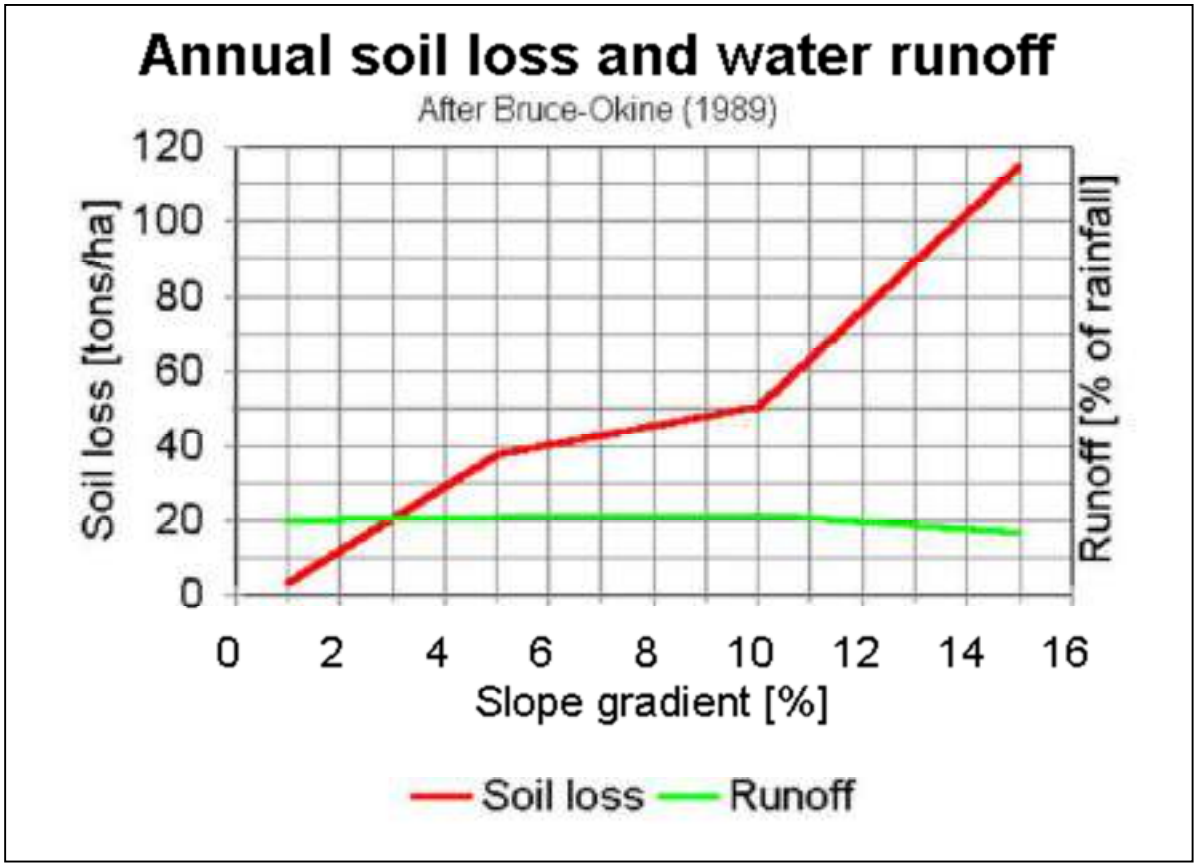


Figure 6.4: Theoretical Annual Loss and Water Runoff

6.5.2 Rainfall Erosivity Factor (R)

The R factor was calculated by equations developed were as given below.

R = 50 + 0.389 x P (r = 0.88)

Where, R = Rainfall erositivity factor in MJ mm ha^{-1} h^{-1}, P = Average monsoon rainfall in mm.

Input: - From table 4.4

P = 1267.4 mm

Output: - *The Input data is used and relevant values are put in above equation. The results is as under*

R = 50 + 0.389 x 1267.4

R = 543

Rainfall Erosivity Factor (R) = 543

6.5.3 Soil Erodibility Factor (K)

The estimates the K factor using soil properties that tare most closely corrected with soil erodibility. Few soil properties are needed to calculate the soil erodibility. K-value that is soil organic carbon content and soil particle size distribution (sand, silt and clay). The equation is as follows.

$$\mathrm{K} = \left(0.2 + 0.3e^{\{-0.0256\mathrm{SAN}\left(1\frac{SIL}{100}\right)\}}\right) \times \left(\frac{SIL}{CLA + SIL}\right)^{0.3} \times \left(1 - \frac{(0.25C)}{C + e^{(3.72-2.95C}}\right) \times \left(1 - \frac{0.7SN1}{SN1+e^{(22.9SN1-5.51}}\right)$$

Where K is soil erodibility factor, (ton-ha-h ha^{-1} MJ^{-1} mm^{-1}), SAN is the sand content , % ; SIL is the silt content, %; CLA is the clay content, %; C is the soil organic carbon content, %; and SN1 = 1-SAN/100.

SN1= 1-65.25/100= 1-0.65= 0.35

Input: data from Table 8.1

SAN = 34.688, SIL = 43.414, C = 6.136, SN1= 0.35

Output: The Input data is used and relevant values are put in above equation. The results is as under

K = 0.23

Soil Erodibility Factor (K) = 0.23

6.5.4 The LS factor was calculated by the following equation (USDA, 1978).

$$LS = \left(\frac{L}{22.1}\right)^{0.7} \times [(6.432 \sin(S)^{0.79} \times \cos(S)]$$

Where *L* is the slope length (m), *S* is the steepness of slope (Degree).

Input: - The input data in respect of L & S has been taken from table 8.8

L = 100 m, S = 5°

Output: - The Input data is used and relevant values are put in above equation. The results is as under

LS = 1.77094

LS factor = 1.77

6.5.5 Crop Management Factor (C)

The crop management factor have been taken as 10% from the standard table 10 from

Publication of wischmeler and smith 1978

Crop Management Factor (C) = 0.10

6.5.6 Conservation practice factor (p)

The conservation practice factor has been adopted considering from the standard Table 13 from

(Publication wischmeler and smith 1978).

Conservation practice factor (p) = 0.25

6.5.7 Calculation of Soil Erosion Using USLE:

Factor for soil loss erosion is given in **Table 6.9.**

A = R x K x LS x C x P

Table 6.9: Factor for Soil Loss Equation

Sr. No.	Factor	Symbol	Value
1	Rainfall and Runoff	(R)	543
2	Soil Erodibility	(K)	0.23
3	Crop/Vegetation and Management	(C)	0.10
4	Support Practice	(P)	0.25
5	Slope Length-Gradient	(LS)	1.77
6	Tolerable Soil Loss (A = R x K x LS x C x P)	A	5.53

RATE OF SOIL LOSS = 5.53 ton/ha/year

6.6 Discussion – Database Generation:

The data base generated in the preceding subchapter has been concluded as under and given in **Table 6.10**

Table 6.10: Results of Database Generation

Sr. no.	Parameter	Value	Area Ha Covered	Result
1	Silt yield Index W-1	1731	532.91	Very High priority for CAT Plan
	Silt yield Index W-4	303	93.3	Low priority for CAT Plan
2	Slop of tract	0-0.5%	480.6	Low soil loss. Area possesses 55% of total area
	Slop of tract	0.5-10%	311.40	Medium soil loss. Area possesses 36% of total area
3	Universal Rate of Soil loss		862	Rate of soil loss is 5.53 Tonn/Ha/Year
4	Net treatable Area		862	Based on data analysis the area recommended for Catchment Treatment Plan

The area under investigation have mine soil loss and proper CAT Plan will ensure low silt content in study area from this mine .

7.0 METHOD OF TREATMENT & PLANNING FOR CAT AND SMC PLAN:

7.1 General:

The characteristics of the area discussed in earlier chapter it is proposed to have a holistic treatment approach with grass root level consideration. It is proposed to

i. Identify area for treatment with priority.

ii. Method of treatment of Listing of Streams / Rivulets for treatment. Select the forests for treatment depending upon contribution to head water flow.

iii. Treatment for Agricultural land.

iv. Engineering & Biological treatment.

7.2 Identification of area for Treatment for Engineering and Biological Treatment

There are 4 watersheds as enlisted above. He study area need treatment against soil erosion and moisture. The study area has been divided into Engineering and Biological treatments and same is is given in **Figure 7.1.**

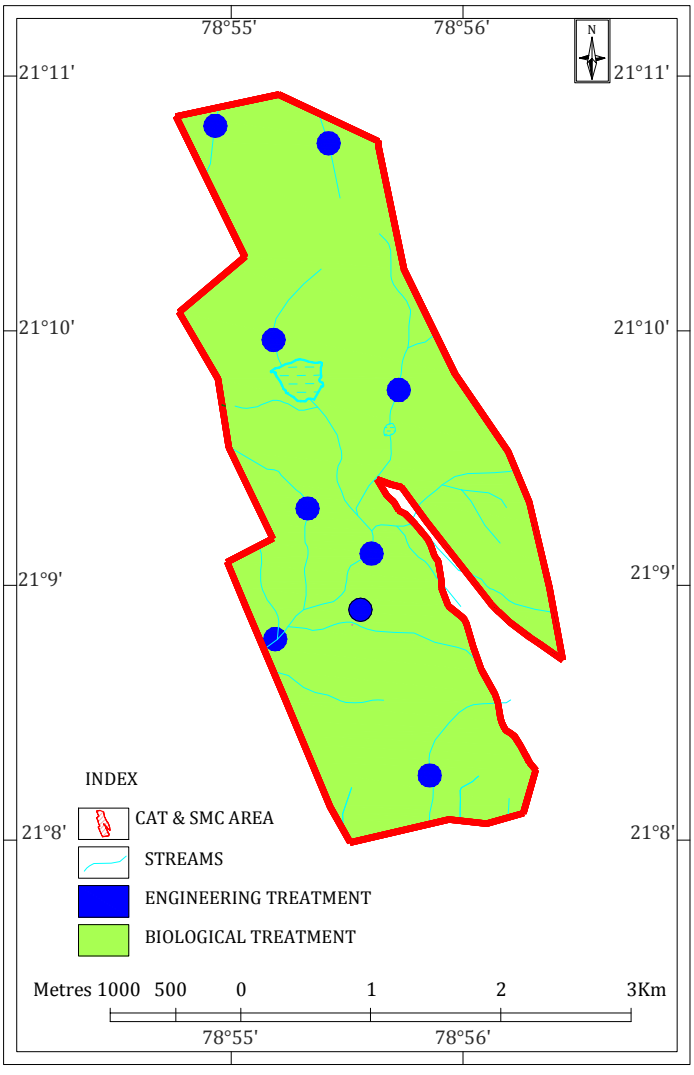


Figure 7.1: Engineering and Biological Plan

7.3 Net Treatable area:

On Examination of Land use pattern and field study it is revealed that the land use actual treatable area available within the CAT & SMC Area is 862 ha out of 862 ha (around 100 %) as per land capability classification as detailed below in **Table 7.1.**

Table 7.1: Land use and Land cover in the study area

Sr. No.	Net Treatable Area	CAT & SMC Area in Ha	Treatable area	Percentage to the total area
1	Geographical area	862	862	100%

Hence, it is proposed to treat 862 ha.

7.4 Location of engineering method of treatment sites

The following Rivulets / Nalla/ Nadi are proposed for treatment. The list is given **Table 7.2.**

Table 7.2: Location of engineering method of treatment sites under CAT & SMC Plan

S.No.	Type of Structure	Sample	Location	
			Latitude	Longitude
1	**Check Dam**	**CD 1**	21°08' 46.64''	78° 55' 11.80''
2	**Catch Pit**	**GB 1**	21° 09' 13.55''	78° 55' 18.13''
		GB 2	21° 9' 4.40''	78° 55' 28.59''
		GB 3	21° 9' 45.56''	78° 55' 42.07''
		GB 4	21° 9' 58.91''	78° 55' 12.26''
		GB 5	21° 10' 48.4''	78° 55' 23.77''
		GB 6	21° 10' 50.44''	78° 55' 2.58''
		GB 7	21° 8' 49.94''	78° 55' 24.53''
		GB 8	21° 8' 4.51''	78° 55' 49.30''

The main area identify for catchment treatment and Soil Moisture Conservation plan are located in **Figure 7.2.**

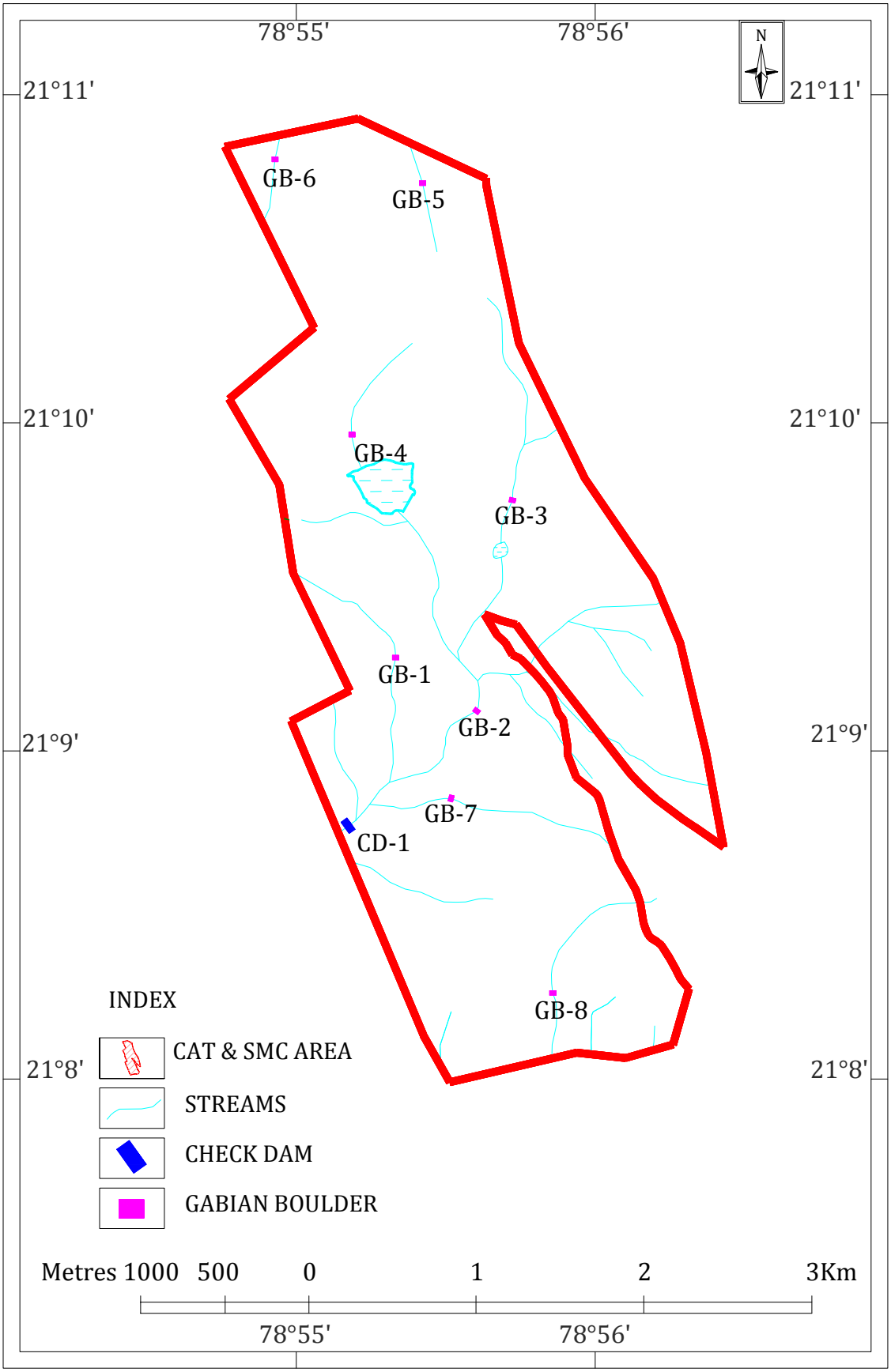


Figure 7.2: Location of Check Dam and Gabian Structure for CAT and SMC Structure

7.5 Agricultural land:

All agricultural land is under private ownership. Any activities can be implemented through people's participation and high level of motivation. It is proposed to assist farmers

- Activate / implement activities constituted under Joint Forest Management Committee or Watershed Committee in the village.

7.6 Method of Treatment for CAT & SMS Plan:

The method of Catchment Area Treatment Plan and Soil Moisture Conservation plan will include both Biological & Engineering.

1) Biological method includes following activity on forest and agriculture land

- Stripcropping
- Agroforestry
- Conducting training camps of non erosive tilage practice
- Land with or without scrub
- Gross land development

2) Engineering method on Nala

- Loose boulder Gabin structure (GB)
- Check Dam

7.7 Strip cropping:

Strip cropping is similar to alley cropping in that trees alternate with crops. The difference is that, with alley cropping, the trees are in single row. With strip cropping, the trees or shrubs are planted in wide strip. The purpose can be, as with alley cropping, to provide nutrients, in leaf form, to the crop. With strip cropping, the trees can have a purely productive role, providing fruits, nuts, etc. while, at the same time, protecting nearby crops from soil erosion and harmful winds.

It is proposed to cover 100 ha of agricultural land @of 20 plants per ha i.e. planting of 500 trees. The cost will be @ Rs 250 per plant. Thus the total cost will be 1.25 Lakhs

7.8 Agroforestry:

Agroforestry is a land use management system in which trees or shrubs are grown around or among crops or pastureland. This intentional combination of agriculture and forestry has varied benefits, including increased biodiversity and reduced erosion. Agro-forestry practices have been successful in many parts of the state during Social Forestry Project. Agro-forestry systems can be advantageous over conventional agricultural, and forest production methods. They can offer increased productivity, economic benefits, and more diversity in the ecological goods and services provided. It is proposed to have agroforestry

in the 25 ha of land the in consultation with forest department. The cost of agroforestry for each ha will be @ Rs 4000/-. Thus, the total cost envisage to the tune of Rs 1,00,000/-. Species which will remain useful to local public for obtaining only user facts. Some important local tree species proposed for plantation are:

	1	*Azadirachta indica*
	2	*Cochlospermum religiosum*
	3	*Dendrocalamus strictus*
	4	*Denis indica*
	5	*Dolichandrone crispa*
	6	*Emblica officinalis*
	7	*Feronia limonea*
	8	*Ficus benghalensis*
	9	*Ficus microcarpa*
	10	*Ficus religiosa*
	11	*Hardwickia binata*
	12	*Pterocarpus santalinus*
	13	*Sapindus emarginatus*
	14	*Sterculia urens*
	15	*Tenninalia arjuna*
	16	*Terminalia catappa*
	17	*Vitex negundo*
	18	*Wrightia tinctorea*
	19	*Pongamia pinnata*

7.9 Conduct training camps of non-erosive tillage practice:

It is proposed to conduct training camps for Farmers to adopt non erosive tilage practice, Cropping pattern and Agro- Forestry Practices. 4 training camps will be conducted. Training camps, Planting of trees under under Agro- Forestry and planting of Bena Grass slips should be implemented simultaneously to derive effect of motivation in training camps. A sum of Rs 25000/- per camp is proposed. Hence A sum of Rs 1.00 lakh is required.

7.10 Land With & Without Scrub:

The land with Scrub is generally Govt. Lands without tree cover and being more and more being utilized for developmental purpose. It is observed that most of the soil is either compact or affected by Rills / Gullies. It is proposed to provide staggered trenches and Grass land development on fellow lands near to Nalla bank, Forest fringes and blank government lands. The rate for land with or without scrub treatment is Rs. 2500. Total area to be treated is 50 ha. There will be provision for Lumsum cost to the tune of Rs. 1.25 Lakhs.

7.11 Grass land development.

Grass lands in villages are though available but mostly devoid of palatable grass. It is proposed to develop grass lands either in Revenue Forest lands / Gochar land or in open forests in pockets. The grass land development involves a- Ploughing of area, sowing of grass seeds and application of manure periodically to have a sustainable growth. Instead of grazing, villagers may be motivated to cut and take the grass as required after 45 days of seed sowing. Planting of grass slips may also be preferred to seed sowing for ease establishment.

Cost break up involves Ploughing of land @ Rs 1500/- per ha, Seed cost: 2000/- per ha, Manuering etc : 1000/- per ha Maintenance Rs 1000/- per ha per year. Contigency- Rs500/- After 5 years it may be replanted to juvinate the grass production. Hence for Five year the grass land development is Rs 1500+2000+1000+5000+ 500/-= Rs10,000/- It is proposed to develop 10 ha of Grass land during 5 years. Hence a sum of Rs 1.00 lakh is proposed. It may be implemented for 5 years.

7.12 Loose Boulder Gabion Structure (G.B.)

As discussed in earlier paragraphs, the following forest blocks are the origin of many nalla, rivulets those ultimately flows to vena River. It is proposed to have intensive Soil & Moisture conservation measures in an integrated manner. The nallas will be treated with loose boulder Gabion Structure (G.B.). There will be 8 nos of GB Structure as per locations on figure 7.1. The cost of each G.B. is estimated @ Rs 50,000/- . Thus, the total cost will be Rs 4, 00, 000/-

7.13 Check Dam in Nala

Besides the treatment provided to rivulets / nalla originating from Forest blocks, it is also necessary to adopt soil and moisture conservation measures. to check runoff and allow percolation of water to improve quality of vegetation and prevent loss of top soil (Sheet errosion). It is proposed to provide 1 no check dam. The cost of check dam likely to be Rs 5,00,000/- thus the total cost for 1 No check dam will be Rs 5,00,000/-.

7.14 Preparation of Detail Project Report (DPR)

There will be need for preparation of Detail Project Report (DPR) for implementation of both Biological and Engineering method. The DPR will be prepared in consultation with concerned Government Authority. The cost estimate and location may change subject to mining activity and concerned Government Authority.

8.0 COST ESTIMATE:

Abstract of Financial Interventions for CAT & SMC Plan:

The total financial intervention to execute CAT & SMC Plan is given in **Table 8.1.**

Table 8.1: Abstract of Financial Interventions

Sl No	Description	Unit	Rate in Rs	Target	Amount in lakh Rs
Biological Plan					
1	Strip cropping	No	250	500	1.25
2	Agroforestry.	ha	4000	25	1.00
3	Taining camps for Farmers.	No	25000	4	1.00
4	Land With & Without Scrub Treatment	ha	2500	50	1.25
5	Grass land development.	Ha	10000	10	1.00
Sub Total (A)					**5.50**
Engineering Plan					
6	Treatment of Nalla / Rivulets. Loose boulder Gabion Structure (G. B.)	No	50000	8	4.00
7	Treatment of Nalla / River banks.	No	5,00,000	1	5.00
Sub Total (B)					**9.00**
9	**Escalation LS (C)**				**0.50**
10	**Total (A + B + C)**				**15.00**

(Total Rs. Fifteen Lakhs only) plus GST as applicable.

8.1 Total Project Cost & Time for CAT & SMC Plan:

The Total Project Cost for the CAT Plan will be Rs. 15 Lakhs plus GST as applicable. The work will be undertaken one monsoon year before commencement of mining operation.

CAT & SMC project Cost – Rs. 15 lakhs plus GST

9.0 CONCLUSION:

- The Gondkhairi UG Mine Coal Block comprising total lease area of 8.62 km^2 has been allotted to M/s. Adani Power Maharashtra Limited in the district of Nagpur of Maharashtra state. Only 87.351 ha of Revenue Forest Land falling within mine lease area which will be disturbed.
- The area is covered in the Survey of India Toposheet No. 55 K/16 (R.F.1:50,000)) and is bound by

  Latitude 21° 07’ 57" N to 21° 10' 56" N

  Longitude 78° 54' 45" E to 78° 56' 26" E
- Pre-mining Land use of mining area is 862 ha. Out of which 87.351 Ha comes under forest and remaining area under public road, agriculture and water bodies. The Catchment treatment Plan & Soil Moisture Conservation Plan (SMC Plan) is being prepared for 862 Ha.
- The geological formation encountered in Gondkhairi UG Mine and micro basin is mainly Deccan trap underlained by Barakar Formation of Gondwana group. The lithology of formations constitutes sandstone and shale.
- Tranmsimissivity of area is 78.45 m2/day and hydraulic conductivity is 0.87 m/day.
- Normal rainfall in study area is 1267.4 mm.
- The basic relation governing the climatic water balance concept is;

  $P = AE + RO \pm \Delta S.$

  $1267.4 = 877.05 + 390.13 – 0$
- The intensity of Rainfall is 90 mm/ hour.
- Runoff Coefficient is considered to be 20%.
- The capacity of Nala Bridge over National Highway Gondkhairi is 712 m^3/sec. Whereas the peak flood over Gondkhairi micro watershed including mine and two reservoir is estimated as 150 m^3/sec. Thus, the out let for discharge of Peak Flood is near about 5 times higher than the flood discharge anticipated.
- The lowest water table contour is 290 m masl and highest is 340 m amsl during both pre monsoon.
- Study area has been divided into 4 number of small micro-watersheds with total area of 8.62 km2 and total surface water available is 1.90 MCM and total peak flood is 42.3 m3/sec.
- The erosion or soil loss for this condition is derived above to the tune of 5.53 tone/ ha/year.
- Cost estimate for Biological Conservation Plan will be around Rs. 5, 50, 000.
- Cost estimate for Engineering Conservation Plan will be around Rs. 9, 00, 000.

The Total Cost of Catchment Treatment Plan & Soil Moisture Conservation Plan is Rs. 15, 00, 000

10.0 References

1) Andy Ward, Adrian Smith & Jack Caldwelt, Surface Erosion and sediment control at Underground Mine in South Africa, (1984) IAHS publication no. 144.
2) EIA/EMP Report 2011 of Gondkhairi Mines for old allottee.
3) Gaurav Kant Nigam. M. Tech. Thesis on "Assessment of soil Erosion, Runoff, Sediment Yield, Water Quality and Preventive measures in overburden dumps of Opencast Mines in Chirimiri", (2014)
4) Hasan Raja Naqvi, A.S. Mohammed Abdul Athik, Hilal Ahmad Ganaie, Masood Ahsan Siddiqui et. al. Soil erosion planning using sediment yield index method in the Nun Nadi watershed, India. Elsevier Publication (2015) P-86-96
5) Hydrogeological Report of Gondkhairi Coal mines 2022 by Ms. SRSPL, Nagpur.
6) K Subramanya, "Engineering Hydrology", (2008)
7) N. K. Prasad et. al. UNDP Final Technical Report on modeling and control of Water System In Coal Mining Environment, Chandrapur Project Area, Maharashtra, (1999).
8) N. K. Prasad, Catchment Area Treatment Plan for GP II Coal Block for MAHAGENCO Limited
9) N. K. Prasad, Soil Conservation Plan for GP II Coal Block for MAHAGENCO Limited
10) N. K. Prasad, Impact of mining on Kelo Watershed for GP II Coal Block for MAHAGENCO Limited
11) N. K. Prasad, De-siltation Report for GP II Coal Block for MAHAGENCO Limited
12) Predicting Rainfall Erosion Losses" A Guide to Conservation Planning, United States Department of Agriculture, (1978).Prof. R. Suresh, "Soil and Water Conservation Engineering", Standard Publishers Distributors, Nai Sarak Delhi, (1993).
13) Santosh Kumar Garg, "Irrigation Engineering and Hydraulic Structures"
14) Source-UNEP-DHI Partnership- Soil moisture conservation techniques
15) Ven Te Chow, "Hand Book of Applied Hydrology", (1964).
16) Wischmeier, W.H. and Smith, D.D. (1978) Predicting Rainfall Erosion Losses. A Guide to Conservation Planning. The USDA Agricultural Handbook No. 537, Maryland.

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ANNEXURE XI
POND/LAKE REJUVENATION STUDY REPORT

REPLY ON

EAC Meeting date 17.10.2023 Agenda Item no. 1

Query no. vi. *PP shall submit the Geo-tagged location of the lake/reservoir/Dam namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake w.r.t. the ML area.*

Query no. vii. *As suggested by EAC, PP shall submit lake rejuvenation plan with detailed plan with adequate budgetary allocation.*

Query no. viii. *PP shall submit details of new water harvesting facilities (ponds) with protection Dam/Lake/Reservoir lying within the ML area & in Buffer zone.*

Query no. xxi. *PP shall submit the elaborated water balance sheet covering the complete utilization of water.*

Query no. xxii. *PP shall submit the dedicated plan for drinking water to near village through pipeline system.*

Total Cost of Water Management- Rs. 4, 14, 24, 995/-

OF

GONDKHAIRI UNDERGROUND COAL MINE

Village Gondkhairi, Nanda, Karle, kalambi, Karale, Surabardi, Pendhari, Waddhamna
Dist. Nagpur, Maharashtra

PROPONENT

M/S. ADANI POWER MAHARASHTRA LIMITED

At.- Adani Corporate House, Shantigram,
Nr. Vaishno Devi Circle, S G Highway.
Khodiyar, Ahmedabad, Gujarat-382421

PREPARED BY

Nawal Kishore Prasad
Functional Area Expert (GW & Hydrology) by NABET
Accredited ground water professional by CGWA

&

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NOVEMBER – 2023

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Annexure 1- Schedule of Rate, Govt. of Maharashtra 2022-23

Annexure 2- Water Balance Chart

1 STATEMENT OF PROBLEM:

Query no. vi. *PP shall submit the Geo-tagged location of the lake/reservoir/Dam namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake w.r.t. the ML area.*

SOLUTION OF PROBLEM:

The details of the Geo-tagged location of the lake/reservoir/Dam namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake w.r.t. the ML area are given below in **Table 1.1** and same is given in **Figure 1.1.**

Table 1.1: Geo-tagged locations of the lake/reservoirs with reference to Mine lease area

Sr no	Reservoir	Latitude	Longitude	HFL (m amsl)	Owned by	Department	Use	Depth from Embankment bgl (m)
1	Surabardi	21° 9'28.60"N	78°56'15.11"E	344.46	Govt.	WRD	Irrigation	0-12
2	Karle/Alesur	21° 9'42.86"N	78°55'17.07"E	361	Govt.	PWD	Irrigation	0-5
3	Vena	21° 9'15.92"N	78°51'58.99"E	339.85	Govt.	WRD	Irrigation	0-18
4	Futala	21° 9'15.09"N	79° 2'32.82"E	340	Govt.	PWD	Domestic	0-10
5	Ambajhari	21° 7'39.23"N	79° 2'25.28"E	341	Govt.	NMC	Domestic	0-10
6	Jhilpi	21° 3'49.76"N	78°52'5.28"E	311.5	Govt.	WRD	Irrigation	0-14
7	Bhivakund	21° 3'23.50"N	78°52'15.56"E	314.80	Govt.	WRD	Irrigation	0-14
8	Nandora	21° 5'29.18"N	78°51'22.43"E		Govt.	WRD	Irrigation	0-14
9	Mordham (Outside Zuffer zone)	21°13'16.73"N	78°48'16.12"E		Govt.	WRD	Irrigation	0-16

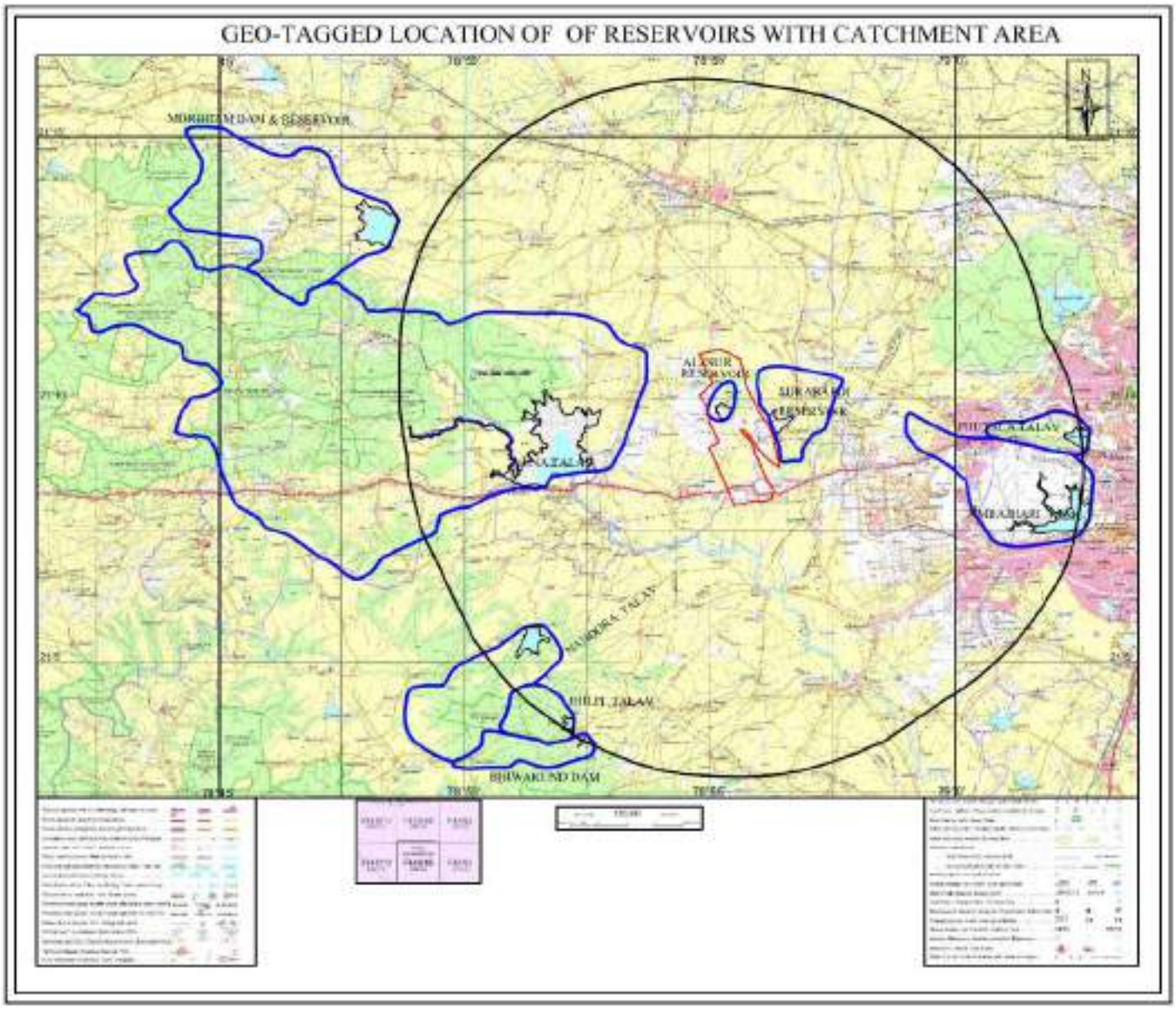


Figure 1.1: Geo-tagged location of Reservoirs with reference to Mine lease area



Surabardi Geo-tagged



Karle/Alesur Geo-tagged



Vena Geo-tagged



Futala Geo-tagged



Ambazari Geo-tagged



Zilpi Geo-tagged



Bhiwakund Geo-tagged



Nandora Geo-tagged



Mordham (Outside Buffer zone)

2 STATEMENT OF PROBLEM:

Query no. vii. *As suggested by EAC, PP shall submit lake rejuvenation plan with detailed plan with adequate budgetary allocation.*

SOLUTION OF PROBLEM:

In the area there is no lake as such but there are 2 reservoirs constructed by State Government falls in the mine lease area. Thus, mitigation measures for rejuvenation of 2 reservoirs are dealt herewith.

2.1 Location of Reservoirs:

A field investigation had been carried out in study area. The location details of two reservoirs are given in **Table 2.1.** The location of Karle and Surabardi Reservoir on Google earth with respect to mine lease area is given in **Figure 2.1.**

Table 2.1: Location details of reservoir

Sr No.	Reservoir Name	Latitude	Longitude
1	Karle	21° 9' 44.25" N	78°55' 16.50" E
2	Surabardi	21° 9' 31.36" N	78°56'19.08" E
Total			



Figure 2.1: Location of Reservoirs

2.2 Parameter of Reservoirs:

The area covered during pre-monsoon is considered as lowest water stage in respective reservoir whereas area covered during post-monsoon is considered as highest water stage. The difference of stage is depth of water increment in the respective reservoir. The Google map is enclosed for reference at **Figure 2.2** for Alesur (Karle) reservoir, **Figure 2.3** for Surabardi reservoir. The following parameters are established and given in **Table 2.2.**

Table 2.2: Parameters

Sr no.	Reservoir	Post monsoon area (m2)	Pre monsoon area (m2)	Area for de-silting (m2)	Post - monsoon Perimeter for fencing excluding embankment (m)	Average depth of silt accumulation in m
1	Karle	190000	137000	53000	1549	1
2	Surabardi	726000	692000	34000	4372	1

The following measures will be applied for rejuvenation of Karle/Alesur & Surabardi reservoir.

1) Biological- Clearance of surrounding area in periphery of reservoirs
2) Engineering
    - De-silting of area between pre and post monsoon
    - Fencing around perimeter of submergence area to avoid unwanted entry of animals and humans.

Accordingly, cost estimation is carried out.

- **Cost of Rejuvenation of reservoirs/water bodies**

The Mitigative plan for rejuvenation of reservoirs have suggested following measures

1) Biological
2) Engineering

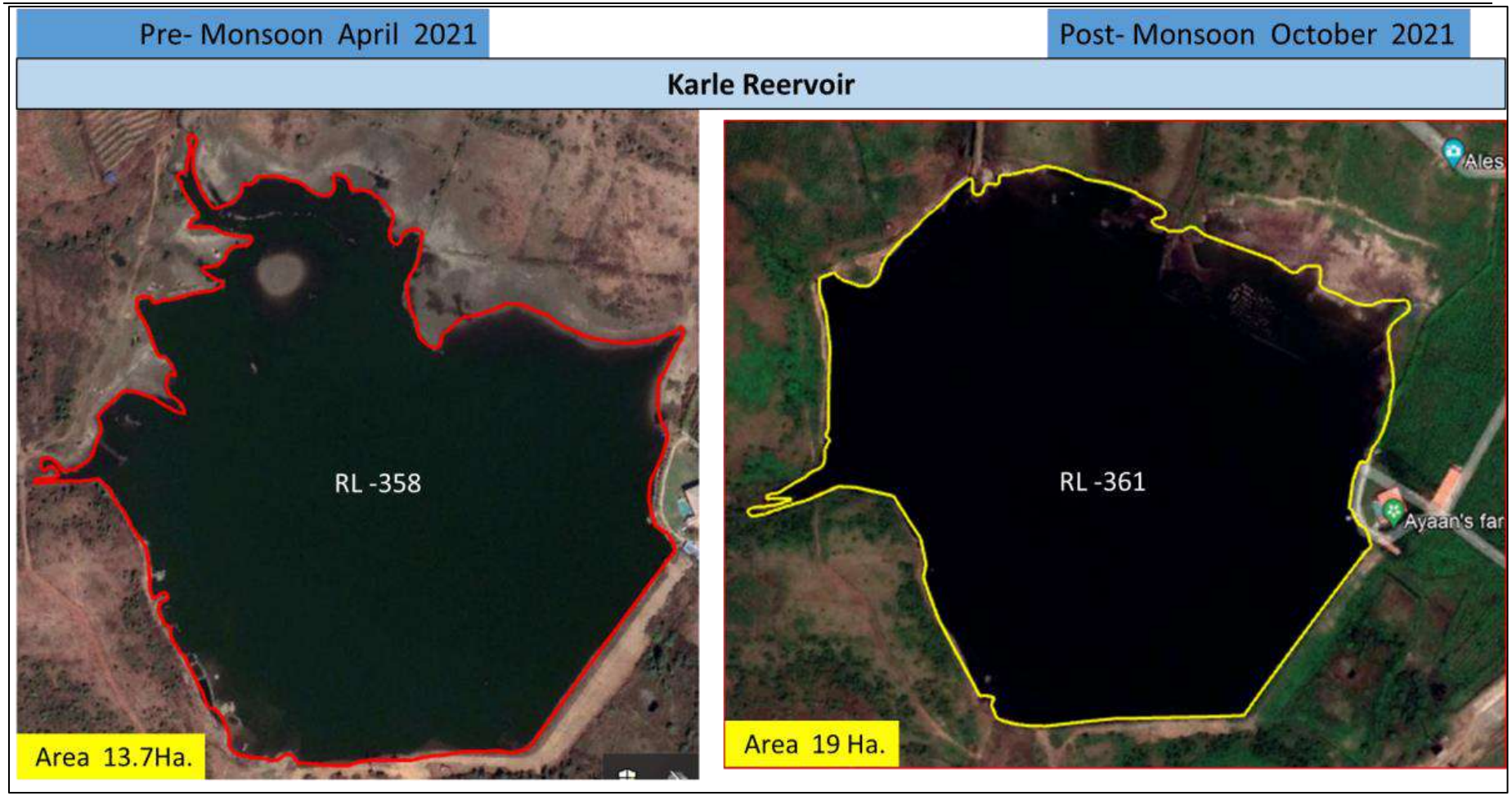


Figure 2.2: Karl/ Alesure Reservoir

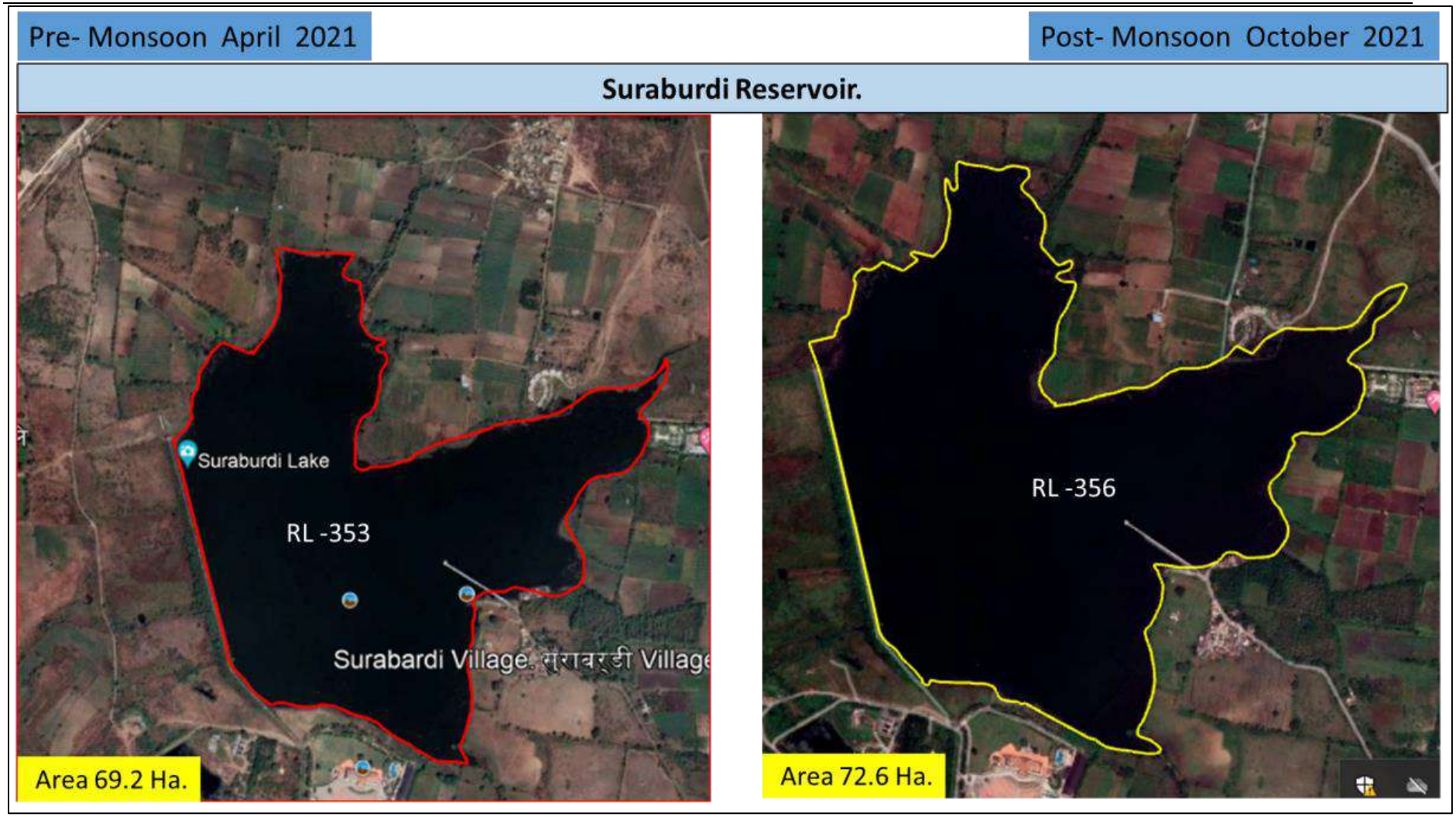


Figure 2.3: Surabardi Reservoir

1 Cost of Biological Measures:

The Biological Measure is a part of Green Belt development & Catchment Treatment Plan. The cost of the same is included in respective segments. The annual maintenance cost of respective water reservoir includes collection of garbage and other trash around periphery of reservoir is given in **Table 2.3.** The cost of unskilled person have been considered as per State Schedule of Rate 2022-23 (PWD) Govt. of Maharashtra pg no. 545 (Labour rates for SSR for year 2022-23), sr no. 36 given in **Annexure 1.**

Table 2.3: Biological Cost Estimation

Sr No.	Reservoir Name	Perimeter (m)	No. of Unskilled person required	Per day charge as per SSR 2022-23 (PWD) Govt. of Maharashtra (Rs.)	No. of Days (5 x 12 x 5)	Total Cost Estimate
1	Karle Reservoir	1694	1	615	300	184500
2	Surabardi Reservoir	2910	2	615	300	369000
Total						**553500**

Cost of Biological Plan= Rs. 5, 53, 500 for five year

2 Cost of Engineering Measures:

1 Silt Removal over time:

The cost of de-silting of respective reservoirs has been estimated based on the area occupied between pre and post monsoon period as area of de-silting. The depth of de-silting has been considered as 1 m on average. The cost estimate for silt removal has been done as per specification by using State Schedule of Rate 2022-23 (PWD) Govt. of Maharashtra pg no. 153 SSR item No. 21.01, sr no. 720 **(Annexure 1).**

Specification: Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift up to 0.00 to 1.50 m.) By Manual Means. The Rate for excavation is Rs. 239/ m^3. The cost estimate for silt removal is given in **Table 2.4.**

Table 2.4: Cost Estimate for De-silting

Sl.No.	Reservoir	Area of Silt cover (sq.m.)	Depth (m)	Volume of soil excavated (m^3)	Rate of excavation per m^3	Total cost of silt removal (Rs.)
1.	Karle	53000	1	53000	239	12667000
2.	Suraburdi	34000	1	34000	239	8126000
Total						**20793000**

Cost of De-silting= Rs. 2, 07, 93, 000

2 Fencing:

The fencing around the reservoirs has been considered the perimeter length of post monsoon submergence area excluding the embankment. The cost estimate for fencing has been done by using specification of State Schedule of Rate 2022-23 (PWD) Govt. of Maharashtra pg no. 259, SSR item No. 46.39, sr no. 1575 **(Annexure 1).**

Specification: Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm, 8 gauge thick and fixed 75 mm above ground level on vertical M.S. Angles of 40 x 40 x 6 mm size, including excavating pits for foundation and embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M. c/c with iron bar 16 mm dia as hold fast including welding link with angle frame at 30 cm c/c with nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both side at every corner or bend embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting etc. complete.

The cost estimation is given in **Table 2.5.**

Table 2.5: Cost Estimation for Fencing

Sl.No.	Reservoir	Length (m)	Rate@ MT(m)	Cost (Rs.)
1.	Karle	1549	2539	3932911
2.	Suraburdi	4372	2539	11100508
	Total			**1, 50, 33, 419**

Cost of Fencing= Rs. 1, 50, 33, 419

The summarized cost estimate for lakes/ reservoirs rejuvenation in mine area is given below in **Table 2.6.**

Table 2.6: Summarized cost estimation for Rejuvenation of lake/reservoir

Sr no.	**Type of Rejuvenation**		**Estimated Cost in Rupees**
1	Biological		5, 53, 500
2	Engineering	De-silting	2, 07, 93, 000
		Fencing	1, 50, 33, 419
Total			**3, 63, 79, 919**

The Total Cost of Rejuvenation of Reservoirs**= Rs. 3, 63, 79, 919**

In Words**: Rs. Three crores sixty three thousand seventy nine thousand nine hundred nineteen**

3 STATEMENT OF PROBLEM:

Query no. viii. *PP shall submit details of new water harvesting facilities (ponds) with protection Dam/Lake/Reservoir lying within the ML area & in Buffer zone.*

SOLUTION OF PROBLEM:

There are total 18 numbers of check dams constructed in and around mine lease area by State Government. However, there is need for rain water harvesting in the Villages where water supply is made with ground water through bore wells.

Check dam constructed by State Government in Buffer zone:

The report of Aquifer mapping & Ground water management plan of CGWB, Nagpur has been referred and tabulated the check dam already constructed by Government of Maharashtra which is listed below in **Table 3.3.** There is no scope for further construction of check dam. However, @1 lakhs per check dam have been kept for maintenance of existing check dam outside mine lease area. The total cost estimated @ 1 lakhs for 18 no. of dams will be Rs. 18 lakhs.

Table 3.1: List of Check Dams

Sr no	Village Name	No. of check dams	Maintenance cost in Rs. in lakhs
1	Gondkhairi	4	4
2	Gumthala	2	2
3	Kalambi	3	3
4	Karli	2	2
5	Ketapar	3	3
6	Khairi	4	4
	Total	**18**	**18**

Cost of maintenance of Check dams- Rs. 18, 00, 000

Rain water Harvesting in Villages:

As drinking water is a vital source for mankind, so arrangement of water supply or fulfilment of water supply is prime requirement in mine lease and its surrounding. There are 9 Villages in and around Gondkhairi Coal Block and the details are given in **Table 3.1.**

Table 3.2: Details of Villages

S. No	Village Name	Existing Supply of Water system to Village (Source)
1	Kalambi	Surface water
2	Surabardi	
3	Alesur	
4	Khapri	Ground water
5	Sahuli	
6	Khadgaon	
7	Waddhamana	
8	Gondkhairi	
9	Ketapar	

Out of 9 Villages there are 3 Villages with Government Tap water supply from surface water and rest 6 Villages are dependent on ground water through bore wells. Accordingly, it is essential to supplement ground water resource through rain water harvesting. There is sufficient surface water available to meet the rain water harvesting.

Cost Estimate for Rain Water Harvesting for Unit Village:

The Rain Water Harvesting scheme has been done by using State Schedule of Rate 2022-23 (PWD) Govt. of Maharashtra.

1 Type of Work: RWH- Recharge Pit (SSR Item no. 48.47, sr no. 1663. Pg no. 317).

Specification: Providing and constructing recharge pit of 2.0m deep and 1.0m dia of pre-cast RCC rings with 6.5" dia x 25m deep borewell at the floor of recharge pit including installation of combination of solid/perforated PVC casing pipe wrapped around with netlon mesh including 300mm thick sidefilling around outside of RCC rings (annular space) with 40mm size boulders including filling of recharge pit up to 0.5m depth with 25-75mm clean washed gravels from bottom up followed by 0.5m depth of 10- 25mm of clean washed stones followed by 0.5m of washed river fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) including netlon mesh between each gravel/fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) media layer including covering with RCC slab, manhole frame & cover, PVC rungs, PVC end caps, fittings etc. including arrangement for inlet & outlet pipe excavation & backfilling as shown in the drawing. The rate shall be inclusive of all labour, material, wastage, scaffolding, transportation, taxes, including all leads, lifts at all levels. All material should be of approved

make. All works complete as per the drawing, technical specification and direction of the Engineer in charge @ Rs. 91300.

2 Type of Work: Boring/drilling (SSR Item no. 48.48, sr no. 1664. Pg no. 317).

Specification: Boring/drilling bore well of 300 mm dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machinery required for the job, all complete as per direction of Engineer in charge, upto 90m depth below ground level @ Rs. 416 for one running meter. For 100 m it will be Rs. 41600.

3 Type of Work: Supplying assembling- (SSR Item no. 48.49, sr no. 1665. Pg no. 318).

Specification: Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well-casing pipe of 150mm dia, conforming to IS:12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per the direction of Engineer in charge @ Rs. 494 for one running meter. For 100 metres it will be Rs. 49400.

4 Type of Work: Gravel Packing- (SSR Item no. 48.54, sr no. 1670. Pg no. 318).

Specification: Gravel packing in tube well construction in accordance with IS:4097, including providing gravel: fine/ medium/ coarse, in required grading & sizes as per the actual requirement, all complete as per direction of Engineer in charge@ Rs. 1494 for 1 cubic meter.

Total Cost Estimate for unit Village is given below in **Table 3.2.**

Table 3.3: Cost Estimate for Rain Water Harvesting Unit Village

Sr no	Type of Work	Costing in Rupees
1	RWH- Recharge Pit (SSR Item no. 48.47, sr no. 1663. Pg no. 317).	91300
2	Boring/drilling (SSR Item no. 48.48, sr no. 1664. Pg no. 317).	41600
3	Supplying assembling- (SSR Item no. 48.49, sr no. 1665. Pg no. 318).	49400
4	Gravel Packing- (SSR Item no. 48.54, sr no. 1670. Pg no. 318).	1494
Cost Estimate for Single Village		183794
Cost Estimate for 6 Villages (Rs. 480194 x 6)		1102764
Labor Charges (33%)		363912
Total Cost Estimate for RWH in 6 Villages		**Rs. 14, 66, 676**

Total Cost Estimate for RWH in 6 Villages- Rs. 14, 66, 676

Total Cost Estimate for Water Harvesting :

Sr no.	Type of work	Cost estimate in Rs.
1	Maintenance of 18 no. check dams-	18, 00, 000
2	Rain water harvesting for ground water recharge of bore wells used for drinking	14, 66, 676
Total		**32, 66, 676**

4 STATEMENT OF PROBLEM:

Query no. xxi. *PP shall submit the elaborated water balance sheet covering the complete utilization of water.*

SOLUTION OF PROBLEM:

The elaborated total water balance is given below in **Table 4.1.**

Table 4.1: Water Balance

	Water Quantity from Mine Seepage	Utilization of Water					
Year	Mine Seepage including borewell water of 40 m^3/day	Green Belt	Mining	Dust Suppression	Domestic	Total Utilization	Available water for GR recharge in downstream -outside mine boundary
	m^3/day	m^3/day	m^3/day	m^3/day	m^3/day	m^3/day	m^3/day
3	492	60	150	242	40	492	0
5	1602	120	650	484	80	1334	268
10	4652	120	650	726	100	1596	3056
15	7702	120	650	726	100	1596	6106
20	10752	120	650	726	100	1596	9156
24	12732	120	650	726	100	1596	11136

The water balance chart of Gondkhairi Underground mines enclosed in **Annexure – 2.**

5 STATEMENT OF PROBLEM:

Query no. xxii. *PP shall submit the dedicated plan for drinking water to near village through pipeline system.*

SOLUTION OF PROBLEM:

The details of Villages in surrounding area of mine lease are given in following **Table 5.1.**

Table 5.1: List of Villages

S. No	Village Name	Population of Village	Existing Supply of Water system to Village (Source)
1	Kalambi	1317	Surface water (Pipeline system exist)
2	Surabardi	2547	
3	Alesur	471	
4	Khapri	1040	Ground water (Pipeline system required)
5	Sahuli	848	
6	Khadgaon	1879	
7	Waddhamana	5267	
8	Gondkhairi	6118	
9	Ketapar	602	

Out of total 9 Villages, 6 Villages are those where there is no supply of water by Government agencies. In all this Villages planning for drinking water through pipeline system will be done.

Type of Work: Pipeline requirement- (SSR Item no. 48.49, sr no. 1665. Pg no. 318).

Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well-casing pipe of 25 to 150 mm dia, conforming to IS:12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per the direction of Engineer in charge **@ Rs. 494** for one running meter. The cost estimate for pipeline system is is given in **Table 5.2.**

Table 5.2: Cost Estimate for Pipeline System

S. No	Village Name	Unit Rate per meter	Total Average length of pipe required in meters	Cost required (Rs.)
1	Khapri	494	600	296400
3	Sahuli	494	600	296400
4	Khadgaon	494	600	296400
6	Waddhamana	494	600	296400
7	Gondkhairi	494	600	296400
8	Ketapar	494	600	296400
Total				**1778400**

Cost Estimate for Pipeline system- Rs. 17, 78, 400

6 TOTAL COST ESTIMATE WATER MANAGEMENT:

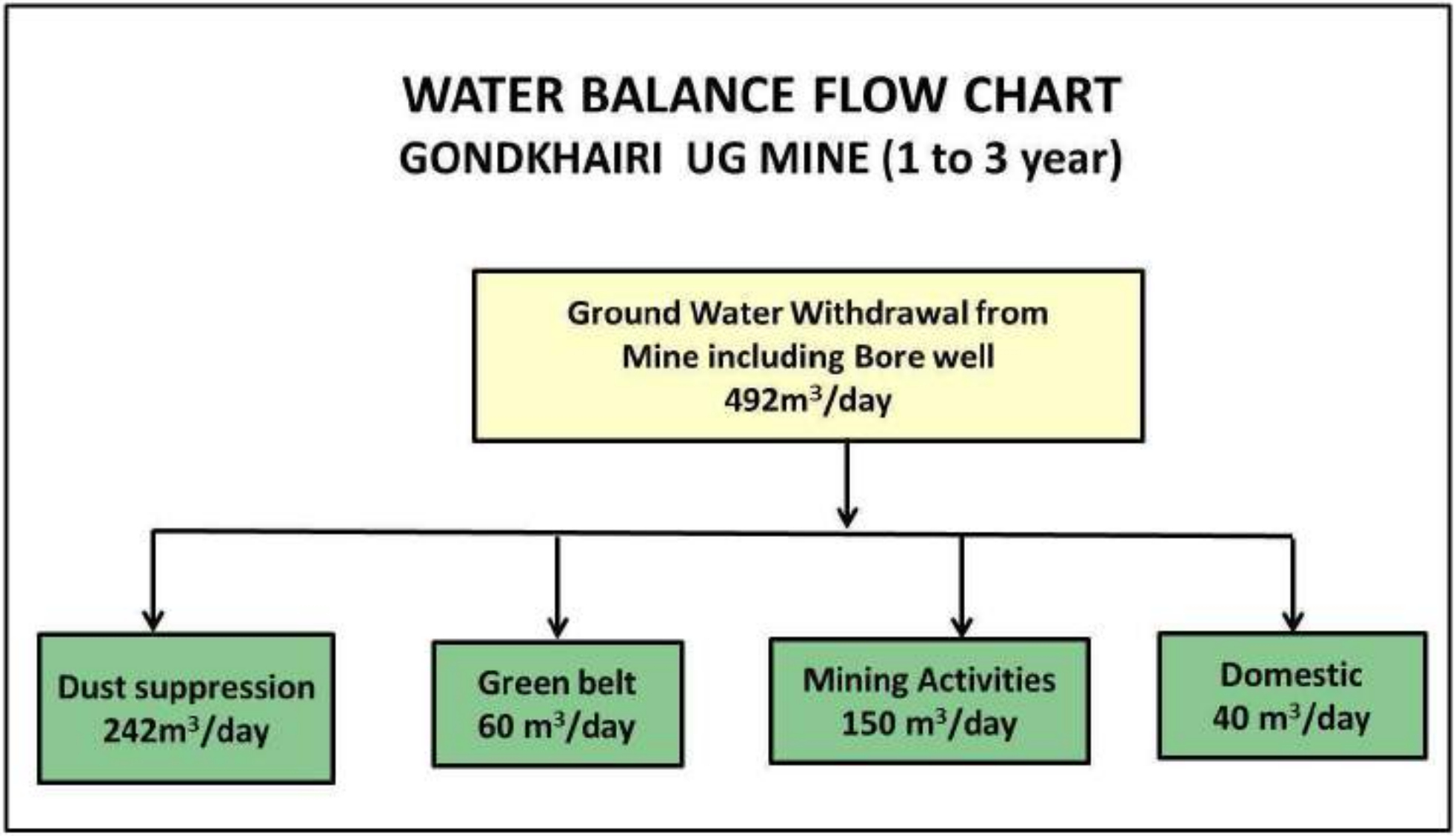
Sr no.	Query no.	Exclusive work		Cost in Rs.
1	*Query no. vi.*	Geo-tagged locations		0.00
2	*Query no. vii.*	Lake Rejuvenation Plan		3, 63, 79, 919
3	*Query no. viii.*	Rain water Harvesting		32, 66, 676
4	*Query no. xxi.*	Water Balance		0.00
5	*Query no. xxi.*	Pipeline system		1778400
Total			**Actual**	**41424995**
			Rounded Up	**41500000**

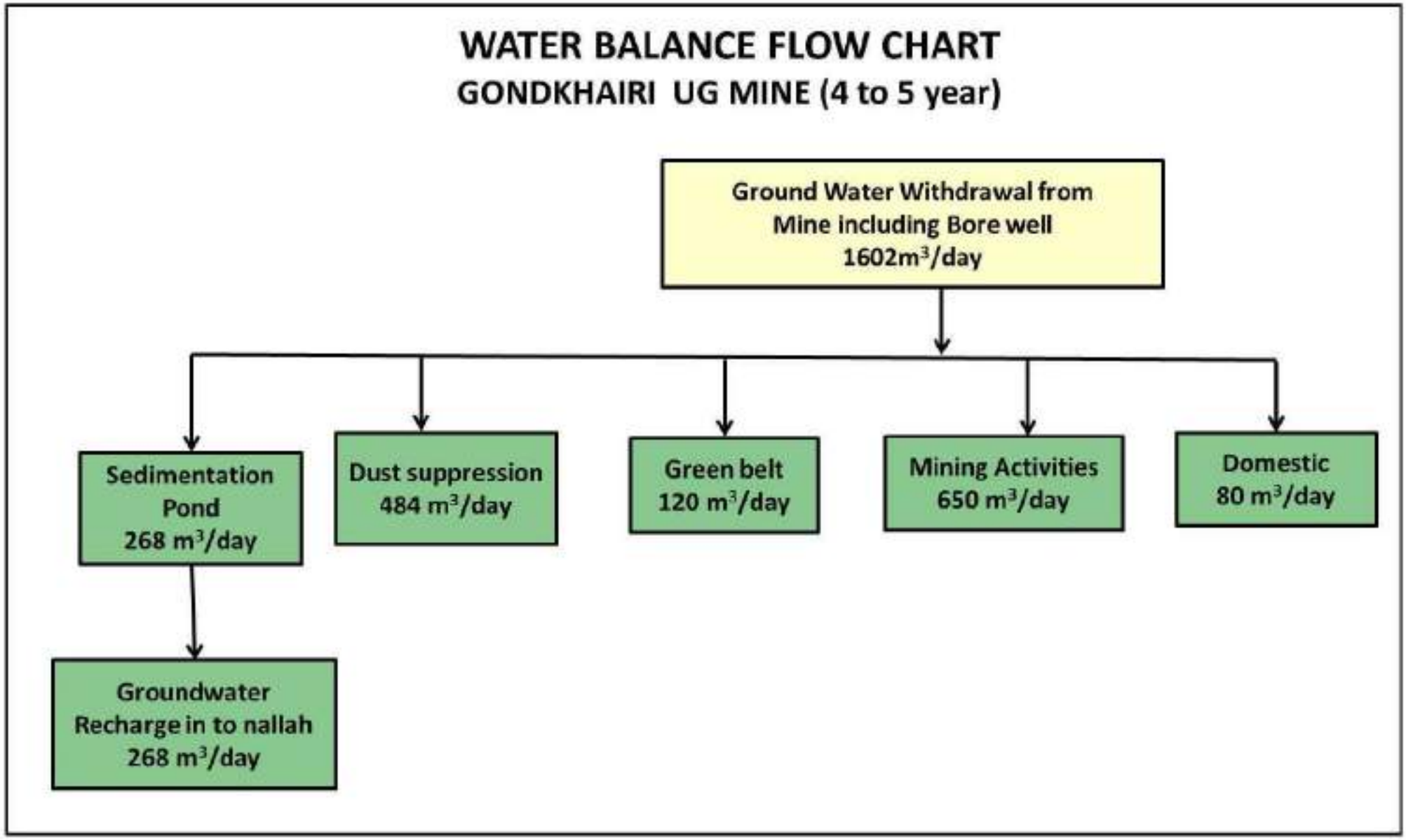
Total Cost of Water Management- Rs. 4, 14, 24, 995

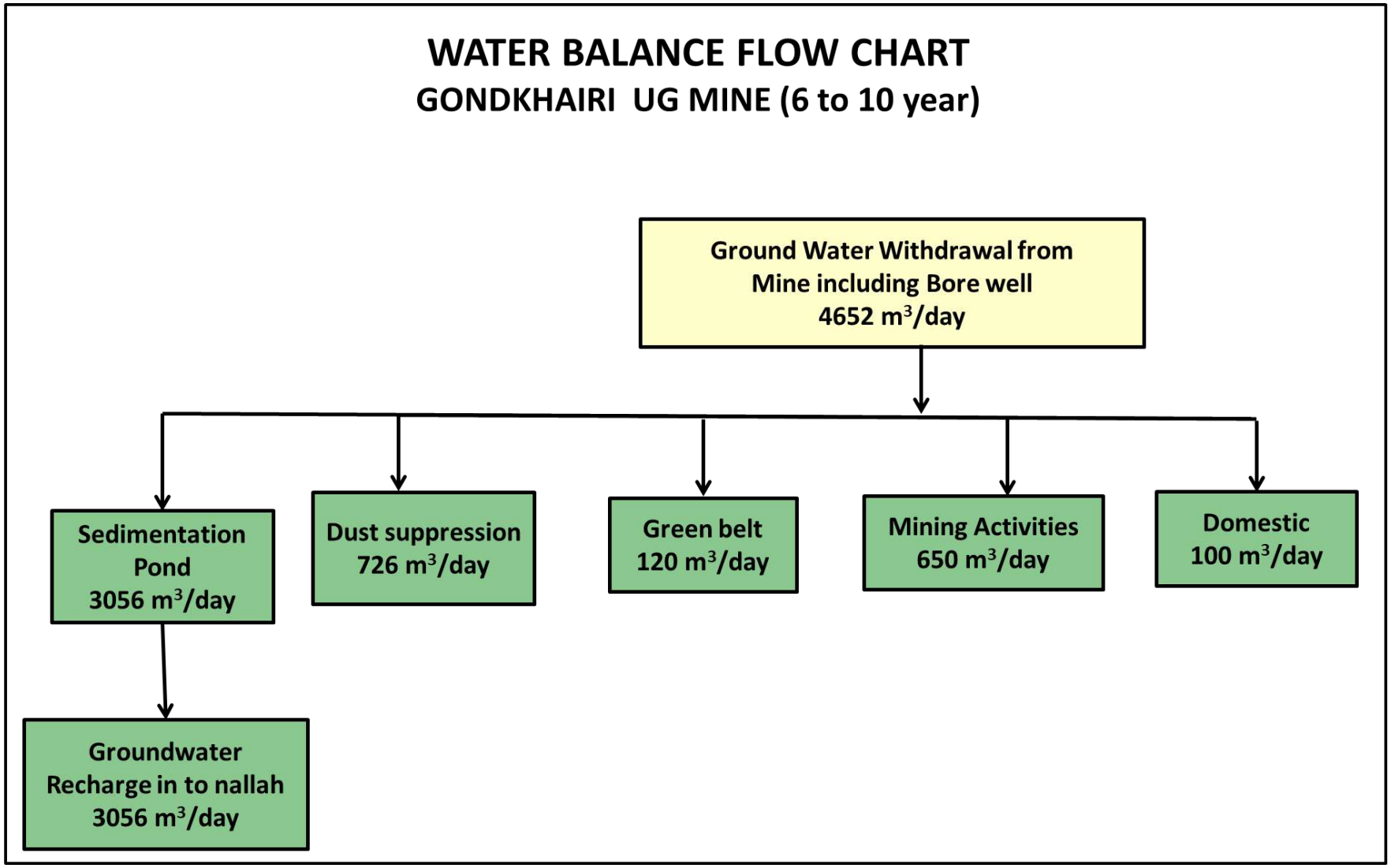
(In words: Four Crore Fourteen Lakh twenty-Four Thousand Nine hundred Ninety-Five)

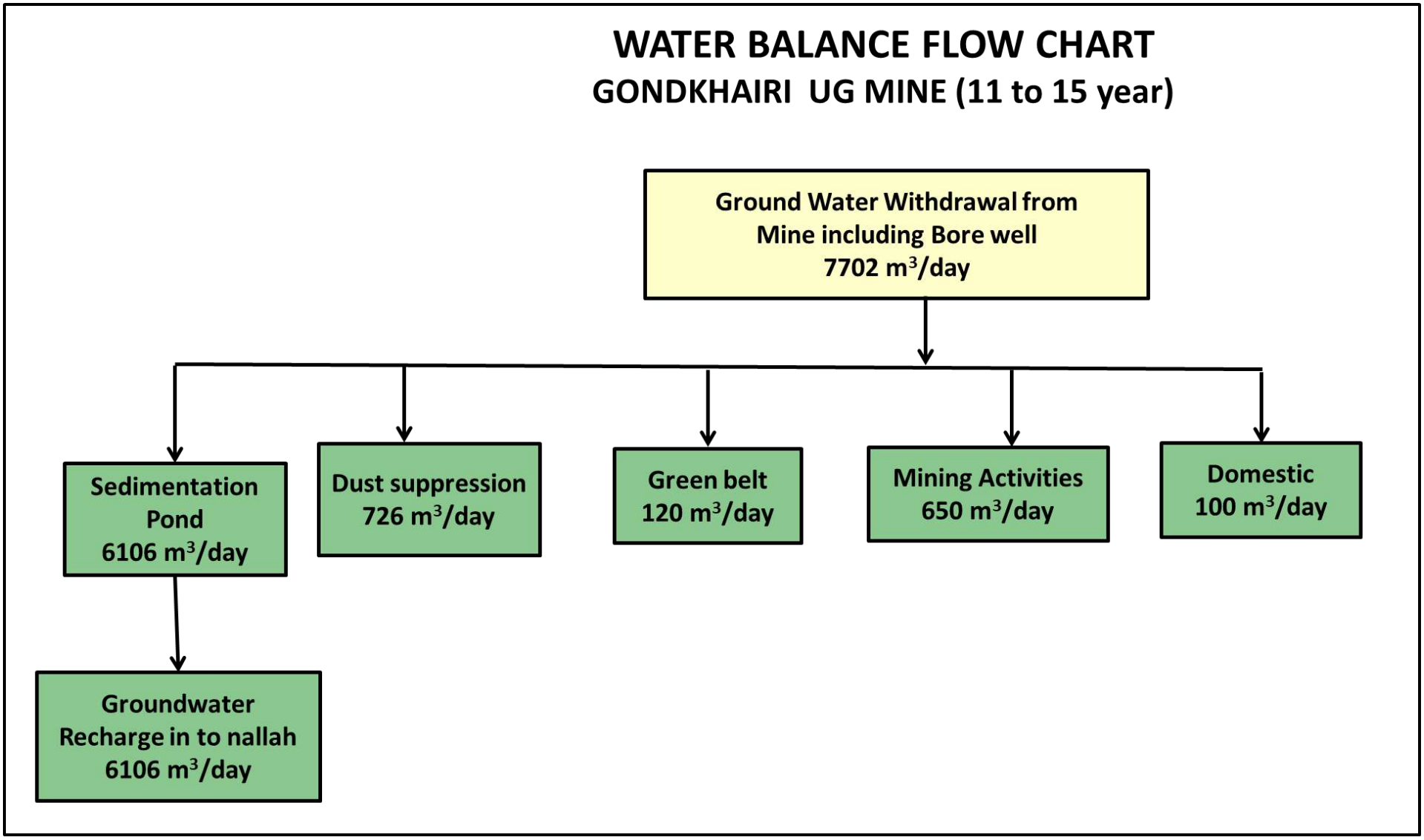
Annexure – 2

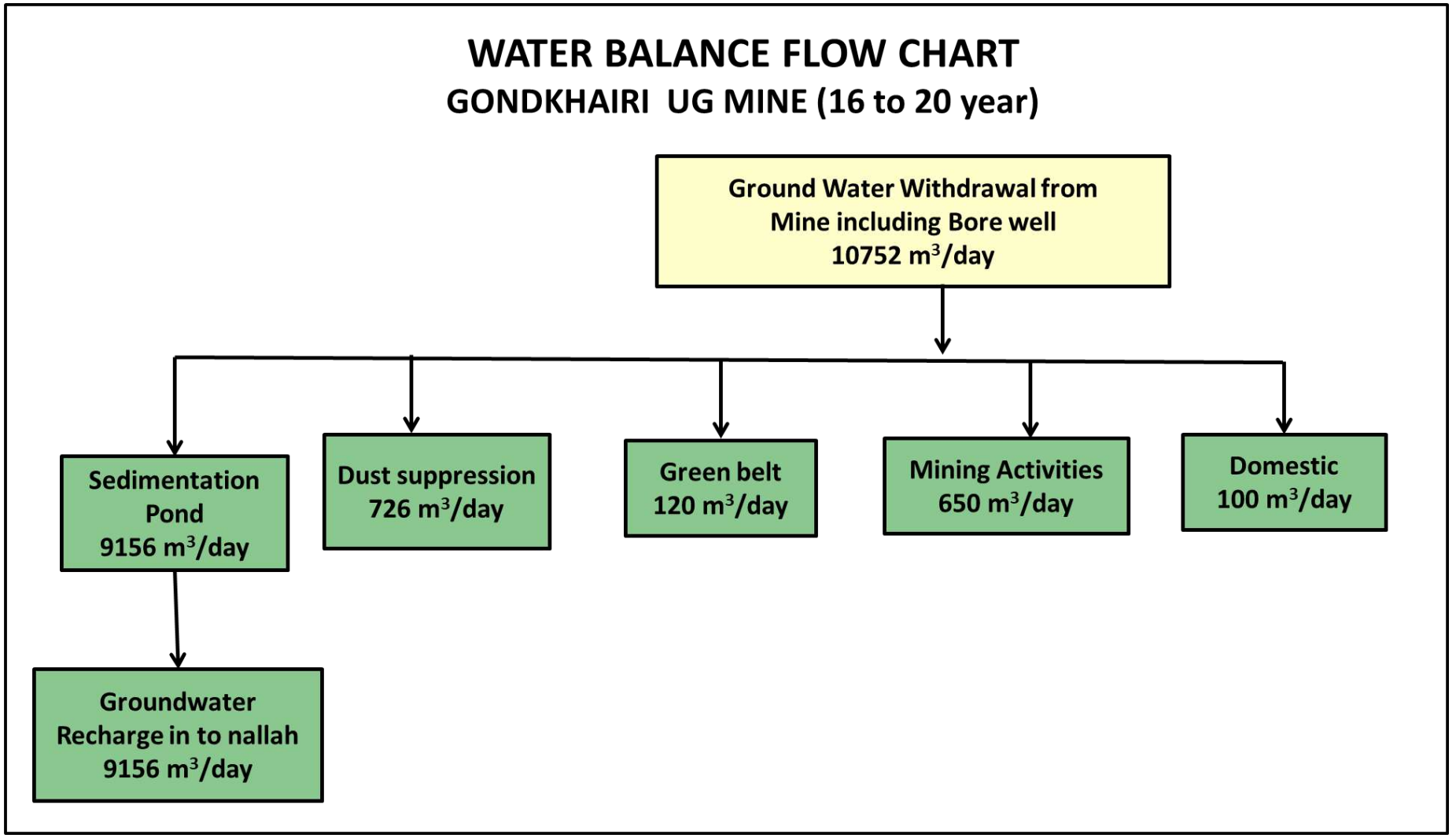
	Water Quantity from Mine Seepage	Utilization of Water					
Year	Mine Seepage including borewell water of 40 m^3/day	Green Belt	Mining	Dust Suppression	Domestic	Total Utilization	Available water for GR recharge in downstream -outside mine boundary
	m^3/day	m^3/day	m^3/day	m^3/day	m^3/day	m^3/day	m^3/day
3	492	60	150	242	40	492	0
5	1602	120	650	484	80	1334	268
10	4652	120	650	726	100	1596	3056
15	7702	120	650	726	100	1596	6106
20	10752	120	650	726	100	1596	9156
24	12732	120	650	726	100	1596	11136

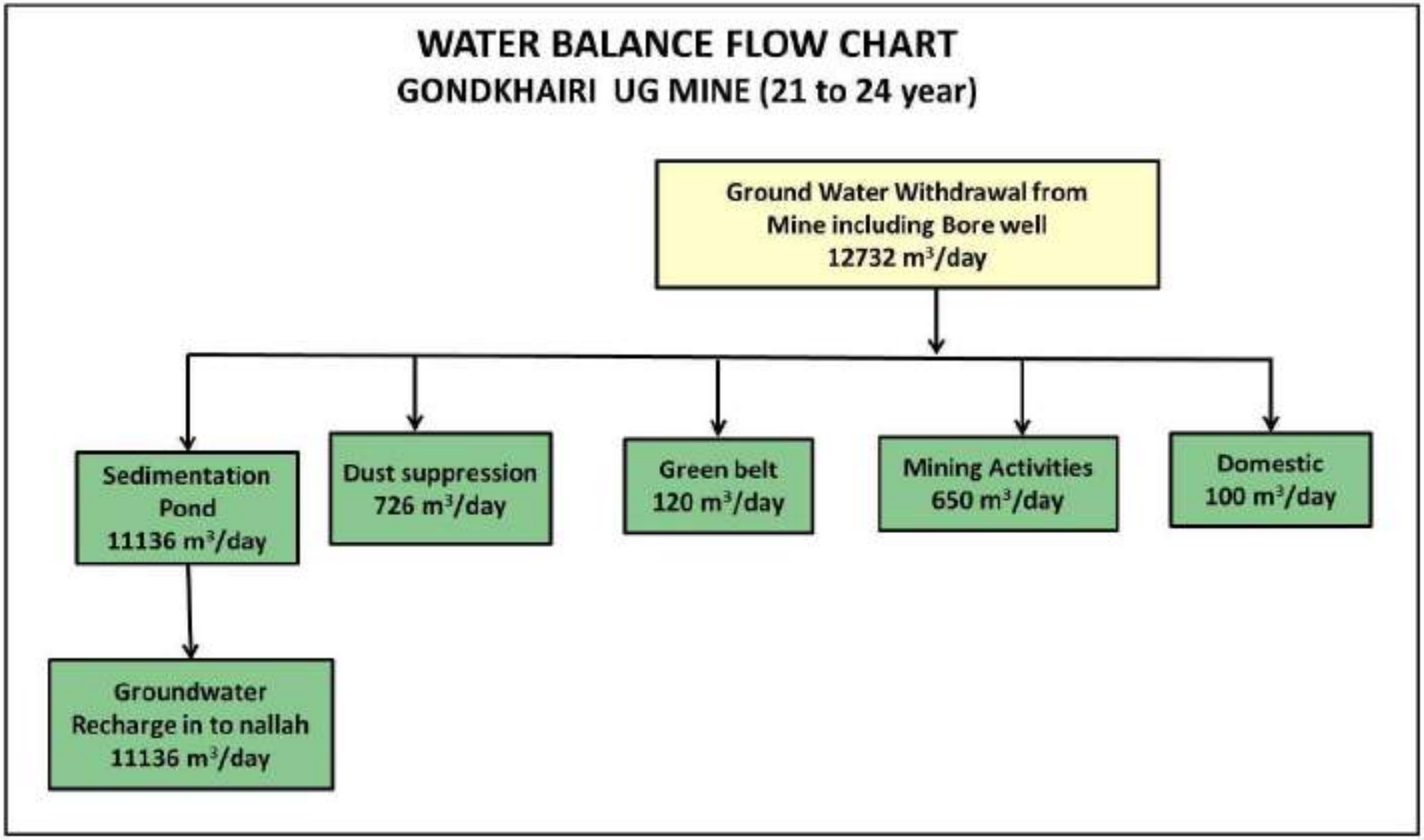

WATER BALANCE FLOW CHART
GONDKHAIRI UG MINE (1 to 3 year)
Ground Water Withdrawal from Mine including Bore well 492m³/day
Dust suppression 242m³/day
Green belt 60 m³/day
Mining Activities 150 m³/day
Domestic 40 m³/day


WATER BALANCE FLOW CHART
GONDKHAIRI UG MINE (4 to 5 year)
Ground Water Withdrawal from Mine including Bore well 1602m³/day
Sedimentation Pond 268 m³/day
Dust suppression 484 m³/day
Green belt 120 m³/day
Mining Activities 650 m³/day
Domestic 80 m³/day
Groundwater Recharge in to nallah 268 m³/day


WATER BALANCE FLOW CHART
GONDKHAIRI UG MINE (6 to 10 year)
Ground Water Withdrawal from Mine including Bore well 4652 m3/day
Sedimentation Pond 3056 m3/day
Dust suppression 726 m3/day
Green belt 120 m3/day
Mining Activities 650 m3/day
Domestic 100 m3/day
Groundwater Recharge in to nallah 3056 m3/day


WATER BALANCE FLOW CHART
GONDKHAIRI UG MINE (11 to 15 year)
Ground Water Withdrawal from Mine including Bore well 7702 m3/day
Sedimentation Pond 6106 m3/day
Dust suppression 726 m3/day
Green belt 120 m3/day
Mining Activities 650 m3/day
Domestic 100 m3/day
Groundwater Recharge in to nallah 6106 m3/day


WATER BALANCE FLOW CHART
GONDKHAIRI UG MINE (16 to 20 year)
Ground Water Withdrawal from Mine including Bore well 10752 m3/day
Sedimentation Pond 9156 m3/day
Dust suppression 726 m3/day
Green belt 120 m3/day
Mining Activities 650 m3/day
Domestic 100 m3/day
Groundwater Recharge in to nallah 9156 m3/day


WATER BALANCE FLOW CHART
GONDKHAIRI UG MINE (21 to 24 year)
Ground Water Withdrawal from Mine including Bore well 12732 m³/day
Sedimentation Pond 11136 m³/day
Dust suppression 726 m³/day
Green belt 120 m³/day
Mining Activities 650 m³/day
Domestic 100 m³/day
Groundwater Recharge in to nallah 11136 m³/day

ANNEXURE XII
HYDROGEOLOGY REPORT

Revised

COMPREHENSIVE HYDROGEOLOGICAL REPORT

For

GONDKHAIRI UNDERGROUND COAL MINE

Village Gondkhairi, Nanda, Alesur, kalambi, Karale, Surabardi, Pendhari, Waddhamna
Dist. Nagpur, Maharashtra -

For

CGWA NOC

Project Proponent

M/S. ADANI POWER MAHARASHTRA LIMITED

At.- Adani Corporate House, Shantigram,
Nr. Vaishno Devi Circle, S G Highway.
Khodiyar, Ahmedabad, Gujarat-382421

Prepared by

N K Prasad
(Accredited Ground Water Professional)

MARCH 2023

Updated as on 14 .06.2023

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1.3 Date of Accreditation:..... 1
1.4 Validity up to: 1
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1.6 New/ Existing Project:..... 1
1.7 CTE issued date:..... 1
1.8 Alluvium/ Non-alluvium: 1
1.9 Block Name & Category (GWRA, 2020): 1
1.10 Ground Water Requirement: 1
1.11 Ground water Modelling Required (Yes/No): 1
1.12 In case the report is prepared jointly by accredited Institute and Individual consultant, name/details of chapters prepared by the Individual consultant: 1
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1.0 SALIENT FEATURES OF THE PROPOSAL:

1.1	**Application No.:**	21-4/9935/MH/MIN/2023
1.2	**Accredited By:**	RGI
1.3	**Date of Accreditation:**	23rd September 2021
1.4	**Validity up to:**	25th August 2026
1.5	**Work Order Date (Attach copy of the Work Order with masking details of charges):**	25.02.2023 (Work order attached as **Annexure - 1**)
1.6	**New/ Existing Project:**	New
1.7	**CTE issued date:**	Vesting order no. NA- 104/7/2021-NA dated Nov 18, 2021
1.8	**Alluvium/ Non-alluvium:**	Non-alluvium
1.9	**Block Name & Category (GWRA, 2020):**	Kalmeshwar & Safe Category
1.10	**Ground Water Requirement:**	179580 m^3/year – 492 m^3/day
1.11	**Ground water Modelling Required (Yes/No):**	No
1.12	**In case the report is prepared jointly by accredited Institute and Individual consultant, name/details of chapters prepared by the Individual consultant:**	1) N K Prasad (All chapter)
1.13	**Signature of the Consultant(s):**	 N. K. Prasad:

2.0 ABOUT THE PROJECT:

M/s. Adani Power Maharashtra Limited, Khodiyar, Ahmedabad, Gujarat state undertaking is engaged in exploration and scientific exploitation of mineral deposits. Gondkhairi Coal Block is located in Kamtee Coal field covering villages Gondkhairi, Nanda, Alesur, kalambi, Karale, Surabardi, Pendhari, Waddhamna Kalmeshwar tehsil of Nagpur district for production of coal. The mine is new project and hence coal production is not started. The total lease area is 862 ha out of which geological block area is 862 Ha. The mining plan has been approved vide letter no. Gondkhairi Coal Mine MHMR019/APP00226/2022 dated 2023.01.09.

The duration of investigation is with effect from 28.12.2021 to till date. The scope of work includes preparation of Comprehensive Hydrogeological Report to obtain NOC as per CGWA 2020 guideline and subsequent modification in report is being prepared as per SOP issued in Feb 2022. The project Location map is given in **Figure 2.1.** The Google map is given in **Figure 2.2.** Location on toposheet is given in **Figure 2.3** and the project site core zone 2 km and buffer zone of 10 km are placed at **Figure 2.4**. Surface plan is given in **Figure 2.5.**

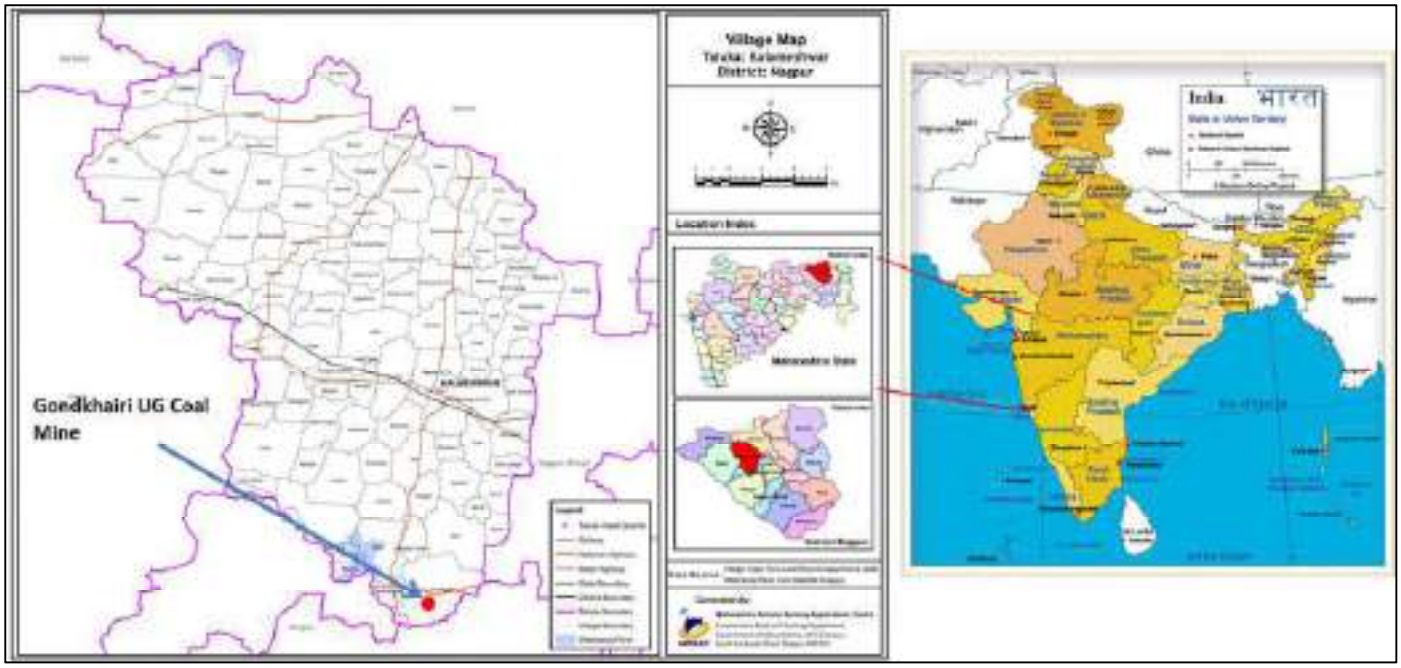


Figure 2.1: Location Map



Figure 2.2: Google Map



(Source: Survey of India, Toposheet)

Figure 2.3: Location on Toposheet

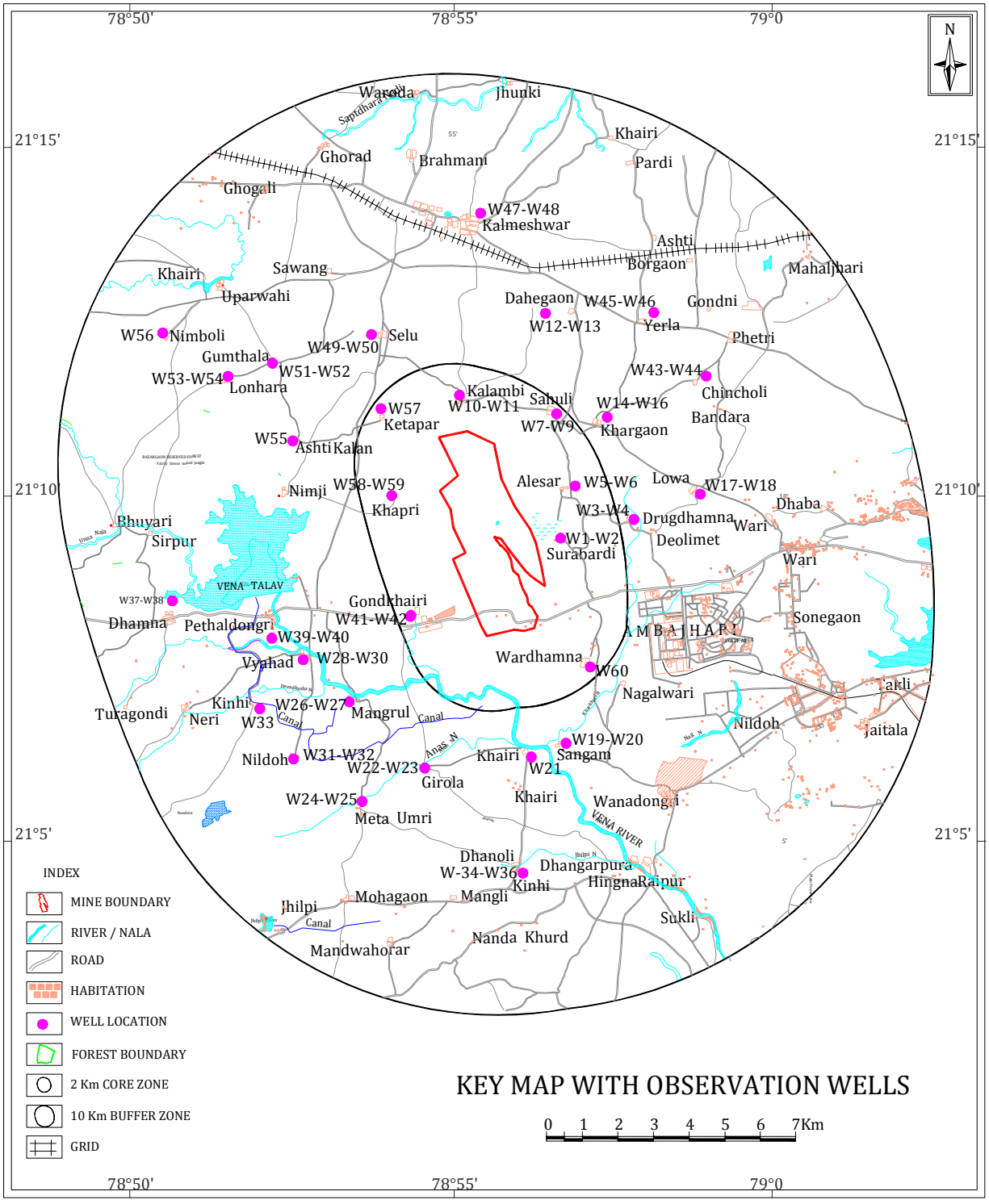


Figure 2.4: Key Map



(Source-Proponent)

Figure 2.5: Surface Plan

2.1 Land Use and Land Cover of the Surrounding Area:

Land use map of core and buffer zone have been prepared based on satellite imagery of the area under reference.

Core Zone – (2 km Radius):

The details of land use are given in **Table 2.1.** Land use map of core zone is given in **Figure 2.6.**

Table 2.1: Land Use in Core Zone

Sr. No.	Details	Area Km^2	% of Area
1	Crop Land	29.75	55.59
2	Deciduous Forest	2.42	4.52
3	Fallow Land	6.16	11.51
4	Stone quarry	0.51	0.95
5	River/Stream/canals	1.02	1.91
6	Rural Habitation	1.97	3.68
7	Scrub land	8.21	15.34
8	Urban Habitation	0.67	1.25
9	Water bodies	1.13	2.11
10	Barren rocky	1.68	3.14
	Total	**53.52**	**100.00**

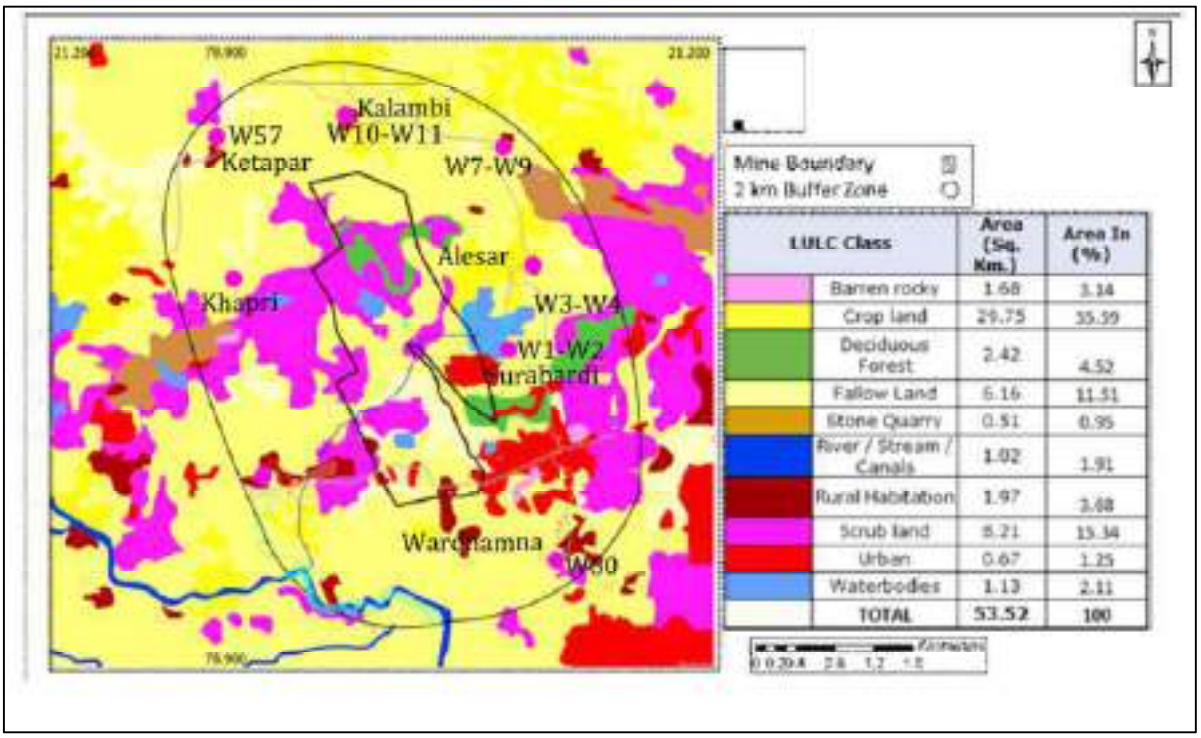


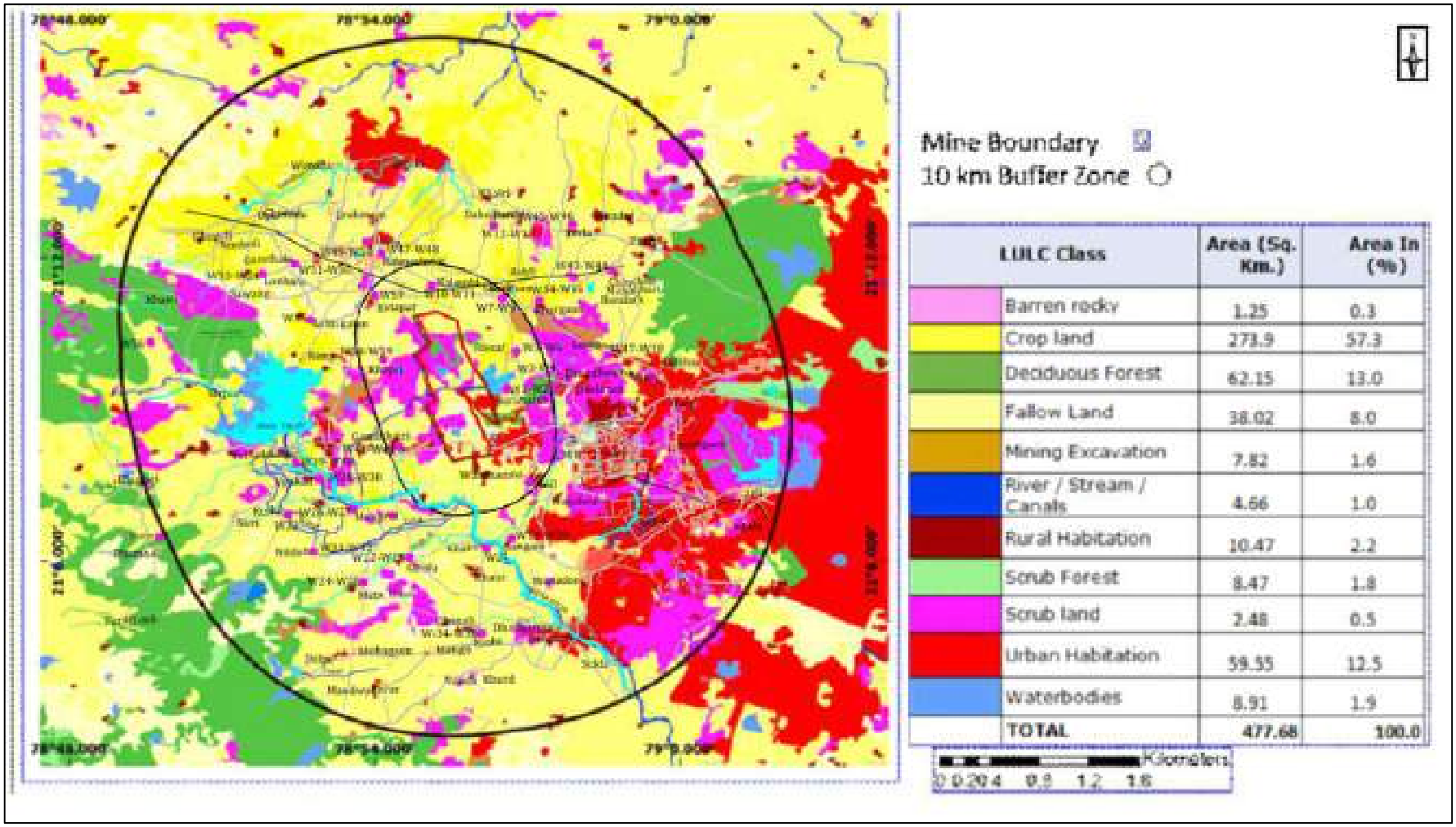
Figure 2.6: Land Use of Core Zone

Buffer Zone:

The details of land use in buffer zone are given in **Table 2.2.** The land use of buffer zone is given as under in **Figure 2.7.**

Table 2.2: Land Use in Buffer Zone

Sr. No.	Details	Area Km^2	% of Area
1	Crop Land	273.9	57.3
2	Deciduous Forest	62.15	13.0
3	Fallow Land	38.02	8.0
4	Mining excavation	7.82	1.6
5	River/Stream/canals	4.66	1.0
6	Rural Habitation	10.47	2.2
7	Scrub Forest	8.47	1.8
8	Scrub land	2.48	0.5
9	Urban Habitation	59.55	12.5
10	Water bodies	8.91	1.9
11	Barren rocky	1.25	0.3
	Total	**477.68**	**100.00**



LULC Class	Area (Sq. Km.)	Area In (%)
Barren rocky	1.25	0.3
Crop land	273.9	57.3
Deciduous Forest	62.15	13.0
Fallow Land	38.02	8.0
Mining Excavation	7.82	1.6
River / Stream / Canals	4.66	1.0
Rural Habitation	10.47	2.2
Scrub Forest	8.47	1.8
Scrub land	2.48	0.5
Urban Habitation	59.55	12.5
Waterbodies	8.91	1.9
TOTAL	477.68	100.0

Figure 2.7: Land use Map of Buffer Zone

2.2 DEM/Topography:

Core Zone:

The topography has gentle slope. In the central-west part of the mine boundary showing low elevation as there is a Surabardi reservoir found. The elevation ranges from 390 m in North, east and central portion to 302 m in Southern region. The Digital Elevation Model (DEM) of core zone is given in **Figure 2.8.**

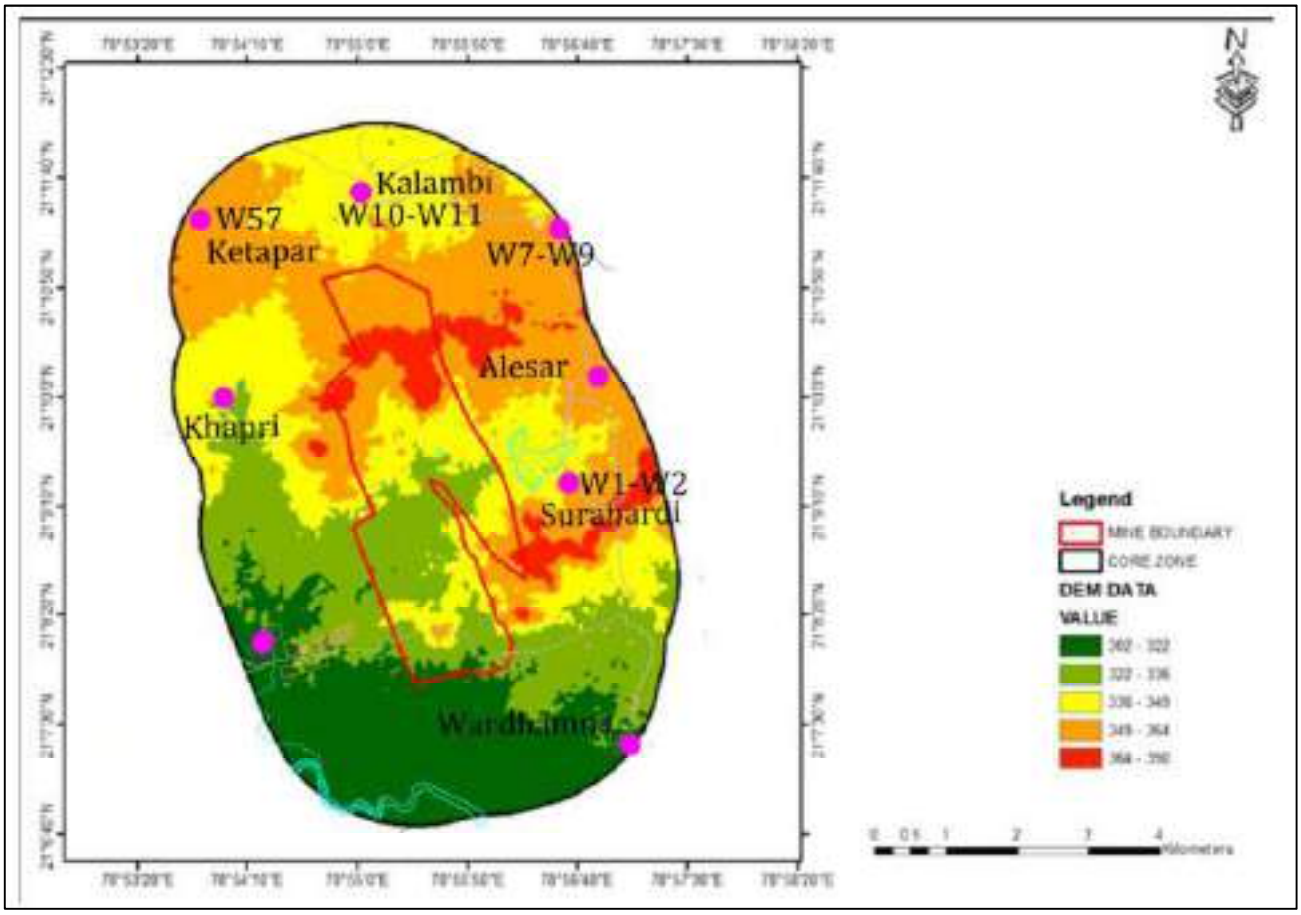


Figure 2.8: **DEM of Core Zone**

Buffer Zone:

The lowest elevation in buffer zone ranges between 286-314 m amsl in southern portion of mine boundary. Inside the mine boundary patches of low elevation is found. Whereas, highest elevation ranges between 393 – 434 m amsl in the western boundary of mine boundary. The DEM of buffer zone is given in **Figure 2.9** and slope analysis map of buffer zone have been done shows highest slope ranges between 27-64 and given in **Figure 2.10.**

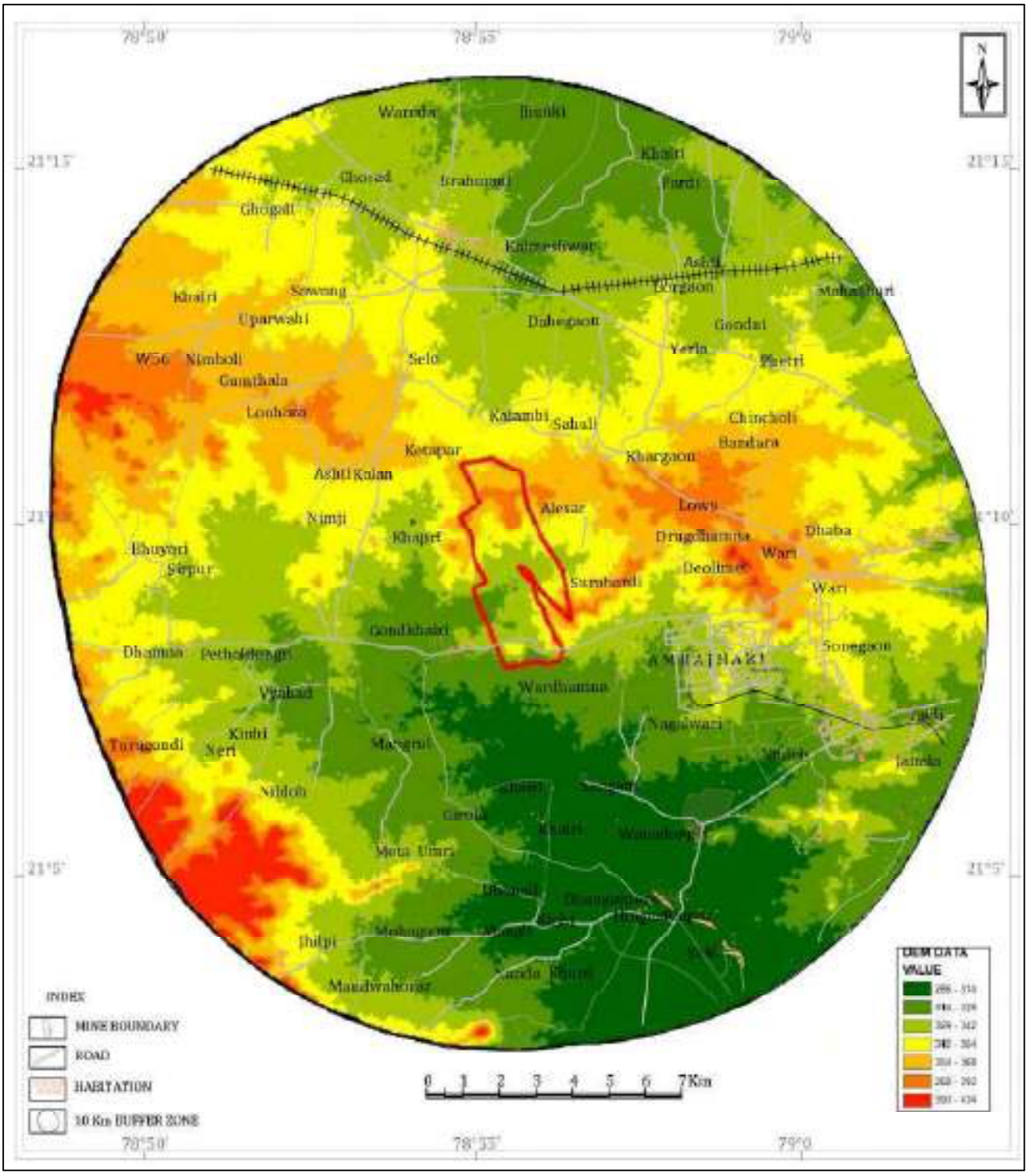


Figure 2.9: DEM of Buffer Zone

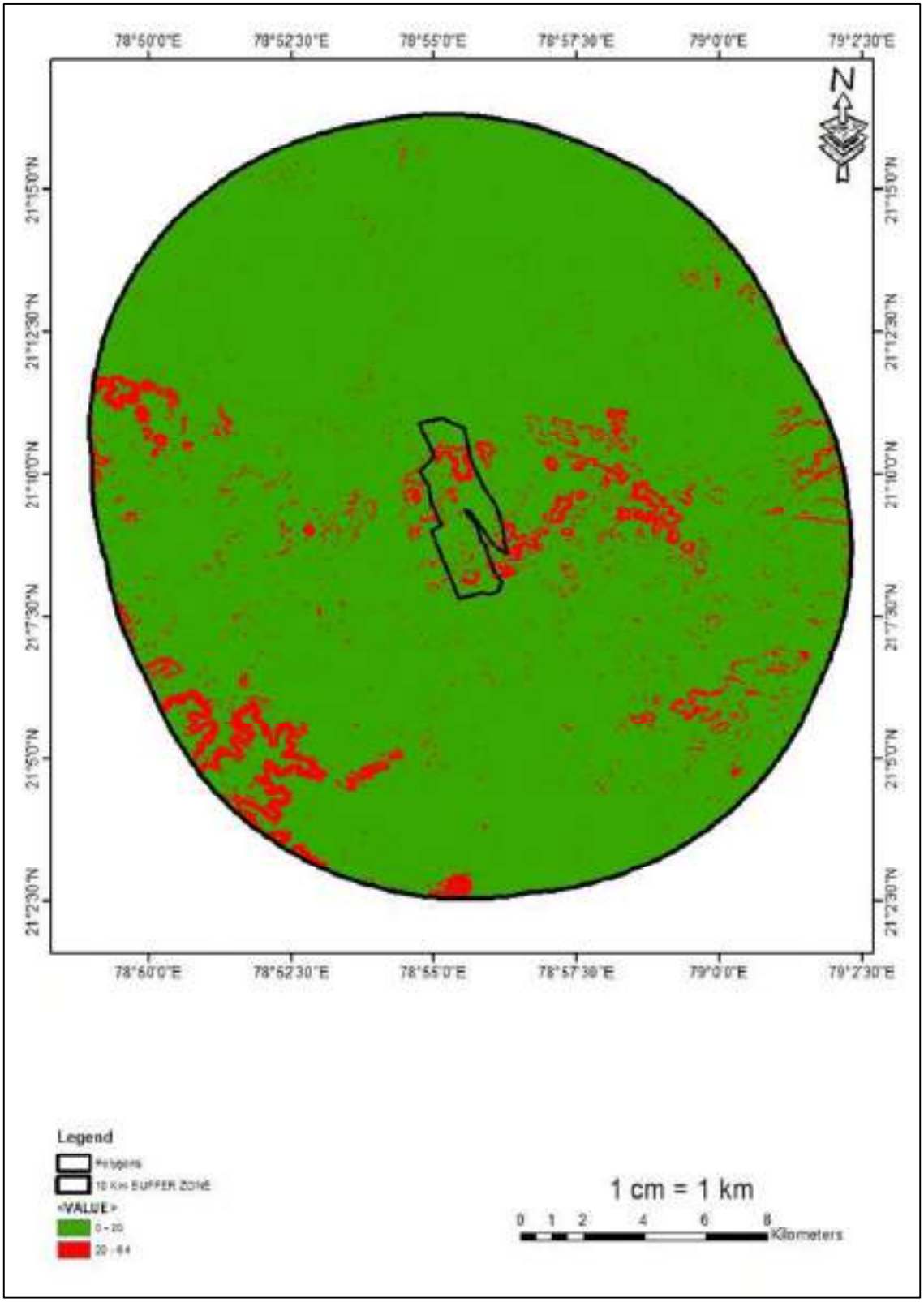
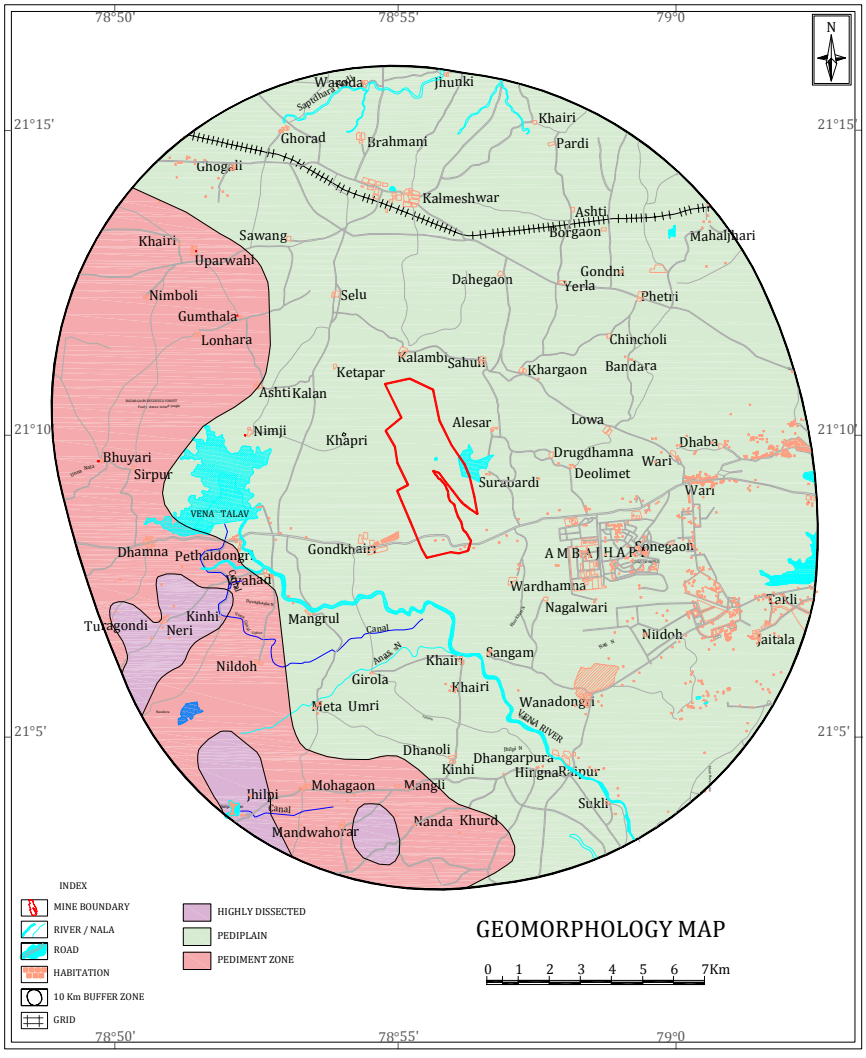


Figure 2.10: Slope map

2.3 Geomorphology & Drainage:

The geomorphology of the area is studied by using District Resource Map. Flat-topped ridges with steep slopes are observed in the northern and southeastern part of the block. The rest of the Gondkhairi block has gentle undulating topography with the general slope towards South and Southwest. Geomorphological map is given in **Figure 2.11.** The geomorphology of the area comes under following.

1. Pediment Zone: pediment zone covers mainly area in the western portion of the buffer zone.
2. Pediplain: pediplain cover almost all area except western portion. The mine lease area also comes under pediplain beds.
3. Highly dissected: In the western flanks of buffer zone small patches is found.



(Source: DRM)

Figure 2.11: Geomorphology Map

Drainage:

The drainage of the block is controlled by the south westerly flowing seasonal nallahs, which originating in the the northern part and meander towards the western part of the block. Two water bodies viz. Surabardi and Karle reservoirs are located in the, central eastern and central western part of the block respectively. These are earthen dams, which are fed by rainwater, and are known to hold water only seasonally. These reservoirs dry up during the peak summer months. The drainage map is given **Figure 2.7**.

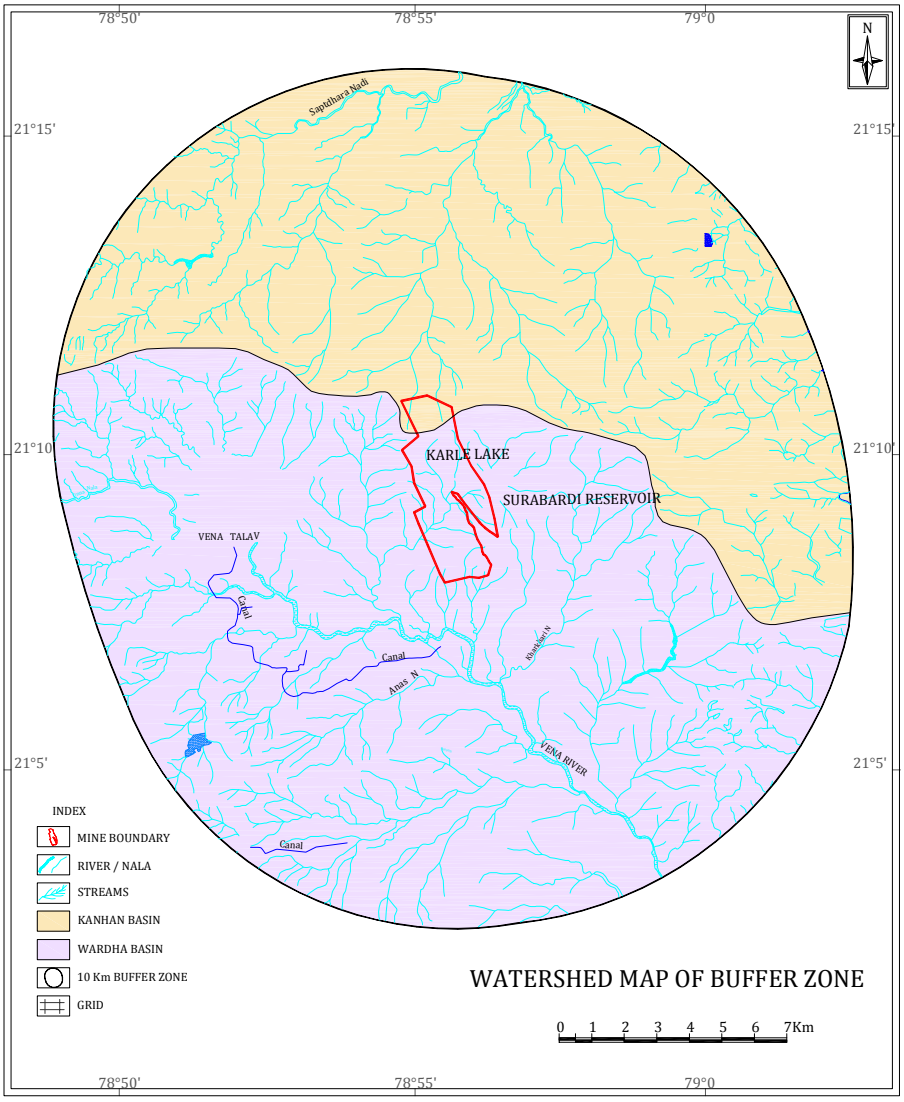


Figure 2.12: Drainage Map

2.4 Details of Wet Lands / Major Water Bodies:

It is recorded that core and buffer zone of mine is not a part of any designated wet land or major water bodies. It is further stated that there is no wet land within 500 m from this project.

Normal rainfall in the study area: The annual normal rainfall is estimated for all stations falling in Wainganga River catchment. Normal rainfall in study area based on 50 years annual data is 1267.4 mm. The month wise average normal rainfall is given in **Table-2.3** and depicted in **Figure-2.13.** Summarized Rainfall data is given in T**able 2.4.**

Table 2.3: Normal rainfall

Station	years of data	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Catchment area	50	7.6	24.9	14.7	19.6	13.7	194.6	392.9	308.1	215.4	56.4	15.7	3.8	1267.4

(Source: IMD)

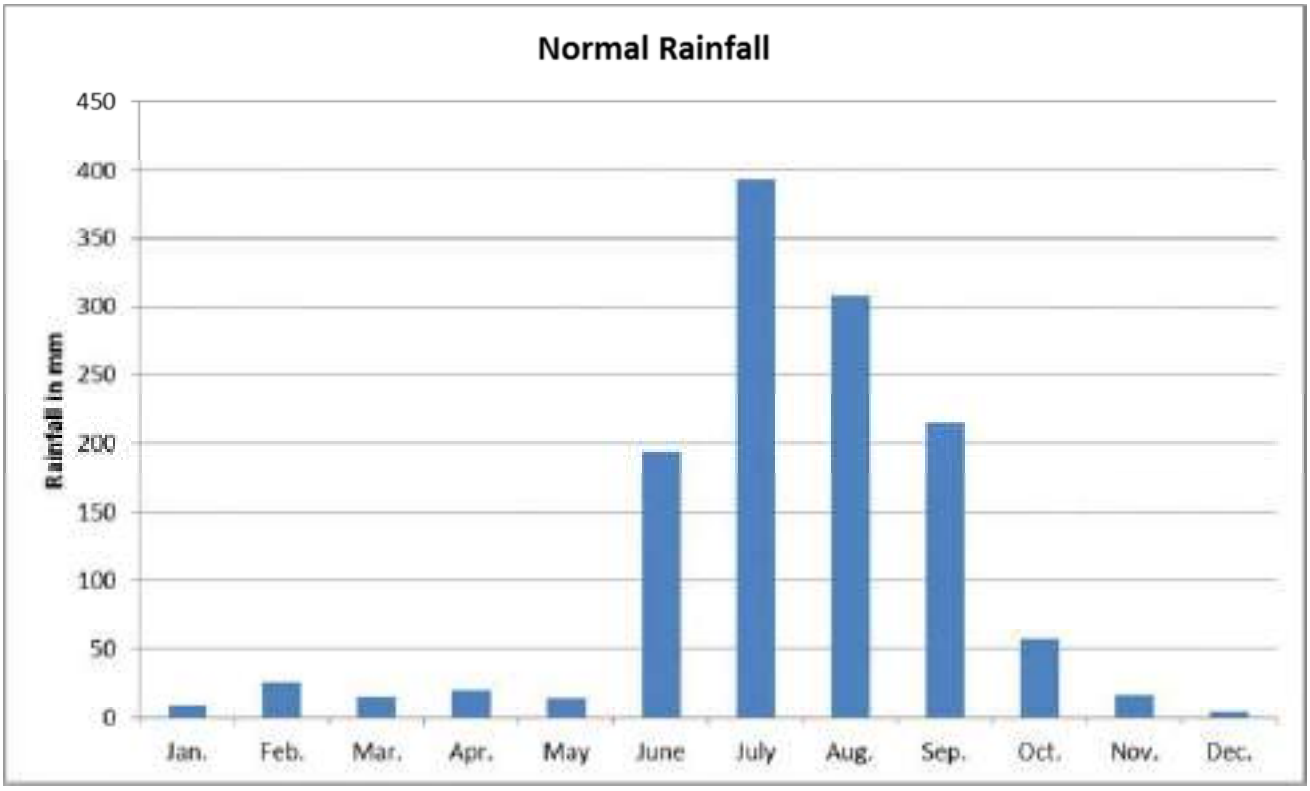


Figure 2.13: Normal Rainfall

Table 2.4: Summarized Rainfall Data

Sl.No.	Type	Months		Normal Rainfall	% of annual normal
		From	To		
1	Late Post-monsoon	Jan.	Feb.	32.5	2.5
2	Pre-monsoon	March	May	48	3.8
3	South-west monsoon	June	Sept.	1111	87.7
4	Post Monsoon	Oct.	Dec.	75.9	6
Annual		**Jan.**	**Dec.**	**1267.4**	**100**

(Source: IMD)

Extreme Rainfall: Extreme rainfall occurring in the area has been worked out by analyzing daily rainfall data of the study area. Analysis has been published by IMD and the subsequent available data were also analyzed and the extreme rainfall occurring in the study area is tabulated in **Table 2.5.**

Table 2.5: Extreme Rainfall

Station (Catchment)	Highest annual rainfall as % of normal & year	Lowest annual rainfall as % of normal & year	Heaviest rainfall in 24 hours	
			Amount mm	Date
Wainganga	187 (1990)	49 (1972)	254.0	12th July 1884

(Source: IMD)

3.0 HYDROGEOLOGY:

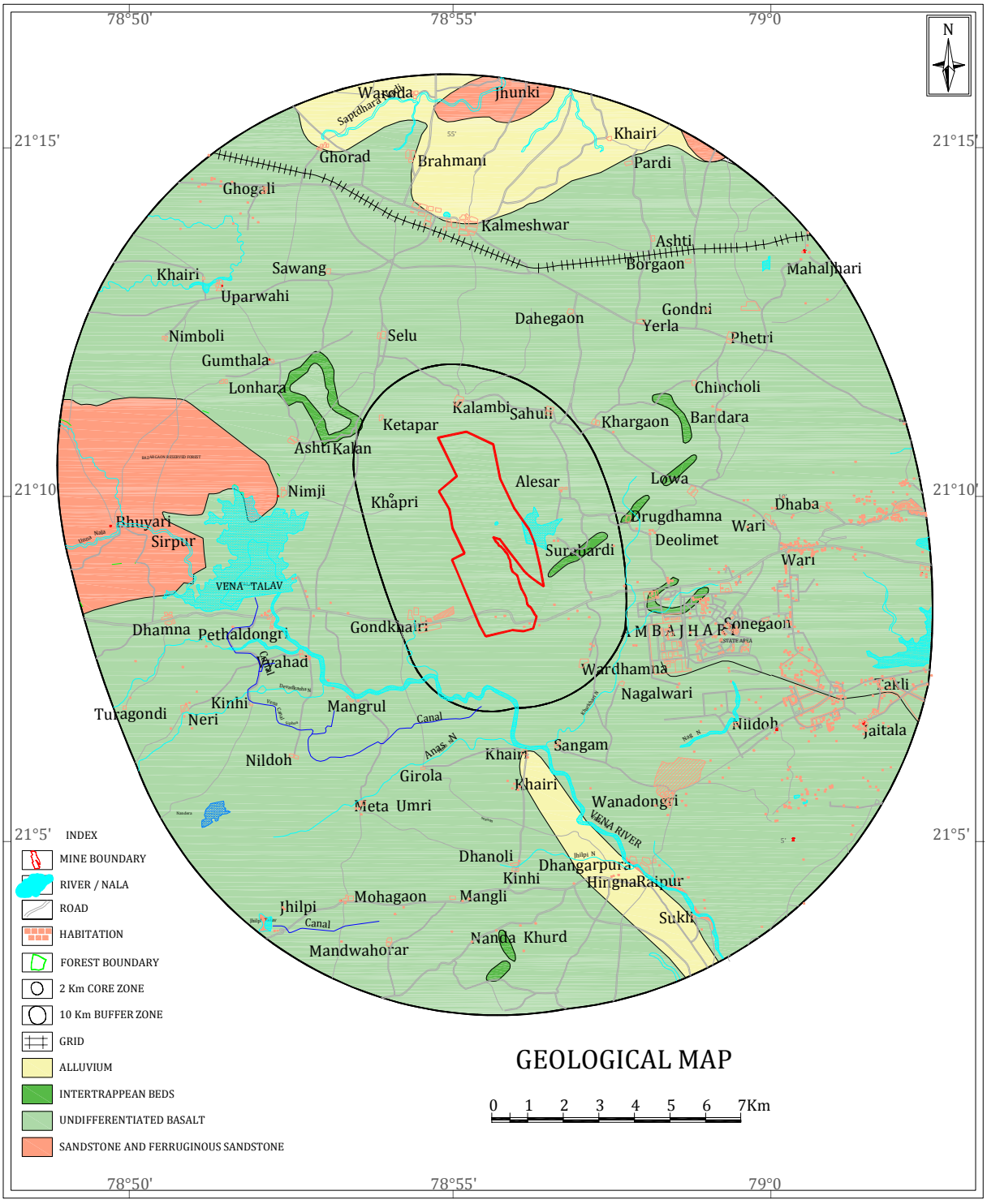
3.1 Geological Setup:

3.1.1 Regional Geology (Buffer Zone):

Geology of Block: The Gondkhairi block under report is geologically located south - west of Saoner - Khandala sub basin of the Kamptee coalfield. The block under report is no exception to the general characteristic of Kamptee coalfield and is capped by a thin cover of weathered mantle followed by thick Deccan trap. None of the Gondwana Lithological units are exposed on surface in the area under report. The geological succession therefore, has been deciphered from the lithologs and subsurface data of boreholes falling within the block. The geological cross sections reveal the subsurface geology of the block. Regional Geology of the buffer zone is given in **Table 3.1.** Regional geological Map is given in **Figure 3.1.**

Table 3.1 Regional Geological Sequence, in Buffer Zone

Age	Formation	Drilled Thickness range (m)	Lithology
Recent to sub-recent	Alluvium/Weathered Mantle	0.30 to 12.00	Black cotton soil sandy with pebbles & weathered Basalt.
Eocene	Deccan Trap	62.20 (CMKGK-29)To 107.00 (CMKGK-16)	Basalts & intratrapeans
Unconformity			
Upper Permian	Kamthis	18.4 (CMKGK-20) To 153.50 (CMKGK-25)	Yellowish brown medium to coarse Grained ferruginous sandstone, shale and clay.
Unconformity			
Middle Permian	Moturs	Not encounter in the block	
Lower Permian	Barakars	17.00 (CMKGK-28) to 182.02 (MKH -16)	Fine to coarse grained sandstone, sandy shale alternate shale & SSt shale, carb shale and coal seams.
Upper Carboniferous	Talchirs	3.00 (MKH-16) to 9.00 (CMKGK-15)	Fine grained greenish sst. And greenish shale.
Archaeans	Metamorphics	-	No borehole was drilled up to metamorphic

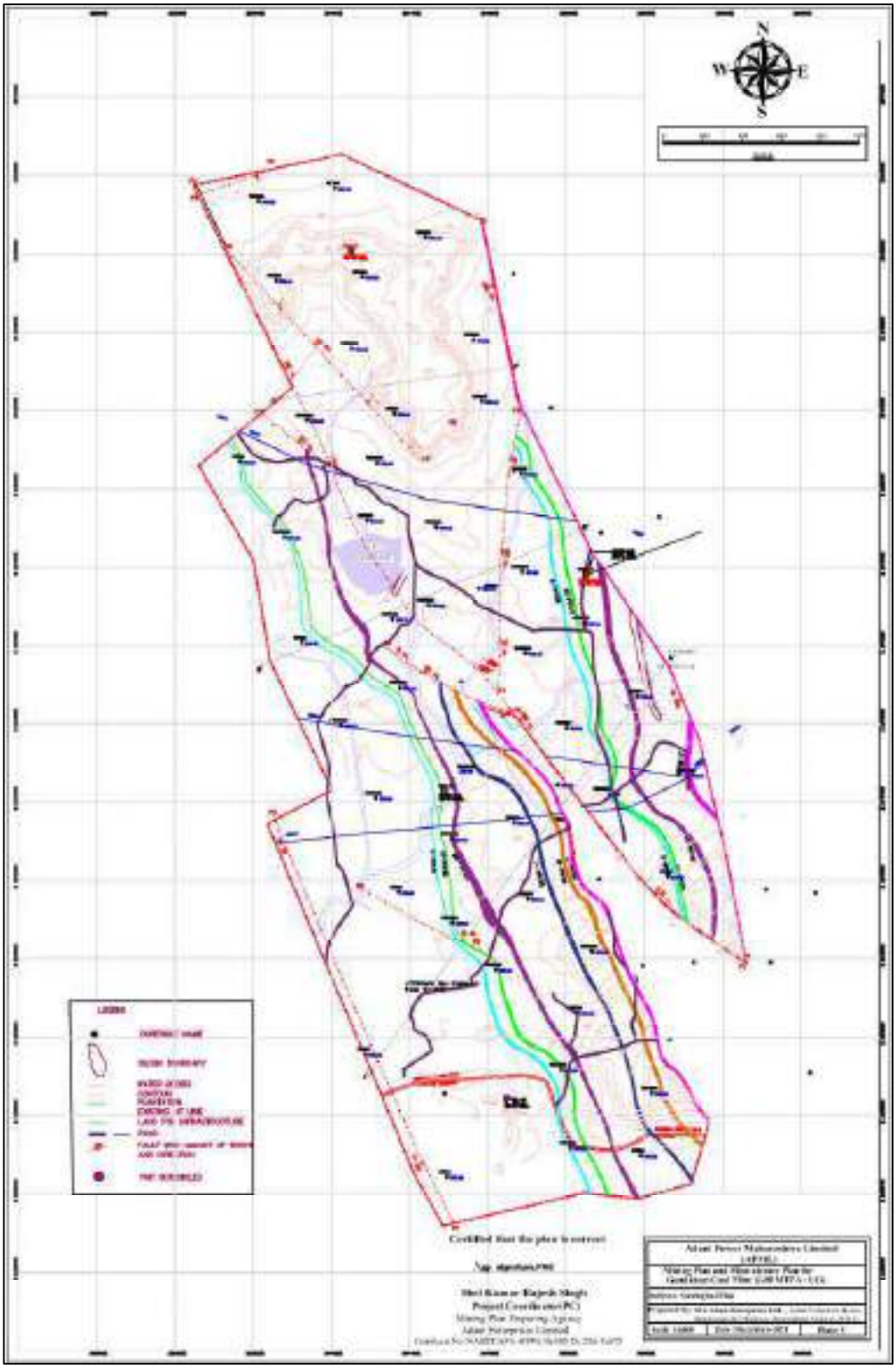


(Source: DRM)

Figure 3.1: Regional Geological Map

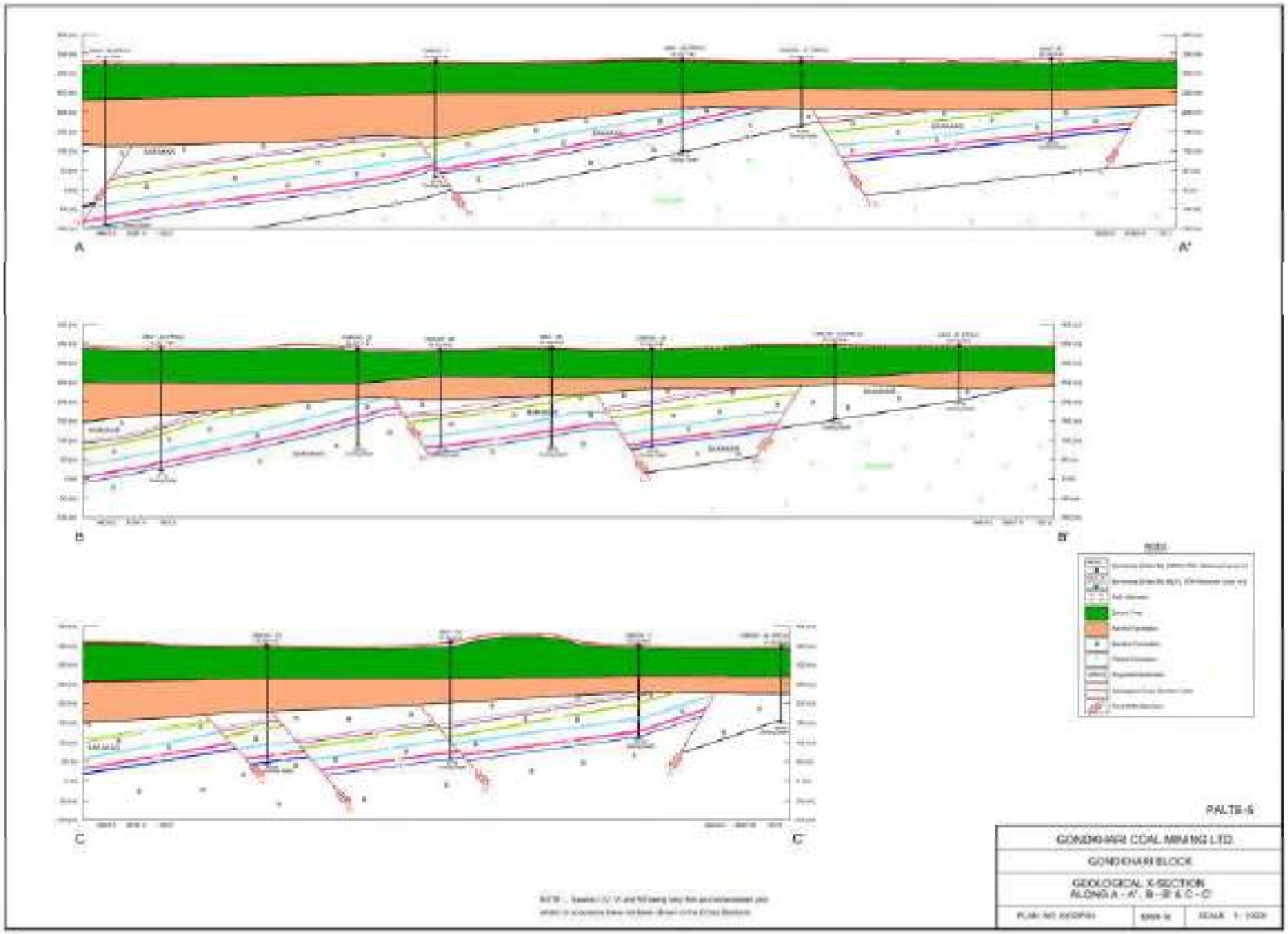
3.1.2 Local Geology (Core Zone):

Local geological plan is given in **Figure 3.2** and Geological sections are given in **Figure 3.3.**



(Source: Proponent)

Figure 3.2: Geological Plan



(Source: Proponent)

Figure 3.3: Cross sections

Description of formations:

Talchirs: Talchirs have been intersected in ten boreholes in the eastern part of the block, beyond the sub-crop of coal seams. The Talchir are represented by fine grained greenish sandstone and shales.

Barakars: The Barakars in the block are represented by fine to coarse grained sandstone, sandy shale, shale, carb, shale and contain all the ten group of seams of the block.

Moturs: Moturs are known to be conformable with the underlying Barakars, in the Kamptee Coalfield. However within the Gondkhari block, this formation has not been encountered.

Kamthis: The Kamthis have been found to overlap the underlying formations unconformably and are represented by yellowish brown medium to coarse grained ferruginous sandstones, shale and clay. The upper 10 - 20 m of this formation in contact with the Deccan trap are found to be heat affected and are represented by highly silicified and hard fine grained sandstone.

Deccan Trap: Several flows of basalt have been encountered separated by intertrappeans consisting of clay and calcarious beds.

Alluvium/Weathered Mantle: Alluvium in this block consist thin layer of black cotton soil and sandy soil with pebbles. The weathered mantle includes the upper most weathered portion of basalt below the soil cover.

Intrusive: The block is devoid of any intrusive dykes or sills as such the seams in the block are not heat effected.

Geological structure:

The Gondkhari block under report is covered by a thick layer of Deccan trap followed by a blanket of Kamthis. Except for the Deccan trap none of the formations are actually exposed on the surface in the block. The geological structure therefore, as depicted in the floor contour plans for various seams is therefore based on the subsurface data generate d from boreholes. Structurally Gondkhairi block is moderately complicated. The block exhibits the presence of nine faults. The major faults have a trend of NW-SE i.e. sub parallel to the strike of beds whereas the minor faults are oblique faults.

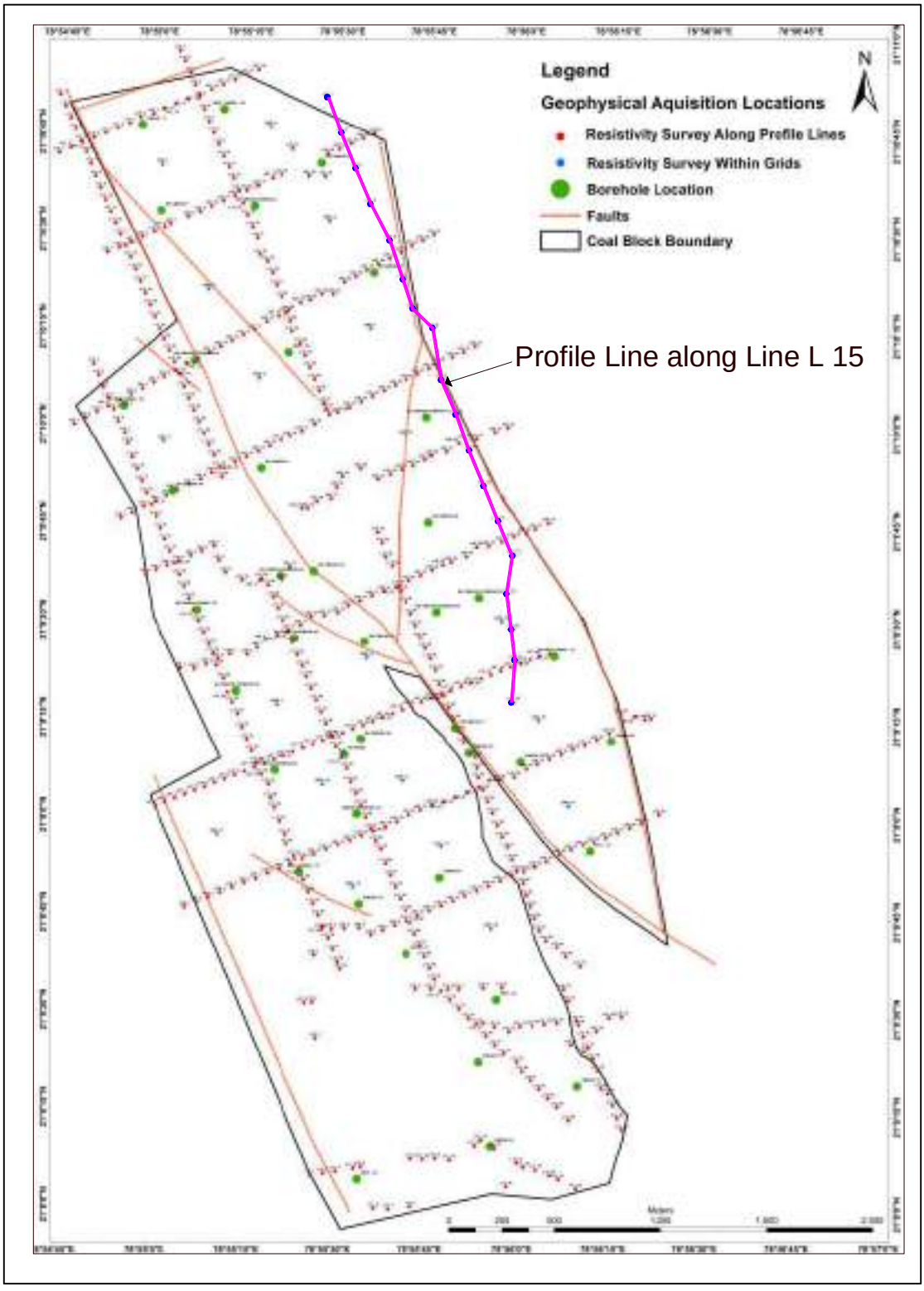
Strike and dip of strata:

The general strike of the beds in the block as deduced from the floor contour of the coal seams is NNW - SSE with westerly dip. The seam gradient generally varies from 1 in 2.5 to 1 in 6.5 (i.e. dip of about 9° 220) gradient is steep in the west-central part where as it is comparatively flat in southern eastern & northern part of the block.

3.1.3 Geophysical Survey:

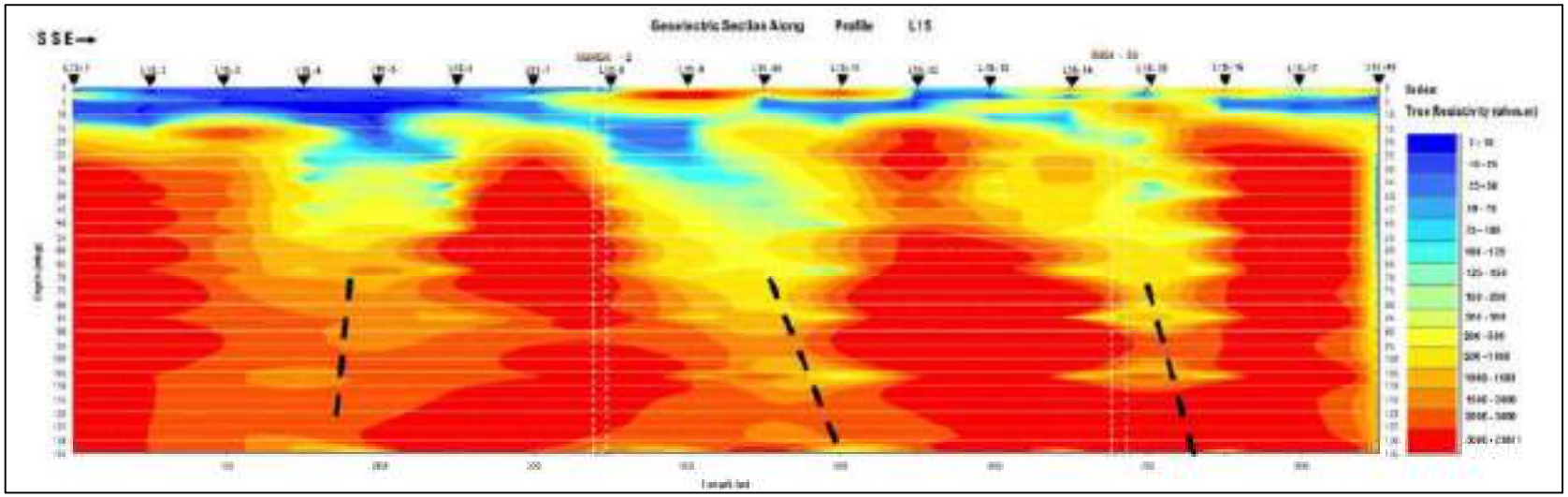
Methodology and Geophysical Survey

Proponent M/s. Adani Power Maharashtra Limited has engaged M/s. AKD GSPL for Geophysical survey to understand geophysical regime in the mining block area. In this regard AKDGSPL carried out Electrical Resistivity Survey comprising Vertical Electrical Sounding (VES) along predefined 40 Km profile lines covering whole area of Gondkhairi U/g Coal block, Kamptee Coalfield, Maharashtra to bring out the near subsurface information in terms of electrical resistivity anomalies and inferred ground water condition. In total 586 numbers of VES have been conducted to cover the whole area. Field multi point VES data acquisition were carried out in the span of three months started on 21.01.2022 and completed on 08.04.2022. The VES survey was carried out in 15 predefined profiles in the interval of 60 / 70 m (approx.). In addition 20 numbers of VES points gathered in between the grid to bring out spatial distribution of the geo-electrical behavior of the study area. Location of Geophysical Acquisition Location is given in **Figure 3.4**. All the field data so obtained were processed with the help of computer-based software and conceptually interpreted. On the basis of interpreted results iso-resistivity contour maps, Geo-electric sections and Spatial Geophysical Models were prepared to understand the hydro geology and shallow formation structure (up to depth of 140 m). Geophysical Profile along Profile Line L15 in the project area is given in **Figure 3.5.**



(Source: Proponent)

Figure 3.4: Geophysical Acquisition Location



(Source: Proponent)

Figure 3.5: Geophysical Profile along Profile Line L15 in the project area

Discussion:

This study uses geophysical data to derive spatial maps of the thickness of soils, weathered, subsurface fractures and aquifer thickness to understand the groundwater scenario in the project area. The resistivity of basalt ranges from 5 Ω.m to 1500 Ω.m. Basalt formations having resistivity < 20 Ω.m are rich in clay or moist. Basalts having resistivity > 20 to 80 Ω.m are weathered to semi-weathered formations forming major water-bearing unconfined aquifers. Basalts having resistivity > 80 Ω.m to 350 Ω.m are mainly fractured, whereas basalts having resistivity > 350 Ω.m to 700 Ω.m are massive but have verticle micro fractures and contact joints.

Below 60 to 115 m of basalt, consolidated and semi-consolidated sedimentary formations of Gondwanas are placed owing resistivities > 500 Ω.m. The resistivities of Gondwanas go < 400 Ω.m if these formations are semi- consolidated, structurally deformed, or have shale/ clay-shale pockets/beds. The resistivity data indicated soils, weathered and fractured rocks of the project area. In the project area, several types of resistivity curves were observed indicating geological setting is quite different spatially and are particularly in basalts. These dissimilarities have been mainly arrived due to structural deformations/weaker zones and flow contact and their saturation. Moreover, the spatial apparent resistivity maps have enabled to narrow down the discrepancy of the interpretations and increased the accuracy in demarcating the possible weaker zones caused by fracture/joints.

Thus, in the project area, structural settings of the subsurface have an important role. Based on resistivity results, deep aquifers are location specific and their depth and efficiency mainly depend on the availability of fracture/joints at significant depth, interspacing, and size. In the area at most places, basalts from multilayered aquifers having alternate beds of weathered-fractured rocks also fractured-massive-fractured-weathered beds, which is indicating the presence of unconfined, semi-confined, and confined groundwater conditions. Shallow to medium aquifers often are mainly unconfined and almost occur in the entire project area if these aquifers have significant thickness.

3.2 Hydrogeological Setup:

3.2.1 Aquifer Characteristics:

Basalt is the main formation occupies on area of about 461 km^2. Ground water occurs under phreatic condition in the exposed lava flows and in the semi confined to confined state in the sub-surface Gondwana sandstone. Ground water is present in pore spaces in the vesicular unit and in the jointed and fractured portion of both basalt and Gondwana Sandstone/shale. However, secondary porosity and permeability developed on account of weathering fracturing and joint. These factor play an important role in the storage and movement of groundwater. This has given rise to good aquifers. The coal seams act as aquitard and also confining bed.

Kamtee formation shows very compactness hence, hydraulic conductivity is low. Whereas, in case of Barakar formation shows very low compactness hence hydraulic conductivity is high as compares to kamtee formation.

Study reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump.

The buffer zone area under study falls in Basalt and underlying the Gondwana formation with primary and secondary porosity where a group of aquifers.

Aquifer Parameters from Pumping Test:

3.2.2.1 Pumping Test:

Pumping test was carried out between 10.02.2022 to 12.02.2022. The tests were done in two stages i.e., step drawdown test on Hydrogeological well followed by APT long duration tests on pumping well with monitoring of drawdown in all observation well. All the tests were conducted with submersible pumps operated with generator sets. The step drawdown tests were conducted in three steps with 60 minute duration of each step. The long duration tests were conducted for 1304 minutes. The pumped out water was discharged through container and pipe down into nala in order to avoid return flow into aquifer.

3.2.2.2 Pumping test data analysis:

Analysis of pumping test data is given under two heads namely, Step Drawdown Test data and Aquifer Performance Test data.

Step Drawdown Test: The Step Drawdown Test (SDT) data was used to determine the well characteristics by using the standard graphical methods. The Step Drawdown Test Data is given in **Table 3.2**. Graphical plot is given in **Figure 3.6**.

Table 3.2: Step Drawdown Test Data

STEP DRAWDOWN TEST DATA				
Clock (pm)	**Time since Pump start in minutes**	**Drawdown (m)**	**Remarks**	
4.00	0	0.00	Step-I Q=6 LPS- 518.4 m^3/day	
	1	0.86		
	2	1.23		
	3	1.51		
	4	1.75		
	45	1.98		
	6	2.22		
	7	2.42		
	8	2.65		
	9	2.82		
	10	3.00		
	12	3.10		
	14	3.15		
	16	3.30		

	18	3.45		
	20	3.60		
	25	3.90		
	30	4.20		
	35	4.40		
	40	4.60		
	45	4.70		
	50	4.80		
	55	4.90		
5	60	5.00		
	70	5.60	Step-II Q=7 LPS- 604.8 m^3/day	
	80	5.80		
	90	6.00		
	100	6.20		
	110	6.40		
6	120	6.60		
	130	7.38	Step-III Q=8 LPS- 691.2 m^3/day	
	140	7.48		
	160	7.74		
7	180	7.77		

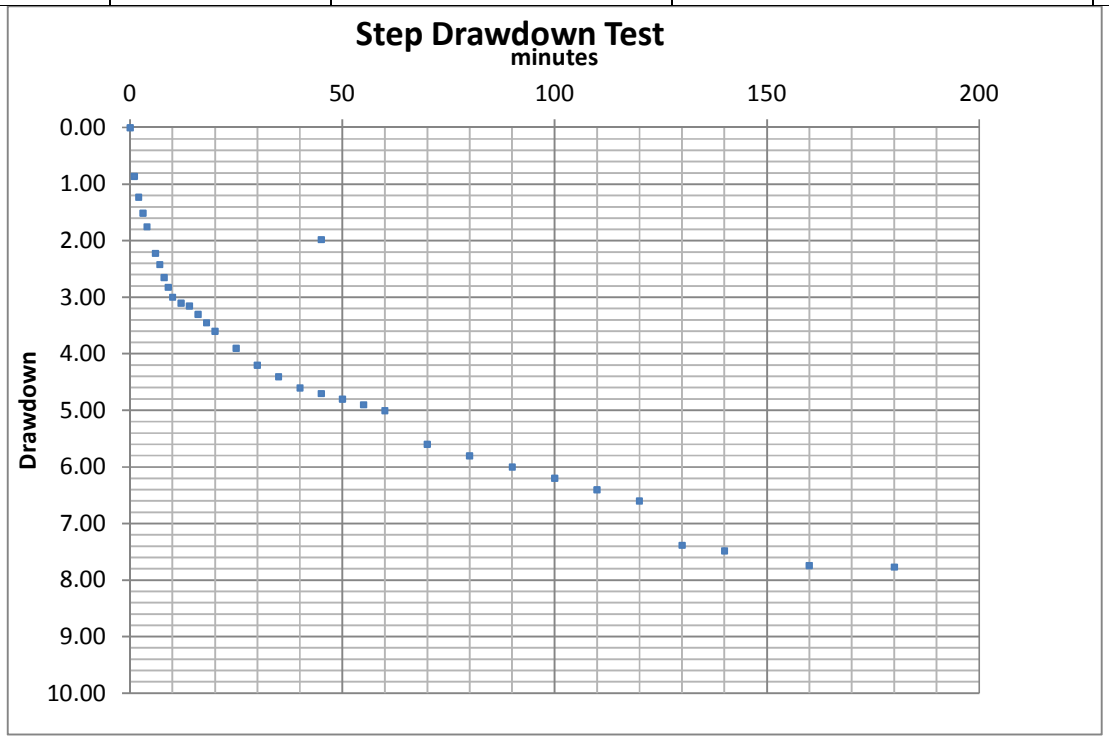


Figure 3.6: Step Drawdown Test Data

Analysis of Step Drawdown Test (STD): The step drawdown test (STD) data was analyzed to determine well characteristics by using graphical method. The data is placed in **Table 3.3** and graphically given in **Figure 3.7.**

Table 3.3: Analysis of Step Drawdown Test Data

Step	Dura-tion	Discharge Q m^3/day	Draw-down S m	Specific Capacity Q/s m^2/d	Specific draw-down S/Q m^2/d	Formation Loss Coefficient B	Well Loss Coefficient C	Formation Loss BQ	Well Loss CQ^2	Theorotical drawdown BQ + CQ2	Well Efficiency
I	60	518.4	5	103.68	0.009	0.028	$1.1 X 10^{-5}$	1.56	2.96	4.52	90.4
II	60	604.8	6.6	91.63	0.010	0.028	$1.1 X 10^{-5}$	1.8	4.02	5.83	88.33
III	60	691.2	7.7	89.77	0.011	0.028	$1.1 X 10^{-5}$	2.07	5.26	7.33	95

It is decided to conduct Aquifer Performance test on 90.40 % as mid value for extended drawdown if any.

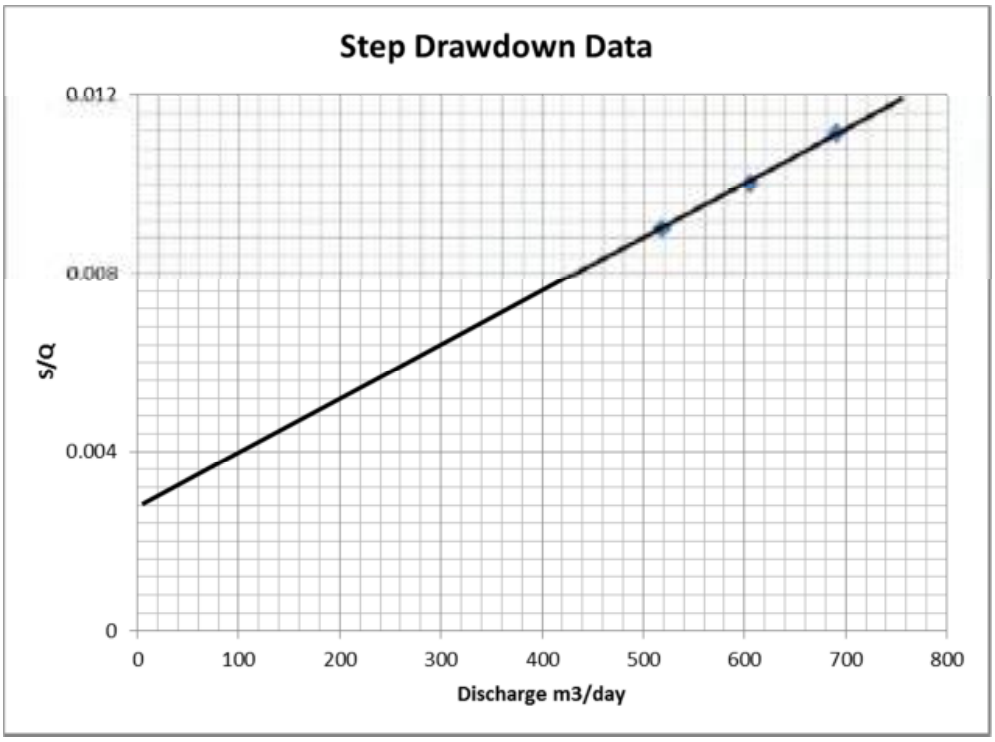


Figure 3.7: Analysis of Step Drawdown Test Data

Drawdown in Pumping Well:

Drawdown data in pumping well is given **in Table 3.4** and graphically given in **Figure 3.8**

Table 3.4: Drawdown data in Pumping Well

Time since Pump start in minutes	Drawdown (m)	Time since Pump start in minutes	Drawdown (m)
0	0	55	6.36
1	0.72	60	6.59
2	1.05	70	7.06

Time since Pump start in minutes	Drawdown (m)	Time since Pump start in minutes	Drawdown (m)
3	1.28	80	7.45
4	1.52	90	7.8
5	1.74	100	8.11
6	1.95	150	9.34
7	2.13	200	10.17
8	2.3	250	10.89
9	2.48	300	11.45
10	2.64	350	11.97
12	2.94	400	12.41
14	3.22	450	12.82
16	3.47	500	12.87
18	3.7	600	12.97
20	3.91	700	13.03
25	4.4	800	13.18
30	4.85	900	13.27
35	5.22	1000	13.39
40	5.53	1100	14.31
45	5.82	1200	14.62
50	6.08	1500	14.81

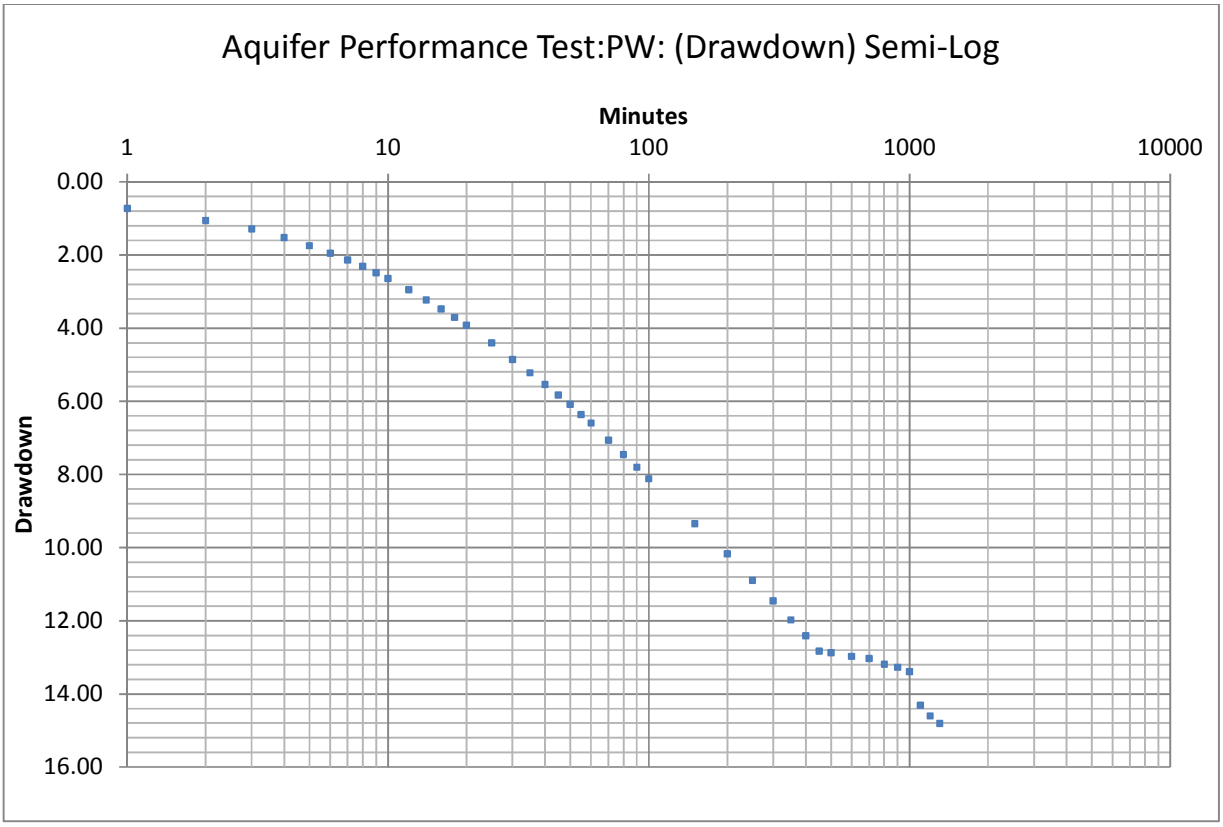


Figure 3.8: Drawdown data in Pumping Well

Drawdown in Observation Well (20 m):

Drawdown data in observation (20 m) well is given **in Table 3.5** and graphically given in **Figure 3.9.**

Table 3.5: Drawdown data in Observation Well

Time since Pump start in minutes	Drawdown (m)	Time since Pump start in minutes	Drawdown (m)
0	0.00	55	0.33
1	0.05	60	0.34
2	0.12	70	0.36
3	0.15	80	0.37
4	0.20	90	0.40
5	0.22	100	0.44
6	0.25	150	0.48
7	0.25	200	0.50
8	0.26	250	0.53
9	0.27	300	0.54
10	0.27	350	0.56

Time since Pump start in minutes	Drawdown (m)	Time since Pump start in minutes	Drawdown (m)
12	0.27	400	0.57
14	0.28	450	0.58
16	0.28	500	0.59
18	0.30	600	0.60
20	0.30	700	0.62
25	0.32	800	0.63
30	0.32	900	0.64
35	0.30	1000	0.65
40	0.32	1100	0.65
45	0.32	1200	0.66
50	0.32	1500	0.67

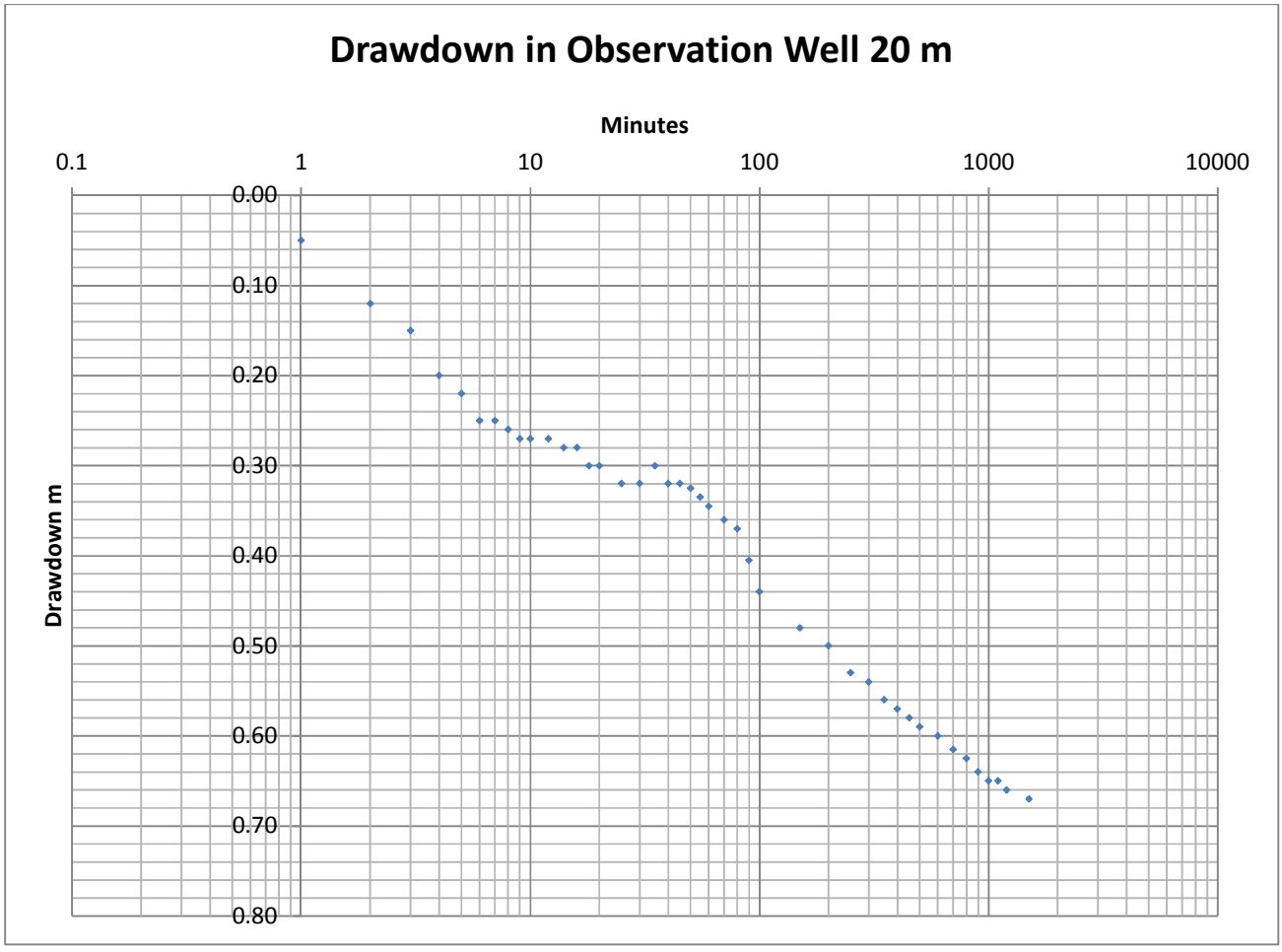


Figure 3.9: Drawdown data in Observation Well

Aquifer Parameter Estimation:

The drawdown data of observation well (drawdown & time) is considered for aquifer parameters determination using the Jacob modified formula as below:

$$T = \frac{2.30\,Q}{4\pi\,\Delta S} \qquad K = \frac{T}{D} \qquad S = \frac{2.25 \times T \times t_0}{R^2}$$

Where,

Q = 518 m^3/day

ΔS = 0.25 m (From Semi log plot drawdown over one log cycle)

D = 134 m Thickness of aquifer

T = Tranmsimissivity m^2/d

K = Hydraulic Conductivity

S= Storativity

t_0= 0.4 in minutes from Semi log of Observation well, to convert into days divide by 1440

$$T = \frac{2.30 \times 518}{4 \times 3.14 \times 0.25}$$

T = 386 m^2/day

K = 386 / 134 = 2.88 m / day

S= 2.25 x 386 x 0.4/20 x 20 x 1440

S= 0.00060 Say 6.0 x 10^{-4}

1. **Tranmsimissivity (T) = 386 m^2/day**
2. **Hydraulic Conductivity (K) = 2.88 m/day**
3. **Storativity (S) = 6.0 x 10-4**

This parameter will be used in Estimation of Mine Seepage

3.2.3 Ground water Flow and Aquifer Interaction with Surface Water Bodies:

As per Central Ground water Authority core zone is considered as 2 km radius and buffer zone is considered 10 km radius.

Well inventory of 31 numbers dug wells in 31 villages in shallow aquifer had been carried out in the core zone and the buffer zone. The water level data is furnished in **Table 3.6** and core zone in **Table 3.7** in respect of buffer and core zone respectively and location of observation wells is given in **Figure 3.10.**

The water table map of core zone and buffer zone have been prepared with reference to mean sea level (msl) at the contour interval of 10 m. Water table map of Buffer zone for pre monsoon is prepared by using well inventory data collected during field work and water table map is given in **Figure 3.11 (a)** for buffer zone and **Figure 3.11 (b)** for core zone**.**

In buffer zone, lowest water table contour is found to be 260 and highest water table contour 340 m amsl. In northern part of buffer zone water table flow direction is towards North direction whereas, in southern portion of buffer zone flow is towards southern side.

In western part of the mine boundary Vena talav is seen from where Vena River starts and almost water table is following Vena River. Vena River is contributing to Wardha River. In mine boundary, Small Surabardi reservoir is present. Vena River is moving from West to South direction in buffer zone. Groundwater movement mainly takes place through the secondary openings, fractures etc. controlled mainly by the hydraulic conductivity of the aquifers and hydraulic gradient. The hydraulic gradient of mine area is estimated to the tune of 1.3×10^{-3}.

Table 3.6: Water Level Data: Buffer zone and Core zone

S.N.	Name of Village	Field Code	Type of well	Lattitude	Longtude	Dia (m)	Ht. Of Parapet (m)	Depth (m)	Depth of lining (m)	Nature of Lining	SWL		Fluctuation
											Pre-Mon	Post-Mon.	
1	Surabardi	W-1	DW	21° 9'21.03"	78°56'36.78"	2.60	0.35	6.85	3.95	Stone	8.80	3.97	4.83
2	Drugdhamna	W-3	DW	21° 9'35.56"	78°57'35.17"	3.81	0.85	10.70	3.45	Stone	4.75	3.51	1.24
3	Alesur	W-5	DW	21°10'7.42"	78°56'39.67"	2.67	0.45	12.55	1.66	Stone	9.95	3.85	6.10
4	Sahuli (Mahuli)	W-7	DW	21°10'2.83"	78°58'27.08"	3.00	0.52	16.48	1.37	Stone	11.23	4.48	6.75
5	Kalambi	W-10	DW	21°11'15.26"	78°56'29.03"	5.80	1.38	11.02	2.62	Concrete	9.97	3.22	6.75
6	Dahegaon	W-12	DW	21°11'6.19"	78°57'4.93"	3.60	0.70	8.24	2.30	Stone	8.1	5.40	2.70
7	Khadgaon	W-14	DW	21°11'46.42"	78°58'44.12"	3.80	0.30	20.40	1.60	Stone	8.35	6.00	2.35
8	Lawa	W-17	DW	21°11'24.71"	78°55'10.48"	5.65	0.57	8.30	5.43	Concrete	8.83	4.58	4.25
9	Sangam	W-19	DW	21°12'48.38"	78°56'9.80"	2.32	0.45	8.50	4.55	Stone	7.85	7.30	0.55
10	Khairi	W-21	DW	21°13'10.80"	78°57'52.58"	2.80	0.56	11.14	7.94	Stone	9.64	8.69	0.95
11	Girola	W-22	DW	21°14'3.74"	78°55'24.09"	2.60	0.50	7.66	3.10	Stone	6.20	3.10	3.10
12	Metaumri	W-24	DW	21°12'33.63"	78°53'51.05"	3.20	0.45	8.55	2.55	Stone	4.65	2.25	2.40
13	Mangrul	W-26	DW	21°11'12.47"	78°53'51.72"	3.10	0.50	5.10	2.90	Stone	3.50	2.95	0.55
14	Vyahad	W-28	DW	21°11'57.62"	78°52'29.55"	2.70	0.90	5.80	3.00	Stone	4.00	3.90	0.10
15	Nildoh	W-31	DW	21°11'43.94"	78°51'29.35"	3.64	0.60	8.90	2.40	Stone	6.15	3.00	3.15
16	Kinhi	W-33	DW	21°12'26.15"	78°50'34.75"	4.50	0.70	7.40	3.20	Stone	7.15	3.55	3.60
17	Niri	W-34	DW	21°10'47.75"	78°52'37.63"	2.80	0.38	10.02	1.32	Stone	6.92	5.12	1.80
18	Dhamana	W-37	DW	21° 9'56.97"	78°54'3.40"	5.60	0.00	6.30	1.70	Stone	6.30	1.75	4.55
19	Peth (kaldongri)	W-39	DW	21° 8'7.43"	78°54'18.41"	4.10	0.45	3.55	2.35	Stone	3.25	2.35	0.90
20	Gonkhairi	W-41	DW	21° 8'17.89"	78°50'43.26"	3.40	0.72	10.53	2.68	Stone	6.08	3.78	2.30
21	Chicholi	W-43	DW	21° 7'40.66"	78°52'38.66"	3.10	0.52	12.03	1.58	Stone	7.18	2.88	4.30
22	Yerla	W-45	DW	21° 7'23.83"	78°52'49.21"	3.05	0.85	13.05	6.05	Stone	9.95	7.15	2.80
23	Kalmeshwar	W-47	DW	21° 6'59.47"	78°53'40.14"	2.40	0.70	13.30	5.30	Stone	8.20	4.80	3.40
24	Selu	W-49	DW	21° 6'54.70"	78°52'12.80"	3.05	0.80	10.25	4.85	Stone	10.05	6.00	4.05
25	Gumthala	W-51	DW	21° 6'1.55"	78°52'42.12"	1.60	0.52	10.48	3.08	Stone	9.96	6.28	3.68
26	Lonara	W-53	DW	21° 6'0.04"	78°54'25.72"	2.30	0.35	14.35	5.15	Bricks	14.15	11.55	2.60
27	Ashtikala	W-55	DW	21° 5'20.83"	78°53'34.21"	3.30	0.60	13.10	5.70	Stone	12.70	4.10	8.60
28	Nimji	W-56	DW	21° 4'32.02"	78°55'57.35"	5.55	1.00	13.20	5.30	Stone	8.10	3.45	4.65
29	Khetapar	W-57	DW	21° 5'48.02"	78°55'58.92"	2.80	0.20	5.80	3.35	Stone	5.10	4.80	0.30
30	Karla (Khapi)	W-58	DW	21° 6'25.20"	78°56'38.70"	4.70	0.35	9.65	2.05	Stone	6.85	4.65	2.20
31	Wad-dhamna	W-60	DW	21° 7'38.19"	78°56'58.23"	4.75	0.60	9.90	3.10	Stone	6.60	3.30	3.30

Table 3.7: Well inventory data of Core Zone

Well No.	Location	Dia of Well	Depth of well	Depth to Water level m		Annual Fluctuation
		m	m	Pre Monsoon	Post Monsoon	m
W-1	Surabardi	2.6	6.85	8.8	3.97	4.83
W-3	Alesur	2.67	12.55	9.95	3.85	6.1
W-41	Sahuli (Mahuli)	3	16.48	11.23	4.48	6.75
W-5	Kalambi	5.8	11.02	9.97	3.22	6.75
W-20	Gonkhairi	3.4	10.53	6.08	3.78	2.3
W-31	Waddhamna	4.75	9.9	6.6	3.3	3.3
Minimum				6.08	3.22	2.3
Maximum				11.23	4.48	6.75
Average				8.77	3.77	5

Average Annual Fluctuation= 5 m

This Parameter will be used for mine seepage estimation for post monsoon

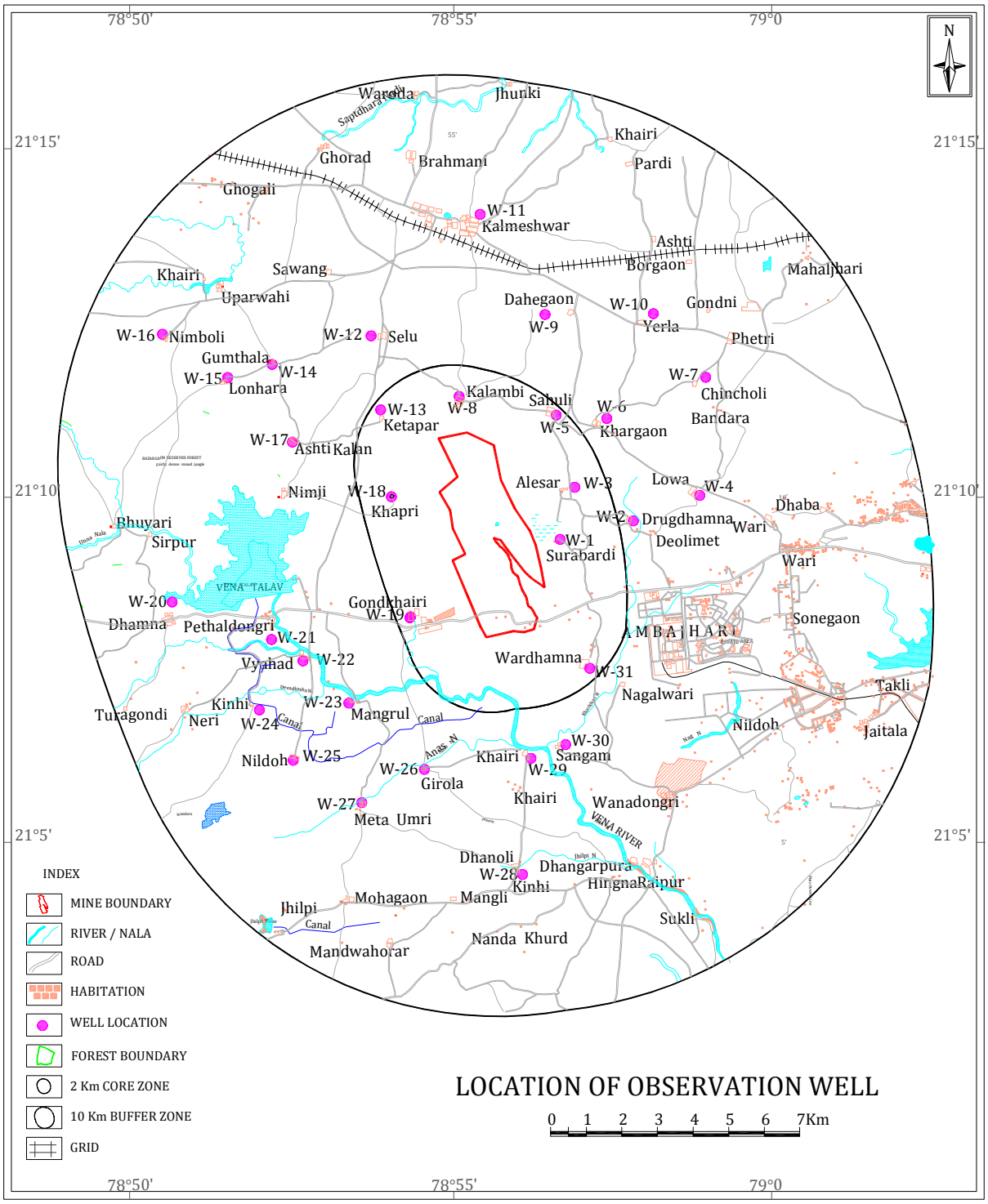


Figure 3.10: Location of observation wells

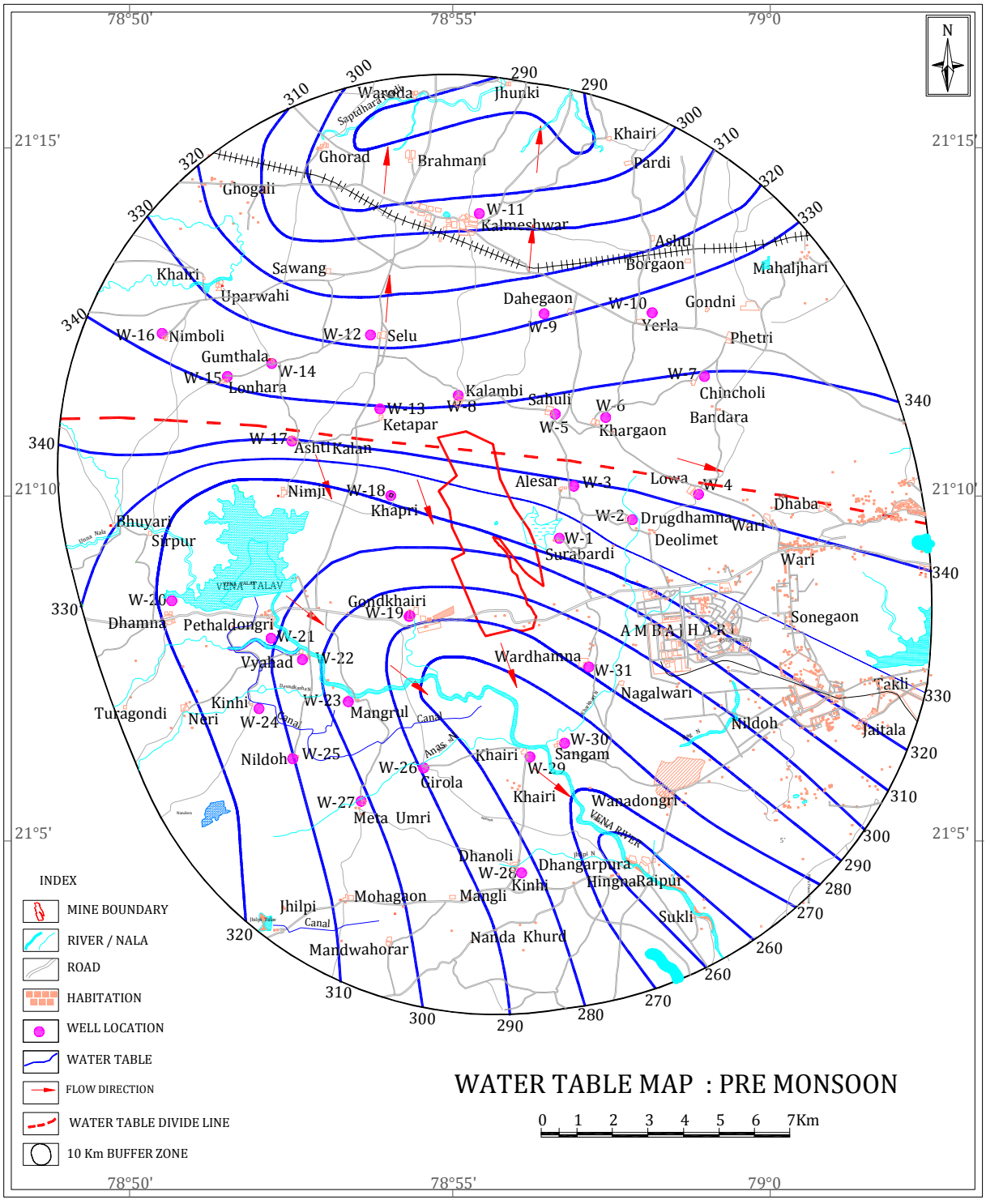


Figure 3.11 (a): Water Table Map : Pre Monsoon

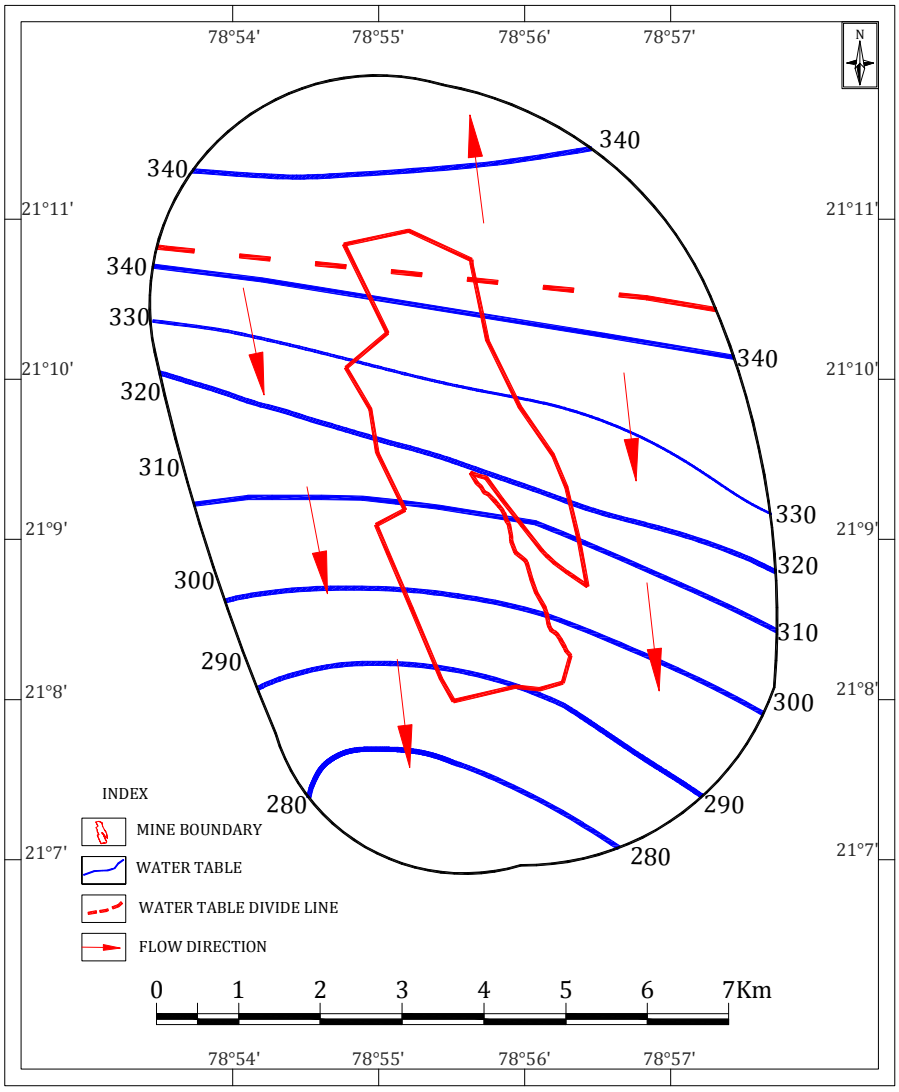


Figure 3.11 (b): Water Table Map of 2 km Core Zone

Water Table Hydraulic Gradient- 1.3 x 10^{-3}
Hydraulic gradient in incline drivage- 1.3 x 10^{-2}
This hydraulic gradient will be used for mine seepage estimation

3.2.4 Depth to Water Level:

Total 31 numbers of dug wells are monitored. Depth to water level in pre-monsoon varies between 2.00 to 14.15 m bgl average being 7.86 m. while during post monsoon it is 1.10 to 11.55 m bgl and average being 4.77 m. The average groundwater level in core zone during pre-monsoon is 8.86 m bgl while during post monsoon it is 4.11 m bgl. Depth to water level map of pre and post monsoon is given in **Figure 3.12** and **Figure 3.13.** Water Level Fluctuation Map is given n **Figure 3.14.**

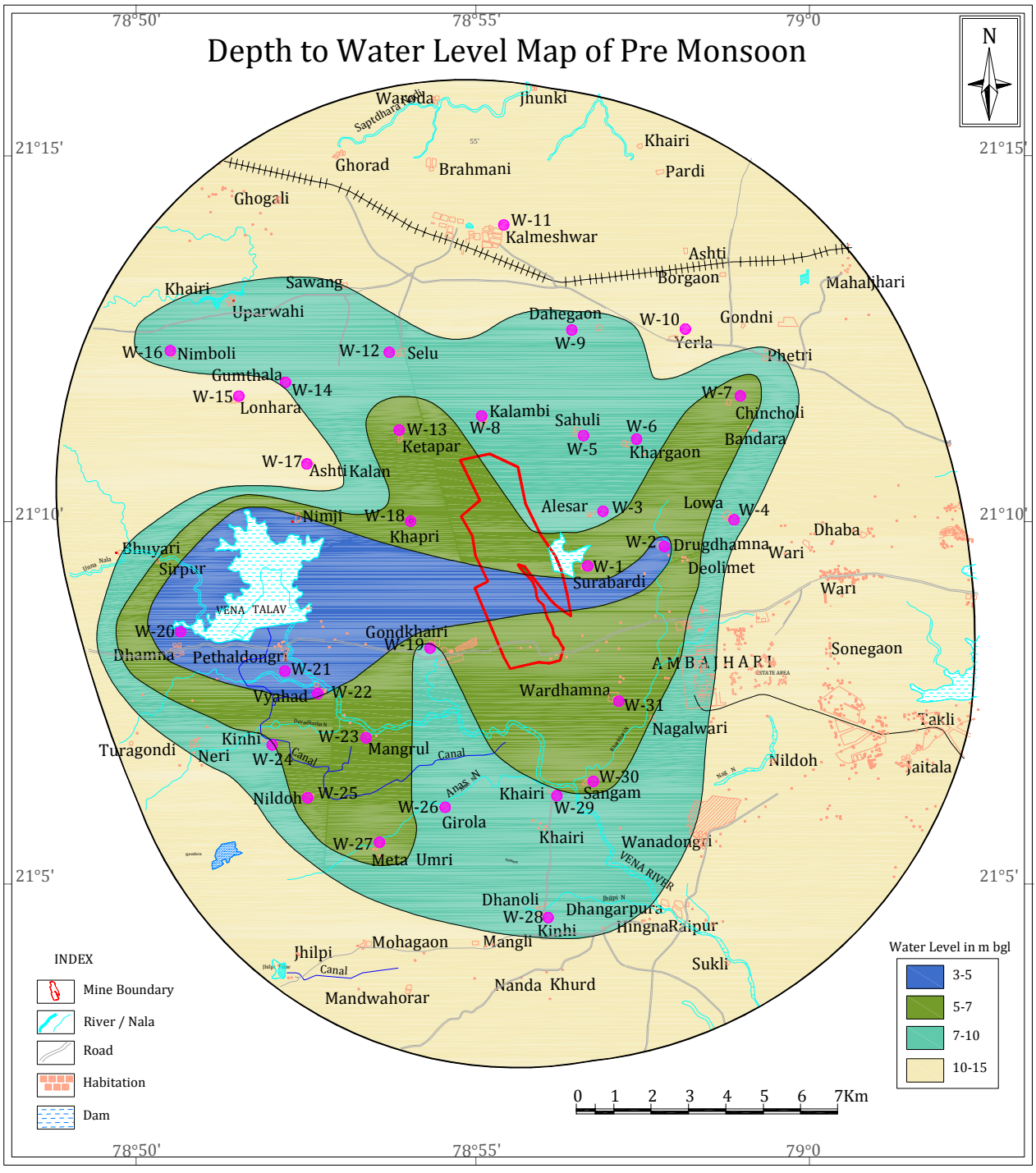


Figure 3.12: Depth to Water Level Map of Pre Monsoon – 2022

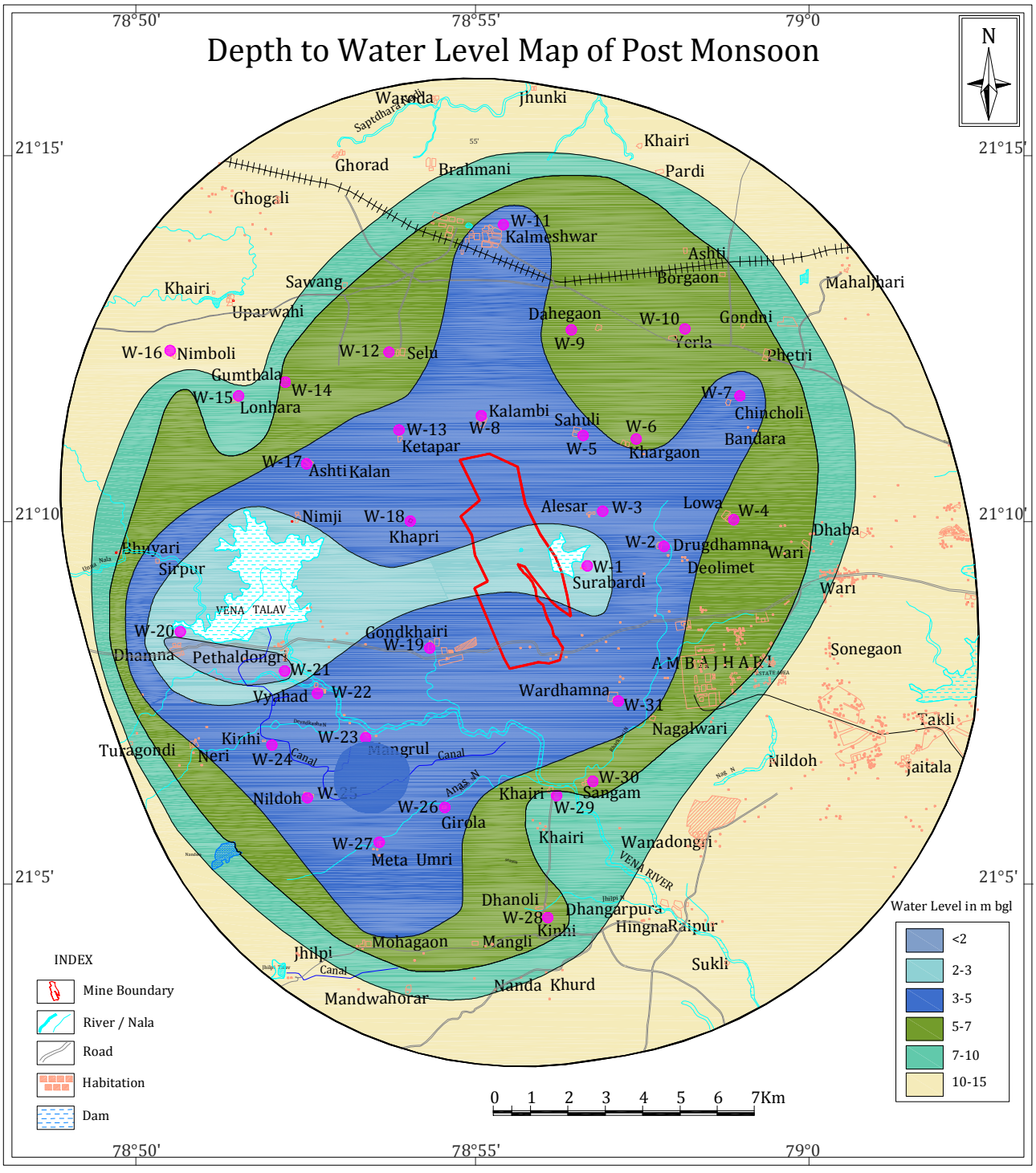


Figure 3.13: Depth to Water Level Map of Post Monsoon – 2022

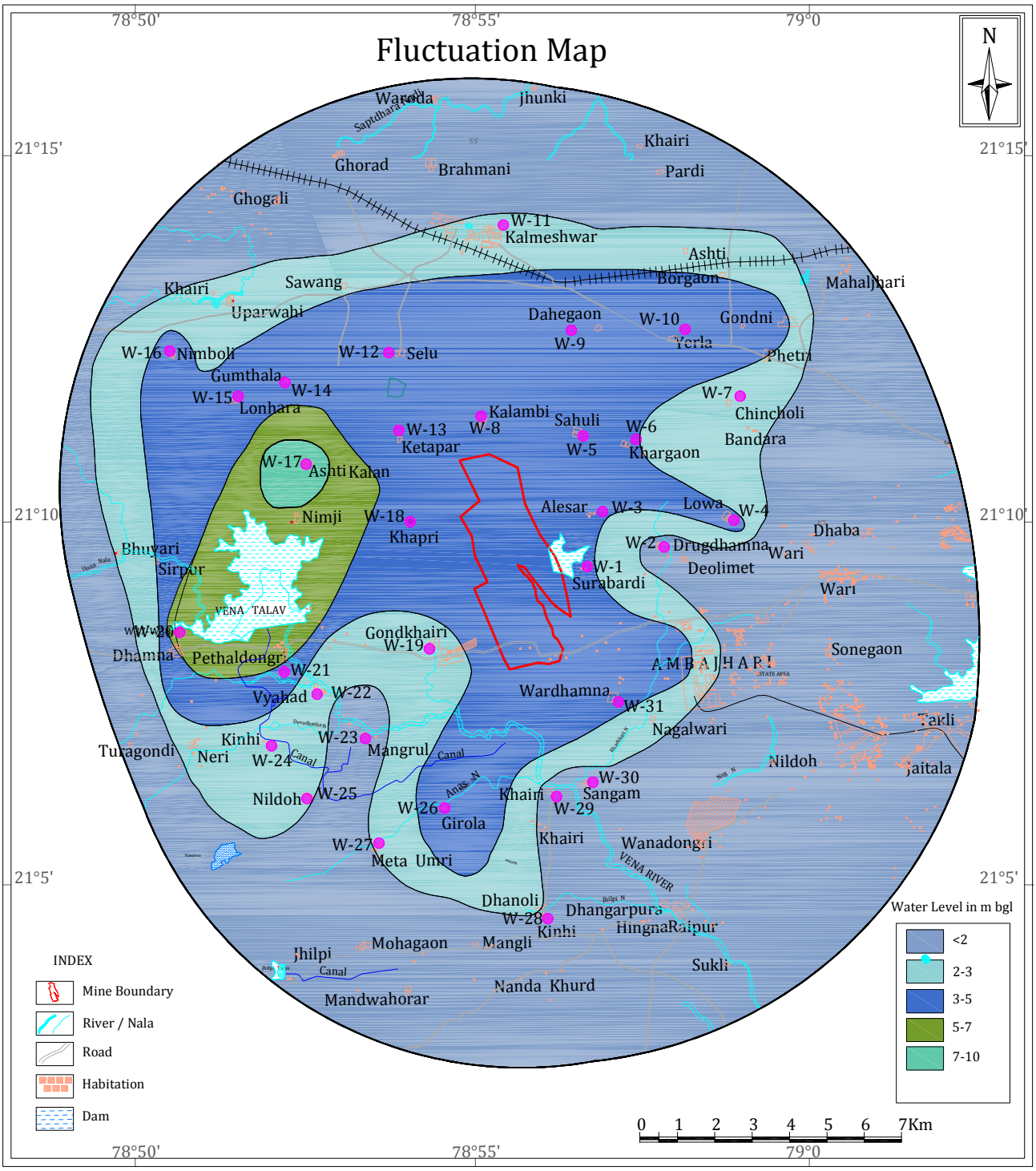


Figure 3.14: Water Level Fluctuation Map 2022

Hydrogeological map of core zone and buffer zone is given in **Figure 3.15.**

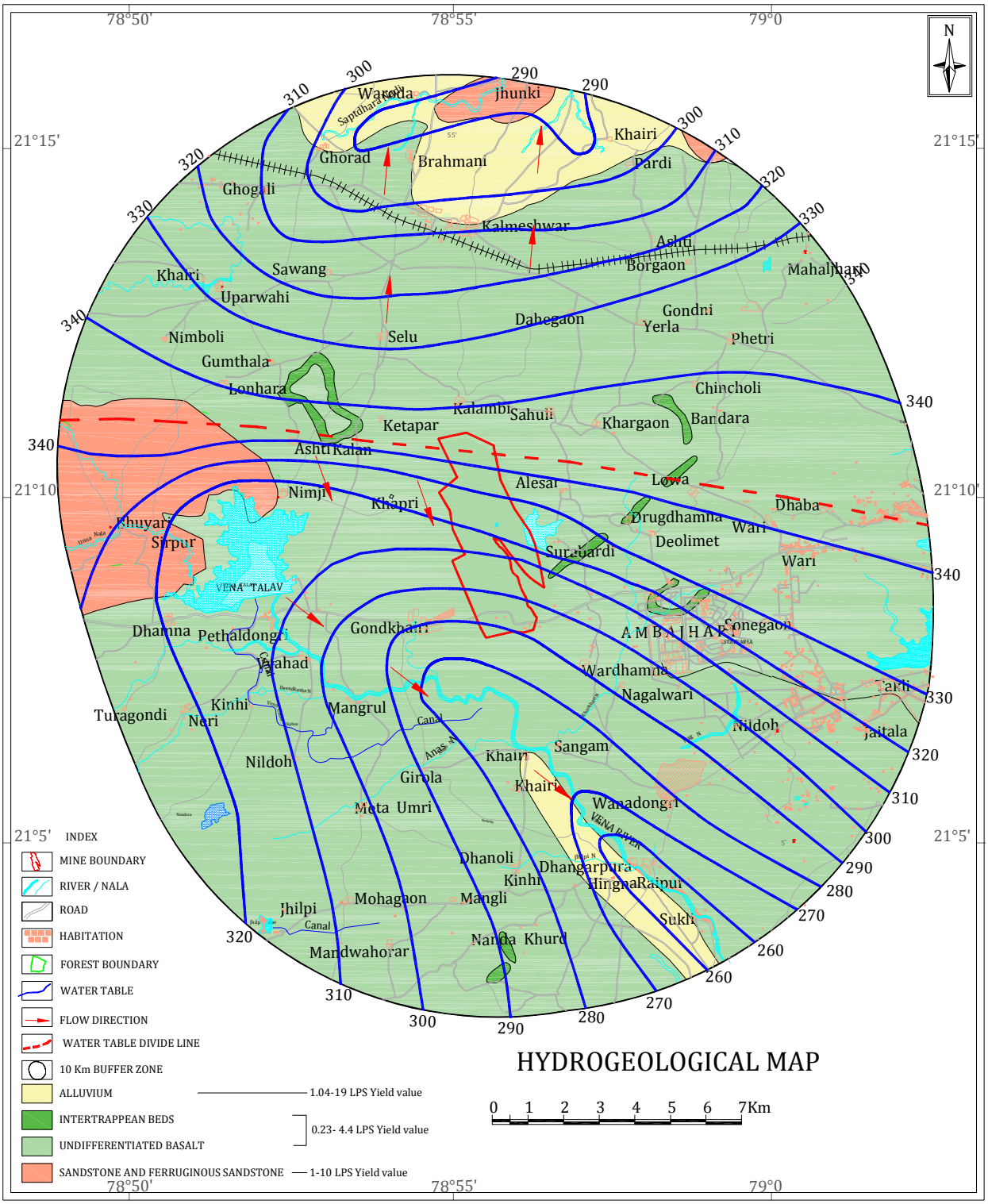


Figure 3.15: Hydrogeological Map

3.2.5 Long Term Water Level Data Analysis:

Water level at Waddhamna Village Nearest Hydrographic Station:

The ground water trend analysis for 10 years data has been analyzed. The CGWB National Hydrographic Station at Waddhamna Village located approximately 1 km distance from Gondkhairi coal block, has been considered for groundwater level trend analysis. The pre ad post monsoon water level has been given in **Table 3.8.** The location map of NHS Waddhamna has been given in **Figure 3.16** and the graphs of the pre and post monsoon is plotted in **Figure 3.17 & Figure 3.18** respectively.

Table 3.8: Pre Monsoon & Post Monsoon Water Level

Location- Waddhamna Village			
Sr no.	**Year**	**Pre monsoon**	**Post monsoon**
1	2011	3.45	0.65
2	2012	4.25	0.6
3	2013	4	0.35
4	2014	2.95	0.75
5	2015	4.41	1.43
6	2016	4.7	2.3
7	2017	8	1.4
8	2018	4.5	2.4
9	2019	8	1.4
10	2020	5	2.1

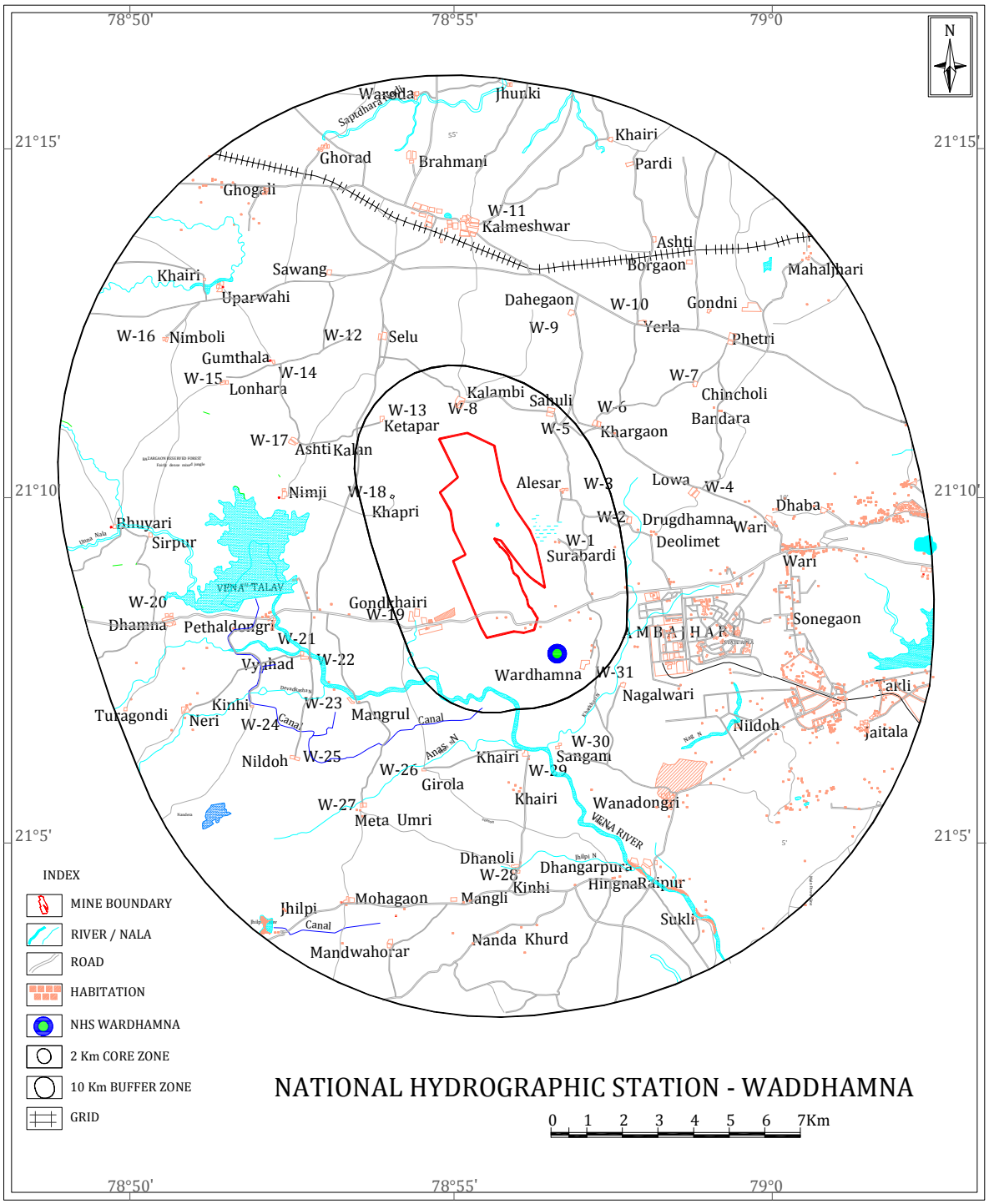


Figure 3.16: Location map of National Hydrographic station Waddhamna Village

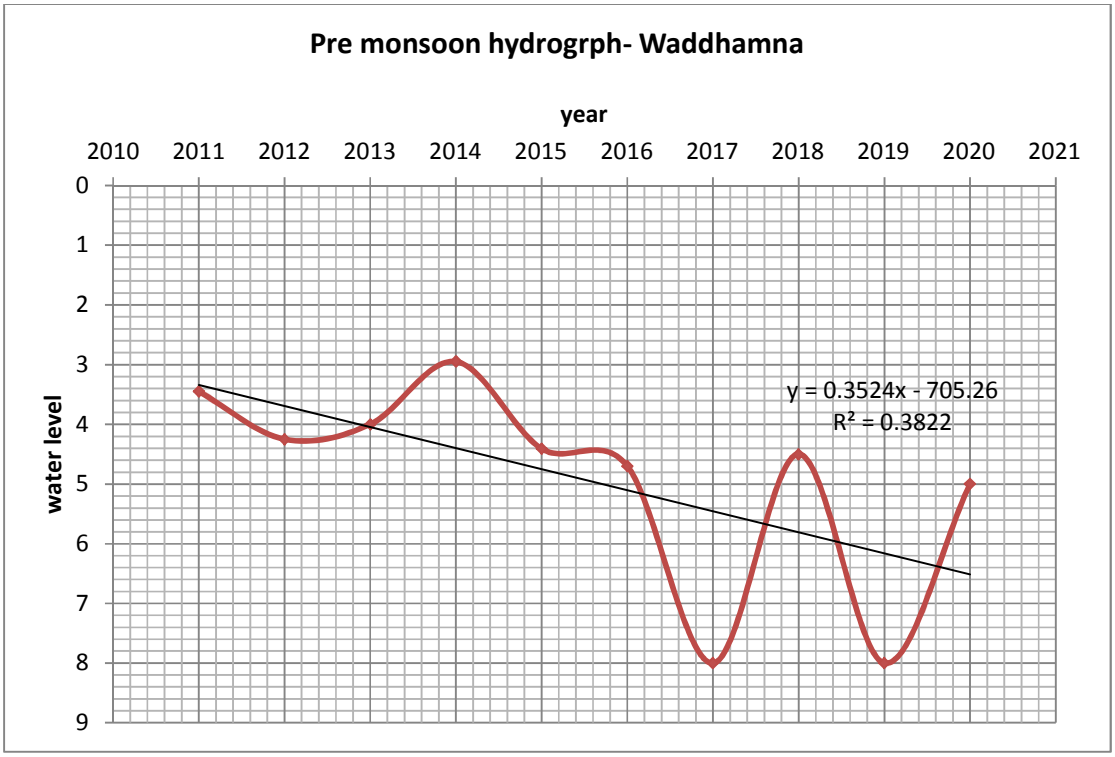


Figure 3.17: Hydrograph of Pre Monsoon

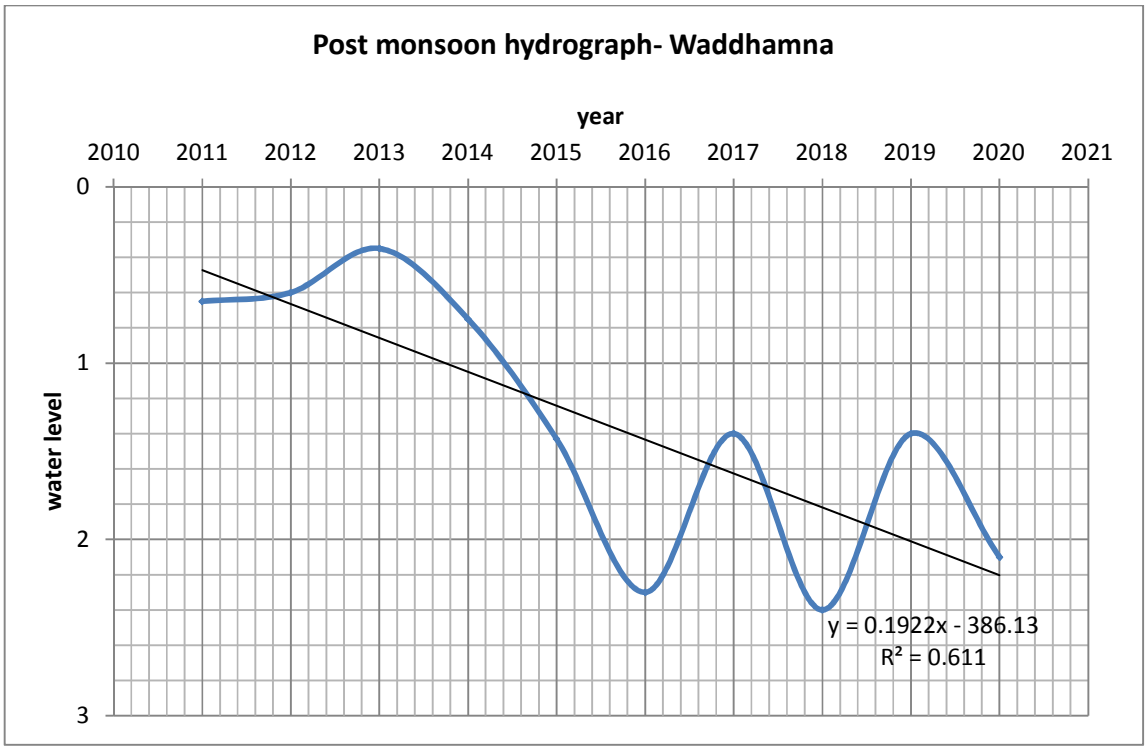


Figure 3.18: Hydrograph of Post Monsoon

Trend Analysis:

The trend analysis is computed based on trend of graph. At attempts is carried out to analyze the correlations of water level data. General trend of water level of each hydrographic monitoring station have been carried out. The trend analysis data is given in **Table 3.9.**

Rise/fall in year = $\frac{Trend\ water\ level\ of\ 2011(A) - Trend\ water\ level\ of\ 2020(B)}{No.of\ years\ (10)}$

Table 3.9: Trend Analysis of Ground water 10 years

Sr. No.	Pre and post monsoon	Trend water level 2010	Trend water level 2020	Year of Data	Trend fall or rise	Trend rise or decline	Remarks
		A	B		A-B/10		
1	Pre	3.4	6.5	10	-3.1/10	-0.31	There is annual decline in water level
2	Post	0.5	2.2	10	-1.7/10	-0.17	
3	Pre & Post	1.9	4.4	10	-2.5/10	-0.25	

The trend analysis of ground water at Waddhamna NHS Station which is 1 km from mine area is showing declining trend. The decline may be due to excessive ground water withdrawal in and around Waddhamna National hydrographic Station. The hydrograph of pre and post monsoon is given in **Figure 3.19.**

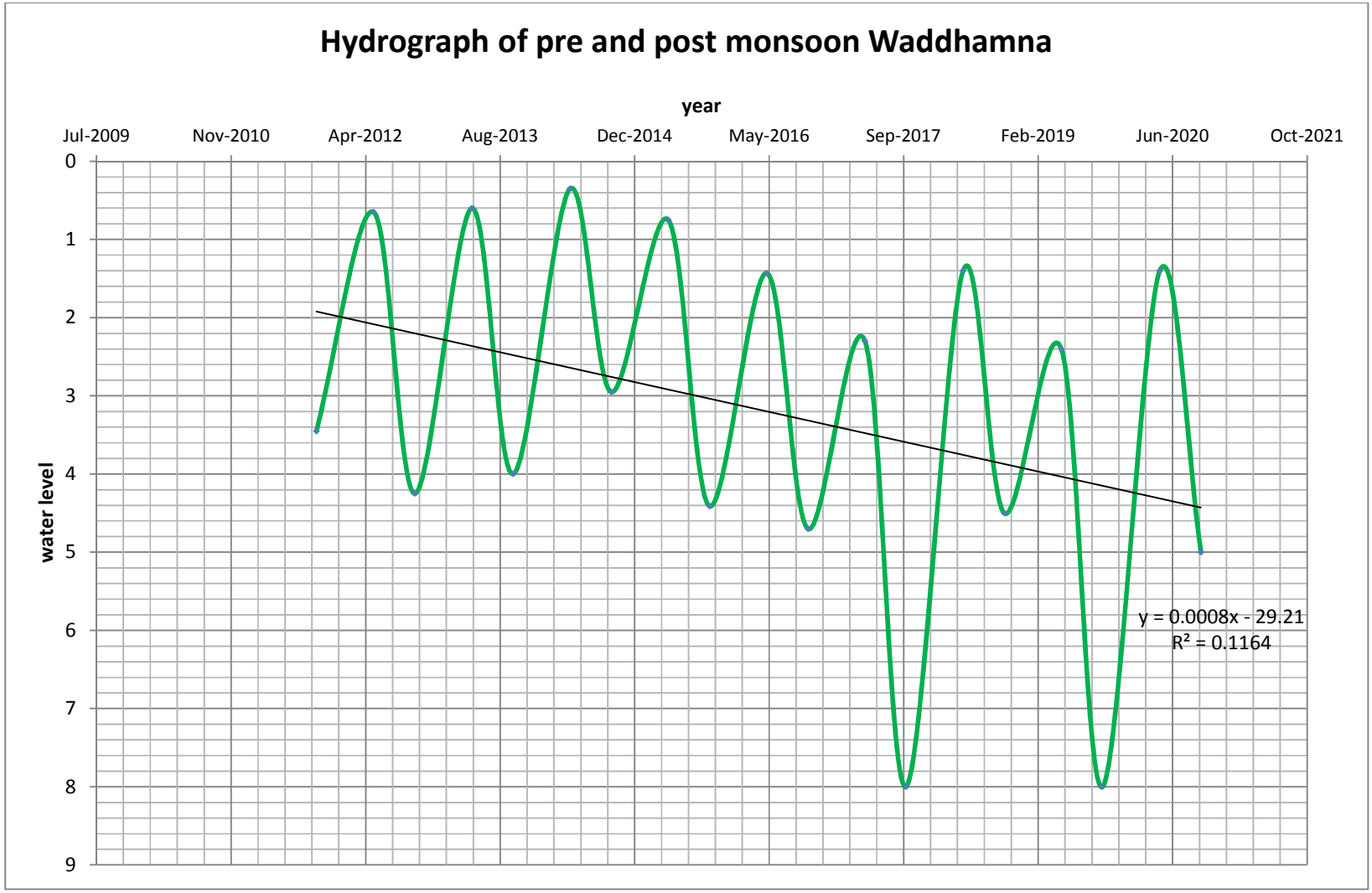


Figure 3.19: Hydrograph of pre and post monsoon

3.2.6 Ground Water Quality:

Groundwater sample is collected from pumping bore well during pumping test carried on 11/02/2022 and sample was treated in M/s. Nilawar Laboratories an NABL accredited lab. The groundwater quality of bore well water is well within permissible limit. Some of the parameters are given in **Table 3.10.** EC, Chloride, Nitrate and Fluoride in point values are given in **Figure 3.20, 3.21, 3.22** and **3.23.** The detailed groundwater quality data is given as **Figure 3.24.**

Table 3.10: Groundwater Quality Data – February

Sr. No.	Parameters	Units	Pumping Bore well	As Per BIS : 10500, 2012	
				Acceptable	Permissible
Physical Parameters					
1	Colour	Hazen	2	5	25
2	Odour	-	Ag	UO	UO
3	Taste	-	**	AG	AG
4	Turbidity	NTU	6.1	1	5
5	pH at 25^0C	-	8.64	6.5 – 8.5	NR
Inorganic Parameters				-	-
6	Total Dissolved Solids	mg/l	940	500	2000
7	Total Alkalinity as $CaCO_3$	mg/l	70	200	600
8	Total Hardness as $CaCO_3$	mg/l	20	200	600
9	Calcium as Ca++	mg/l	3.2	75	200
10	Magnesium as Mg++	mg/l	2.93	30	100
11	Chlorides	mg/l	289	250	1000
12	Dissolved oxygen	mg/l	6.5	-	-
13	Nitrates as NO_3	mg/l	0.465	45	NR
14	Fluoride as F	mg/l	0.543	1	1.5
15	EC	Mg/l	1371	-	-

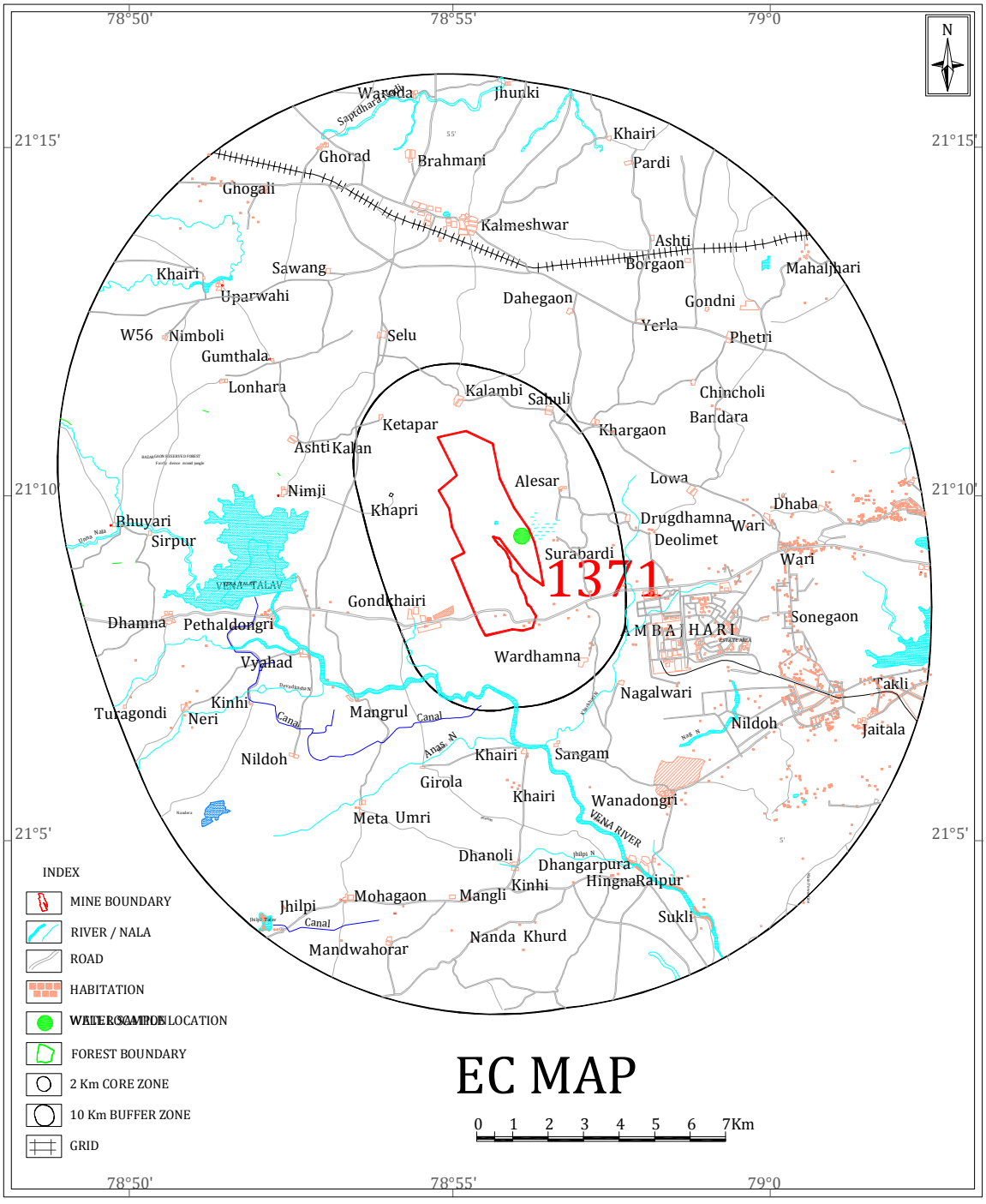


Figure 3.20: Water Quality Map of Electrical Conductivity

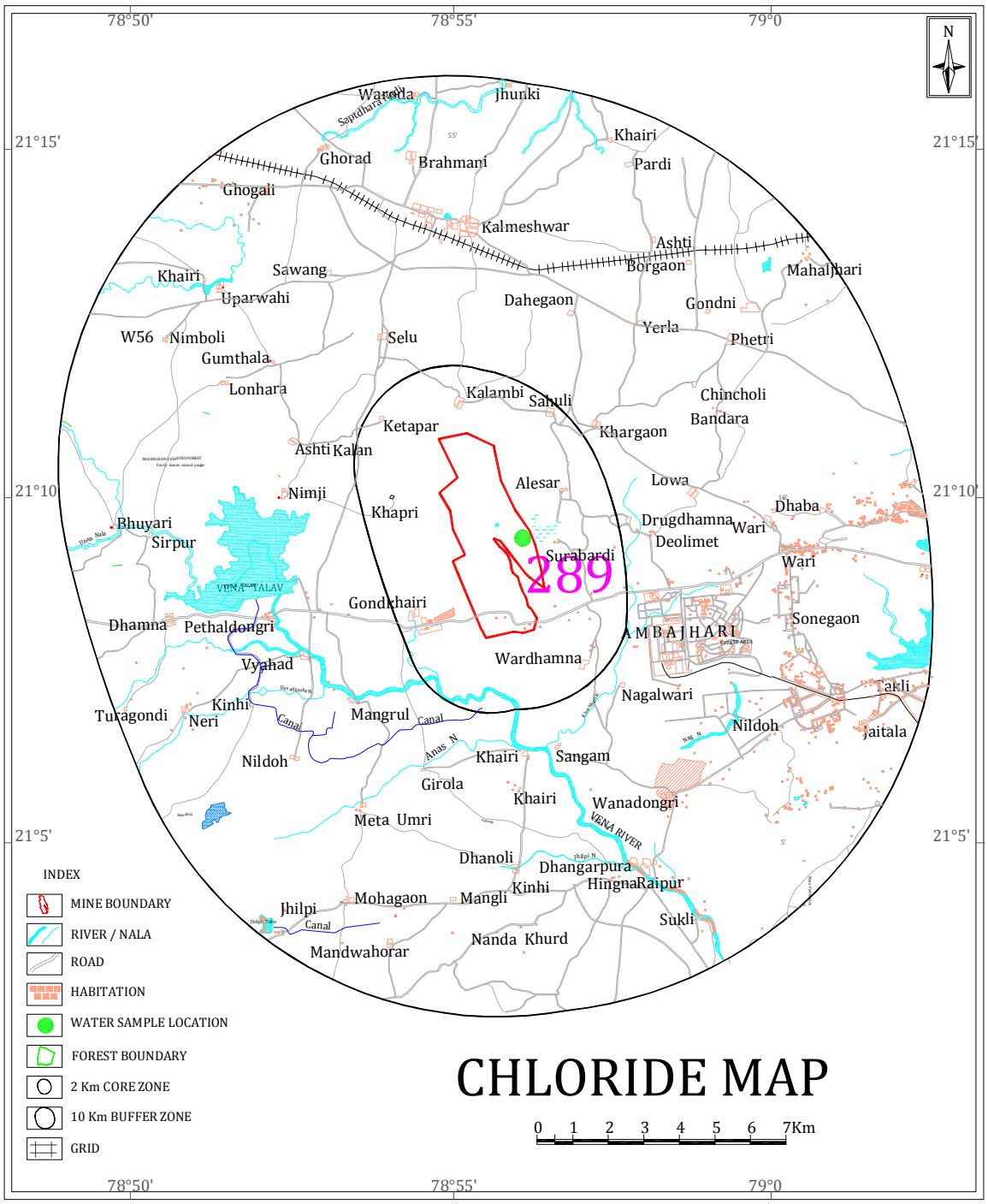


Figure 3.21: Water Quality Map of Chloride

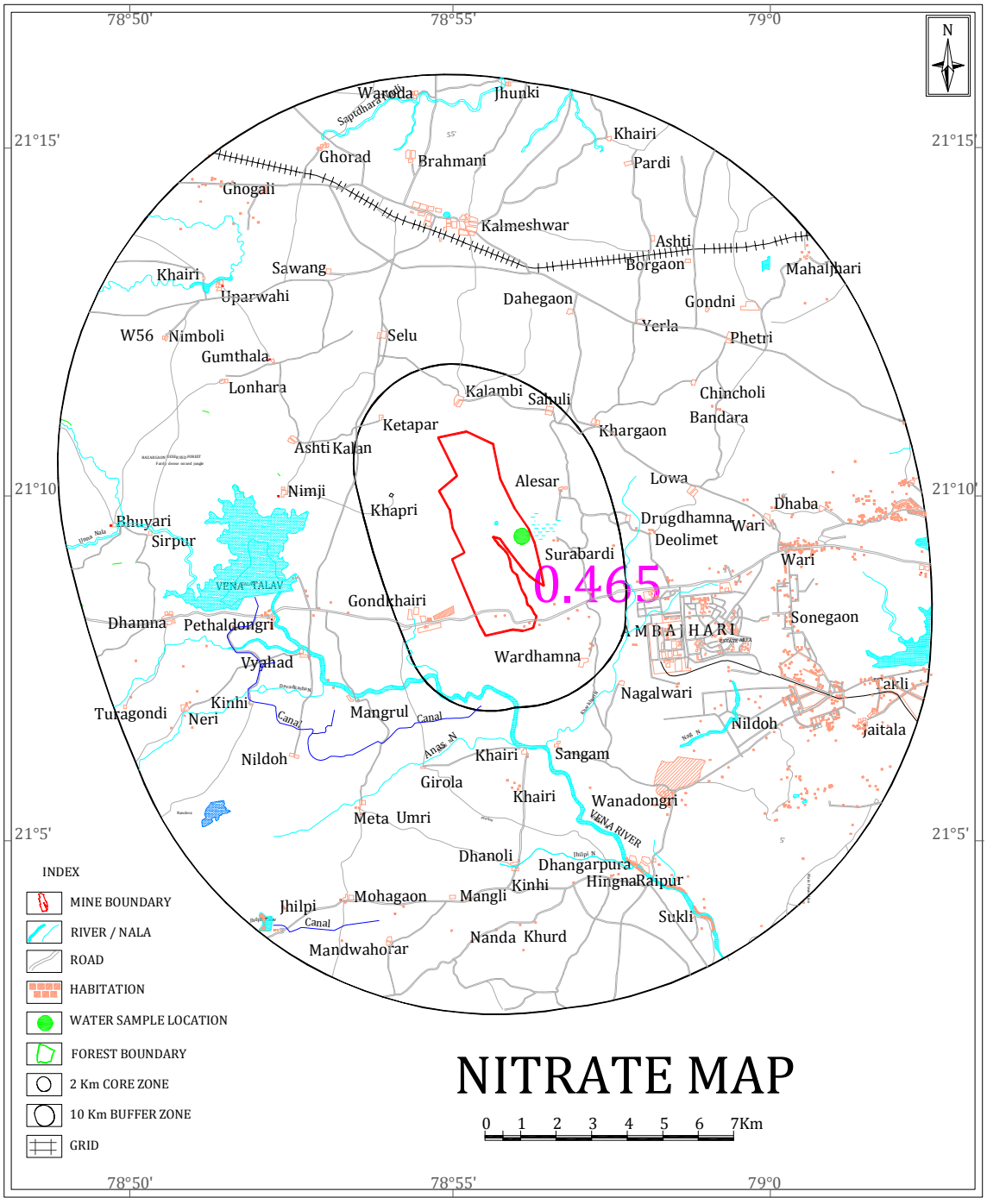


Figure 3.22: Water Quality Map of Nitrate Point values

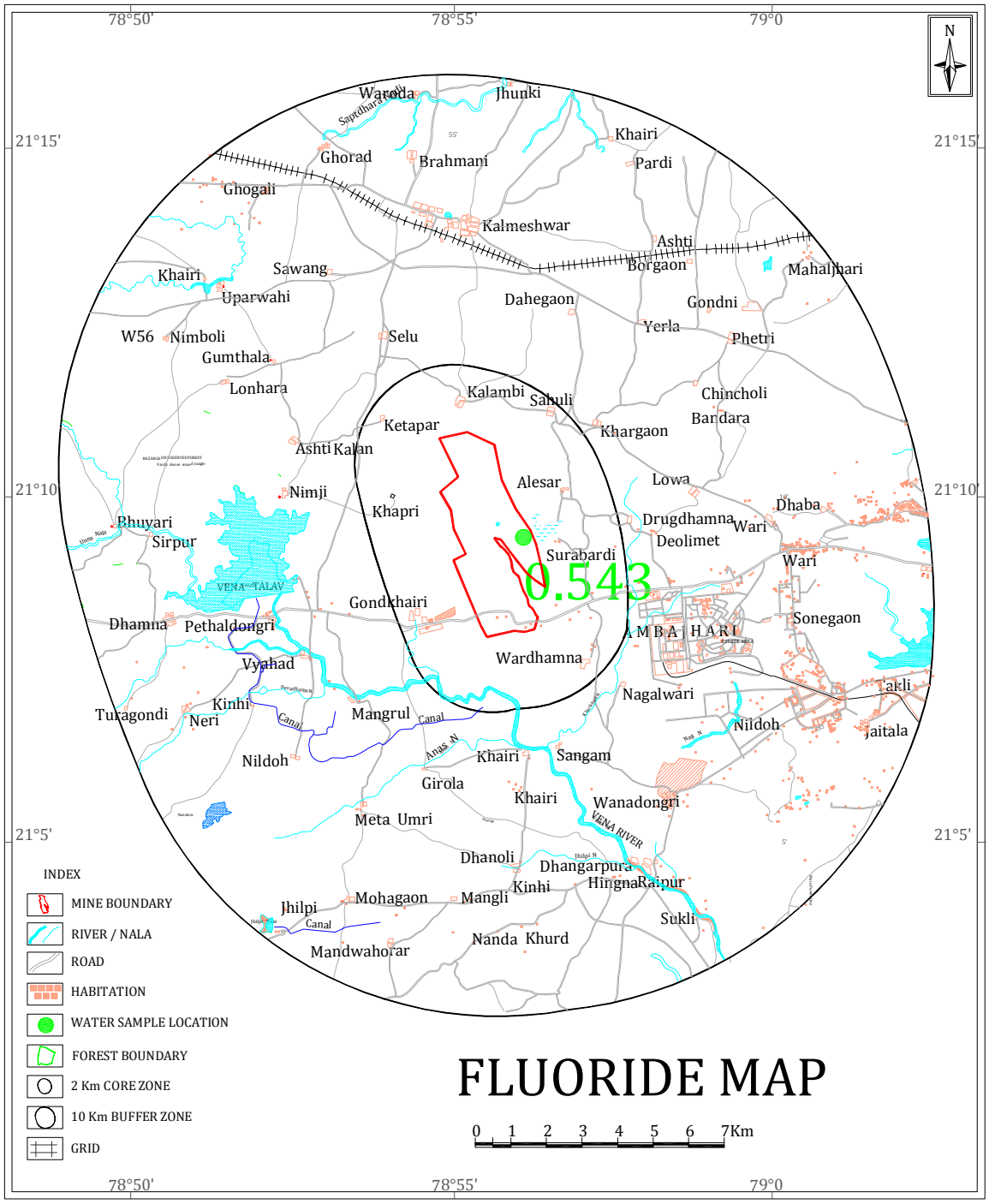


Figure 3.23: Water Quality Map of Fluoride Point Values

3.2.7 Surface Water Quality of nearby water bodies:

The surface water quality has been collected on 11/02/2022 from Surabardi reservoir and has been analyzed by M/s. Nilawar Laboratories an NABL accredited lab. The surface quality of reservoir is well within permissible limit. Some of the parameter is given in **Table 3.11** and the detailed surface water data is given in **Figure 3.24.**

Table 3.11: Surface quality data

Sr. No.	Parameters	Units	Surabardi reservoir (Surface water)	As Per BIS : 10500, 2012	
				Acceptable	Permissible
Physical Parameters					
1	Colour	Hazen	5	5	25
2	Odour	-	Ag	UO	UO
3	Taste	-	**	AG	AG
4	Turbidity	NTU	7.6	1	5
5	pH at 25^0C	-	8.45	6.5 – 8.5	NR
Inorganic Parameters				-	-
6	Total Dissolved Solids	mg/l	316	500	2000
7	Total Alkalinity as $CaCO_3$	mg/l	100	200	600
8	Total Hardness as $CaCO_3$	mg/l	34	200	600
9	Calcium as Ca++	mg/l	8	75	200
10	Magnesium as Mg++	mg/l	3.42	30	100
11	Chlorides	mg/l	16.6	250	1000
12	Dissolved oxygen	mg/l	7.4	-	-
13	Nitrates as NO_3	mg/l	0.150	45	NR
14	Fluoride as F	mg/l	0.265	1	1.5

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CIN No. U74140MH112009PTC196108

TC-9782

TEST REPORT

Customer Name	: Srushti Sewa Pvt. Ltd.		Address	: Nagpur
Contact Details	: --		Customer Reference	: --
Test Report No	: NL/WATER/0283		Report Issue Date	: 12/03/2022
Sample Received On	: 21/02/2022		Date of Test Completion	: 28/02/2022
Sample ID	: NL-0204/FEB22/WA-01/02		Sample Description	: Water Samples 01-Tubewell Coal Block Gondkhairi 02-Surface Water Pond Near Surabardi Gondkhairi
Sampling	: By Customer		ULR No	: TC978222000000527P

1. Chemical Testing
III. Water

TEST RESULTS

Sr. No.	Test Parameters	Results		Units	Test Method Used	As Per IS 10500:2016	
		01	02			Acceptable	Permissible
1.	Colour	2.0	5.0	Hazen	IS 3025 (Part 4)	5	15
2.	Turbidity	6.1	7.6	NTU	IS 3025 (Part 10)	1	5
3.	pH at 25°C	8.64	8.45	-	IS 3025 (Part 11)	6.5-8.5	NR
4.	Electrical Conductivity	1371	467	µs/cm	IS 3025 (Part 14)	-	-
5.	TDS	940	316	mg/l	IS 3025 (Part 16)	500	2000
6.	TSS	7.6	2.8	mg/l	IS 3025 (Part 17)	-	-
7.	Total Alkalinity	70.0	100	mg/l	IS 3025 (Part 23)	200	600
8.	Total Hardness	20.0	34.0	mg/l	IS 3025 (Part 21)	200	600
9.	Calcium as Ca++	3.2	8.0	mg/l	IS 3025 (Part 40)	75	200
10.	Magnesium as Mg++	2.93	3.42	mg/l	APHA 23rd Edition	30	100
11.	Chlorides	289	16.6	mg/l	IS 3025 (Part 32)	250	1000
12.	Sulphates as SO_4	47.4	16.8	mg/l	APHA 23rd Edition	200	400

Page 1 of 3

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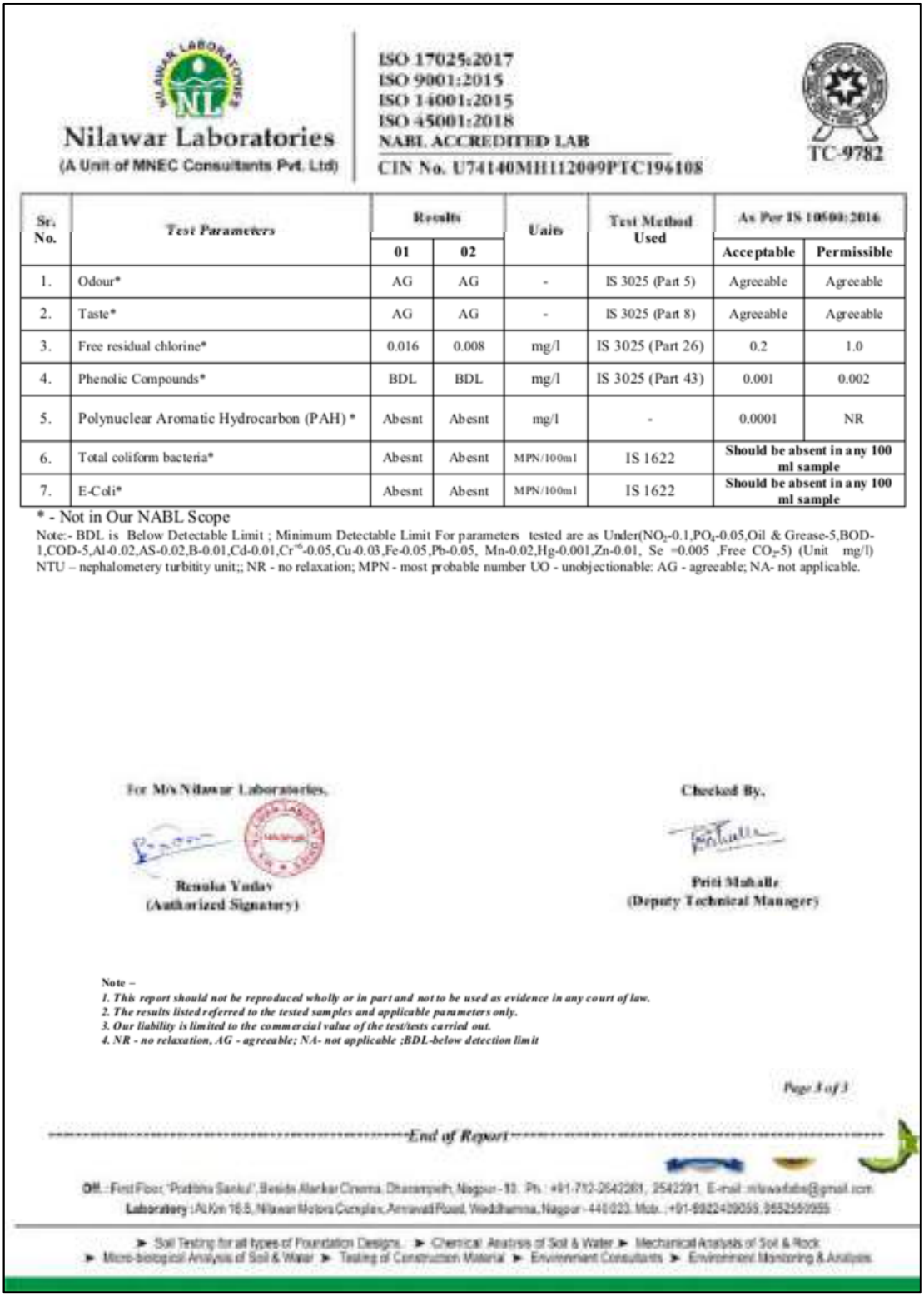
TC-9782

Sr. No.	Test Parameters	Results		Units	Test Method Used	As Per IS 10500:2016	
		01	02			Acceptable	Permissible
13.	Nitrates as NO3-N	0.465	0.150	mg/l	APHA 23rd Edition	45	NR
14.	Nitrite Nitrogen as NO2-N	BDL	0.005	mg/l	IS 3025 (Part 34)	-	-
15.	Ammonical Nitrogen as NH3-N	0.237	0.144	mg/l	IS 3025 (Part 34)	0.5	NR
16.	Phosphate as PO_4	0.007	0.026	mg/l	IS 3025 (Part 31)	-	-
17.	Dissolved Oxygen	6.5	7.4	mg/l	IS 3025 (Part 38)	-	-
18.	Mineral Oil	BDL	BDL	mg/l	IS 3025 (Part 39)	0.5	NR
19.	Copper as Cu	BDL	BDL	mg/l	IS 3025 (Part 42)	0.05	1.5
20.	Iron as Fe	BDL	BDL	mg/l	IS 3025 (Part 53)	0.3	NR
21.	Zinc as Zn	0.238	0.230	mg/l	IS 3025 (Part 49)	5	15
22.	Manganese as Mn	BDL	BDL	mg/l	APHA 23rd Edition	0.1	0.3
23.	Fluoride as F	0.543	0.265	mg/l	APHA 23rd Edition	1.0	1.5
24.	Aluminium as Al	BDL	BDL	mg/l	IS 3025 (Part 55)	0.03	0.2
25.	Total Chromium as Cr	0.076	BDL	mg/l	IS 3025 (Part 52)	0.05	NR
26.	Nickel as Ni	0.022	0.014	mg/l	IS 3025 (Part 54)	0.02	NR

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Sr. No.	Test Parameters	Results		Units	Test Method Used	As Per IS 10500:2016	
		01	02			Acceptable	Permissible
1.	Odour*	AG	AG	-	IS 3025 (Part 5)	Agreeable	Agreeable
2.	Taste*	AG	AG	-	IS 3025 (Part 8)	Agreeable	Agreeable
3.	Free residual chlorine*	0.016	0.008	mg/l	IS 3025 (Part 26)	0.2	1.0
4.	Phenolic Compounds*	BDL	BDL	mg/l	IS 3025 (Part 43)	0.001	0.002
5.	Polynuclear Aromatic Hydrocarbon (PAH) *	Abesnt	Abesnt	mg/l	-	0.0001	NR
6.	Total coliform bacteria*	Abesnt	Abesnt	MPN/100ml	IS 1622	Should be absent in any 100 ml sample	
7.	E-Coli*	Abesnt	Abesnt	MPN/100ml	IS 1622	Should be absent in any 100 ml sample	

* - Not in Our NABL Scope

Note:- BDL is Below Detectable Limit ; Minimum Detectable Limit For parameters tested are as Under(NO_2-0.1,PO_4-0.05,Oil & Grease-5,BOD-1,COD-5,Al-0.02,AS-0.02,B-0.01,Cd-0.01,Cr^{+6}-0.05,Cu-0.03,Fe-0.05,Pb-0.05, Mn-0.02,Hg-0.001,Zn-0.01, Se =0.005 ,Free CO_2-5) (Unit mg/l) NTU – nephalometery turbitity unit;; NR - no relaxation; MPN - most probable number UO - unobjectionable: AG - agreeable; NA- not applicable.

For M/s Nilawar Laboratories,

Renuka Yadav
(Authorized Signatory)

Checked By,

Priti Mahalle
(Deputy Technical Manager)

Note –
1. This report should not be reproduced wholly or in part and not to be used as evidence in any court of law.
2. The results listed referred to the tested samples and applicable parameters only.
3. Our liability is limited to the commercial value of the test/tests carried out.
4. NR - no relaxation, AG - agreeable; NA- not applicable ;BDL-below detection limit

Page 3 of 3

End of Report

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Figure 3.24: Surface water & ground water chemical analysis

4.0 APPROVED MINE PLAN:

Mine plan for Gondkhairi Coal Mine of M/s. Adani Power Maharashtra Limited has been approved by Ministry of Coal, Govt. of India vide letter No. Gondkhairi Coal MineMHMR019/APP00226/2022 dated 2023.01.09 (Annexure 2). The project details are given in **Table 4.1.**

Table 4.1: Project Details

Sr. No.	Name of the Project	Gondkhairi UG Mine
1	Address	**Managing Director,** **M/S. Adani Power Maharashtra Limited** Registered office At.- Adani Corporate House, Shantigram, Nr. Vaishno Devi Circle, S G Highway. Khodiyar, Ahmedabad, Gujarat-382421
2	Location	21^{o} 07’ 57” to 21^{o} 10’ 56”N 78^{o} 54’ 45” to 78^{o} 56’26”E Survey of India Toposheet No 55 K/16
3	Average Annual Rainfall Monsoon rainfall	1267.4 mm 1111 mm
4	Local Drainage	Vena River
5	Master Drainage	Wardha River, Godavari Basin
6	Average Water Level bgl in m in core zone a) Pre Monsoon b) Post Monsoon c) Annual Fluctuation	 10.00 m 5.00 m 5.00 m
7	Water Quality	Potable
8	Leasehold area	862 ha
9	Mining area (Excavation area)	862 ha
10	Coal filed	Kamptee Coalfield
11	Geological formation	Detrital mantle (DM) on Deccan trap (Basalt) & sandstone followed by Kamtee sandstone/shale and Barakar sandstone/shale of lower Gondwana group.

Sr. No.	Name of the Project	Gondkhairi UG Mine
12	No of extractable seam for mining with thickness maximum thickness of maximum seam Strike – Dip –	4 nos of seams are persistent and have attained workable throughout the block. **Seams are VIII, V, III and II.** North-South Westerly dip seam gradient of 9^{o} - 22^{o}, Average 16^{o} = 0.286
13	Net Geological reserve of the block	98.5030 million tones
14	Mineable reserve of the block (mte)	50.29
15	Corresponding extractable reserve of the block (mte)	41.74
16	Percentage of extraction	42.374
17	Target annual coal output	2.00 million tonnes per annum
18	Life of mine	24 years
19	Method of mining	Board and pillar mechanized
20	Coal quality	Average 4960 Kcal/kg (G-8)
21	Depth of working	135 to 400 m below ground level
22	Method of opening UG	1. Incline drivage in 1:5 ratio

The Parameters for approved mine plan is enclosed below for ready reference.

1.5 PARAMETERS OF APPROVED MINING PLAN VIS-Á-VIS PROPOSED MINING PLAN :

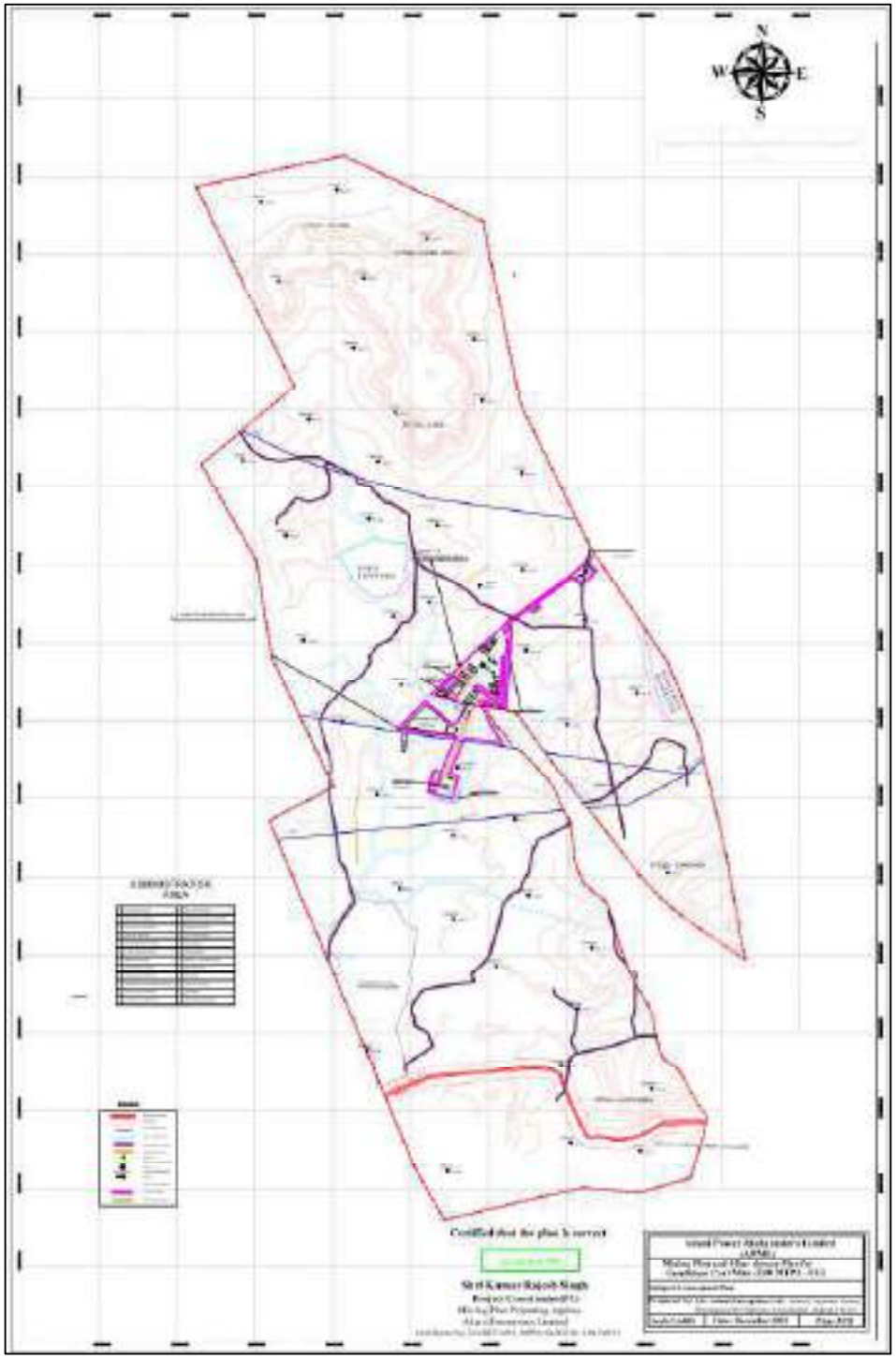
S.No	Block Area	Approved Mining Plan	Proposed Mining Plan
1.5.1	Geological Block Area HA	1130	862.0000
1.5.2	Geological Block Area Projectised HA	1130	862.0000
1.5.3	Lease area HA	977	862.0000
1.5.4	Project area HA	977	862.0000
1.5.5	Life of the Project Yrs	44	24
1.5.6	Minimum and Maximum Depth of working	169.5m to 394.30m	169.50m to 394.30m
1.5.7	Geological Block Area yet to be projectised "Ha"	0	0.00
1.5.8	Production Target MTP	1	2.0000
1.5.9	Seams Available As per GR	Seam X, Seam IX, Seam VIII, Seam VII, Seam VI, Seam V, Seam IV, Seam III, Seam II, Seam I	Seam X,Seam IX,Seam VIII,Seam VII,Seam VI,Seam V,Seam IV,Seam III,Seam II,Seam I

1.5.10	Seams not considered for Mining with Reasons		S. No / Seams / Reason 1 / Seam X / Seam attained workable thickness in patches, hence Reserves Not assessed in GR 2 / Seam IX / Seam attained workable thickness in patches, hence Reserves Not assessed in GR 3 / Seam VII / Seam not attained workable thickness, hence Reserves Not assessed in GR 4 / Seam VI / Seam not attained workable thickness, hence Reserves Not assessed in GR 5 / Seam IV / Seam not attained workable thickness, hence Reserves Not assessed in GR 6 / Seam I / Seam not attained workable thickness, hence Reserves Not assessed in GR
1.5.11	Gross Geological Reserve Mte	98.717	98.717
1.5.12	Net Geological Reserve Mte	98.717	98.5030
1.5.13	Blocked Reserve Mte	28.43	46.0980
1.5.14	Minable Reserve Mte	70.2871	52.4060
1.5.15	Extractable Reserve Mte	41.747	42.9460
1.5.16	% of Extraction/ recovery	42.29%	43.5900%
1.5.17	Reserve Depleted (till the base date) Reserves Mte	0	0.0000
1.5.18	Balance Extractable Reserve Mte	41.747	42.9460
1.5.19	Average Grade	GB GCV 4980	4980.0000
1.5.20	OB in MM3	0	0.0000
1.5.21	SR M3/te	0	0.0000
1.5.22	Mining Technology	Combination of Continuous Miner and SDLB with Board and Pillar Technology	Longwall with caving by mechanised method deploying DERDS and Road Headers
1.5.23	Coal Beneficiation envisaged		
1.5.24	Handling of Rejects	The rejects are loaded and sent to captive power plant of respective allottees	NA
1.5.25	Land use pattern " Ha"		
1	Excavation Area		0.0000
2	Top Soil Dump		0.0000
3	External Dump		0.0000
4	Safety Zone		0.0000
5	Other Use		2.1550
6	Infrastructure area	40	13.8450
7	Green Belt	2	2.0000
8	Undisturbed Area	1088	844.0000
	Total	1130.0000	862.0000
1.5.26	Reasons for revision		The lease area has been reduced from 1130 Ha to 862 Ha excluding non coal bearing area as per the vesting order issued by nominated authority. (Plan attached Plate No 37) As gradient is high, any technology of semi mechanization like SDL, LHD, CM with shuttle cars cannot be technically feasible hence Change in method of mining from Continuous miner to Longwall caving method with enhance production capacity. The proposed Mining plan has been proposed with 2 MTPY capacity against 1.00 MTPY approved Mining Plan

Prepared By Adani Enterprises Limited On 29/08/2022

APPROVED

The working mine plan for 1st year to 24th years showing initial incline drift-shaft in **Figure 4.1.** The conceptual hydrogeological section for working of 5 year mine is given in **Figure 4.2.**



(Source: Mine Plan)

Figure 4.1: Conceptual Plan

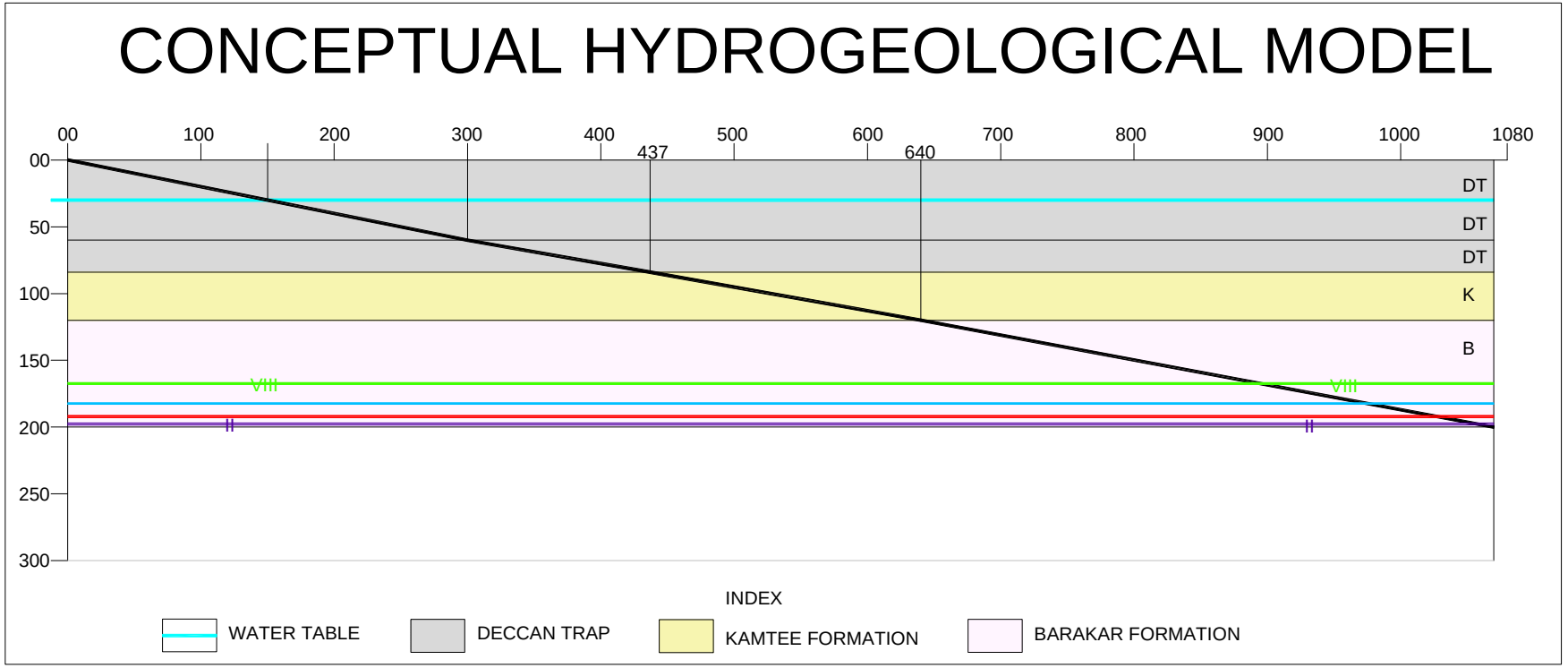


Figure 4.2: Conceptual Hydrogeological Section

5.0 ESTIMATION OF MINE SEEPAGE AND ADVANCED DEWATERING PLAN:

5.1 Estimation of Mine Seepage:

The mine seepage estimation as per CGWA format is done. The parameter used for mine seepage estimations is given in **Table 5.1.**

Table 5.1: Mine Seepage Estimations - Parameter

Sr. No.	Parameter	Value
1	Tranmsimissivity (T)	388 m^2/day
2	Aquifer Thickness (D)	134 m
3	Hydraulic conductivity (T)	2.88 m/d
4	Storativity	6.0 x 10^{-4}
5	Ground Water Gradient (I)	0.013

Mine Seepage Estimation as per CGWA Format for 5 years:

Mine seepage as per format provided by CGWA is estimated under in **Table 5.2.**

Rainwater Estimation for Underground Mines:

The rain water falling over open area of outside incline mouth up to loading point. There is accumulation of rain water over the area of 100 m X 100 m. This may be consider catchment area of incline mouth. Though there is well established drainage system but sometimes part of water is re-routed into Underground mine and increase the volume of mine water dewatering. The rain water likely to impact dewatering is estimated as under.

Q= A x P x Rc

Where,
Q= m^3/year
P= Monsoon rainfall in m (1.111 m)
Rc= Runoff coefficient as per CGWB norm (0.20)
A= Area of local catchment of incline mouth (100 x 100 = 10000 m^2)

Q= 400 x 200 x 1.018 x 0.2

= 2222 m3/year

= 2222/365

= 6 m^3/day

Average Rain water accumulation in inclined of UG mines = 6 m^3/day

Table 5.2: Mine Seepage from Walls of the Mine Pit

Year	Period	Working bench reduce level in respect to msl (m)		Length of the Face (m)	Width of the Face (m) or dia. In case of Tunnel (Diameter)	Saturated Thickness (m)	GW Gradient (m/m)	*Hydraulic Conductivity (m/day)	Per day mine seepage (m^3/day)	Mine seepage during pre monsoon for 245 days	Mine seepage during post monsoon for 120 days	Annual mine seepage (m^3/year)	Mine Seepage for 365 days	Rain water in Underground mines Q= (A x P x Rc) /365 A= 10000 m2 P= 1.111 m Rc= 0.20	Total Mine dewatering	Mine dewatering per Year
		M BGL	RL amsl	L	W	d	I	K	K X d x I x (L & W)				m3/day	m3/day	m3/day	m3/year
Year 1	Pre Monsoon	0-30	310	100	6	10	0.013	2.88	40	9723		16867	49	6	55	20075
	Post Monsoon	0-30	310	100	6	15	0.013	2.88	60		7144					
Year 2	Pre Monsoon	30-60	280	100	6	20	0.013	2.88	79	19446		31352	89	6	95	34675
	Post Monsoon	30-60	280	100	6	25	0.013	2.88	99		11906					
Year 3	Pre Monsoon	60-90	250	100	6	50	0.013	2.88	198	48616		74809	208	6	214	78110
	Post Monsoon	60-90	250	100	6	55	0.013	2.88	218		26193					
Year 4	Pre Monsoon	90-120	220	100	6	80	0.013	2.88	317	77785		118265	327	6	333	121545
	Post Monsoon	90-120	220	100	6	85	0.013	2.88	337		40480					
Year 5	Pre Monsoon	120-150	190	100	6	110	0.013	2.88	437	106955		161722	446	6	**452**	**164980**
	Post Monsoon	120-150	190	100	6	115	0.013	2.88	456		54767					

Maximum mine seepage during 5th year is to the tune of 446 m^3/day for safety factor because it is a fracture zone and same is considered for CGWA NOC

TOTAL MINE DEWATERING = 452 M^3/day

NOC required= 492 m3/day

(Mine Dewatering 452 m3/day + 40 m^3/day through bore wells)

The seepage from bottom of the pit is given in **Table 5.3.** Total Mine Seepage from ground water during pre and post monsoon is given in **Table 5.4.**

Table 5.3: Seepage from Bottom of the Pit

Year	Period	*Hydraulic Conductivity (m/day)	Per day mine seepage (m^3/day)	Annual mine seepage (m^3/day)
Year 1	Pre Monsoon	NIL	NIL	Nil
	Post Monsoon	NIL	NIL	Nil
Year 2	Pre Monsoon	NIL	NIL	Nil
	Post Monsoon	NIL	NIL	Nil
Year 3	Pre Monsoon	NIL	NIL	Nil
	Post Monsoon	NIL	NIL	Nil
Year 4	Pre Monsoon	NIL	NIL	Nil
	Post Monsoon	NIL	NIL	Nil
Year 5	Pre Monsoon	NIL	NIL	Nil
	Post Monsoon	NIL	NIL	Nil

Table 5.4: Total of Mine Seepage

Year	Period	Annual Mine Seepage (m^3/day)
Year 1	Pre Monsoon	40
	Post Monsoon	60
Year 2	Pre Monsoon	79
	Post Monsoon	99
Year 3	Pre Monsoon	198
	Post Monsoon	218
Year 4	Pre Monsoon	317
	Post Monsoon	337
Year 5	Pre Monsoon	437
	Post Monsoon	456

5.2 Advance Dewatering Plan in case of Coal / Lignite Mine:

Gondkhairi is an Underground Mine so advance de-watering plan is not required.

5.3 Groundwater Modeling:

Not required as seepage is less than 500 m^3/day.

6.0 MINE WATER MANAGEMENT:

The mine water pumped from sump of mine is passed through sedimentations tank and further it is used for following purposes and given in **Table 6.1**.

Table 6.1: Water Utilization

Sr. No.	Purpose	Quantity in use m^3/day
1	Mine Seepage maximum for 5 year + Rain water accumulated in UG Mine (446 + 6 m3/day)	452
2	5 number Bore wells pumping in mine area (4 m^3/hr x 5 hrs x 2 bore wells) = 40 m^3/day	40
	Total	**492**

The utilization of ground water is given as under:

Sr No.	Activity	Quantity m^3/day
1	Green Belt	60
2	Mining Activities	150
3	Dust Suppression	242
4	Domestic	40
Total		492

The recycle 18 m^3/day water will be used in horticulture. The flow chart is given in **Figure 6.1.**

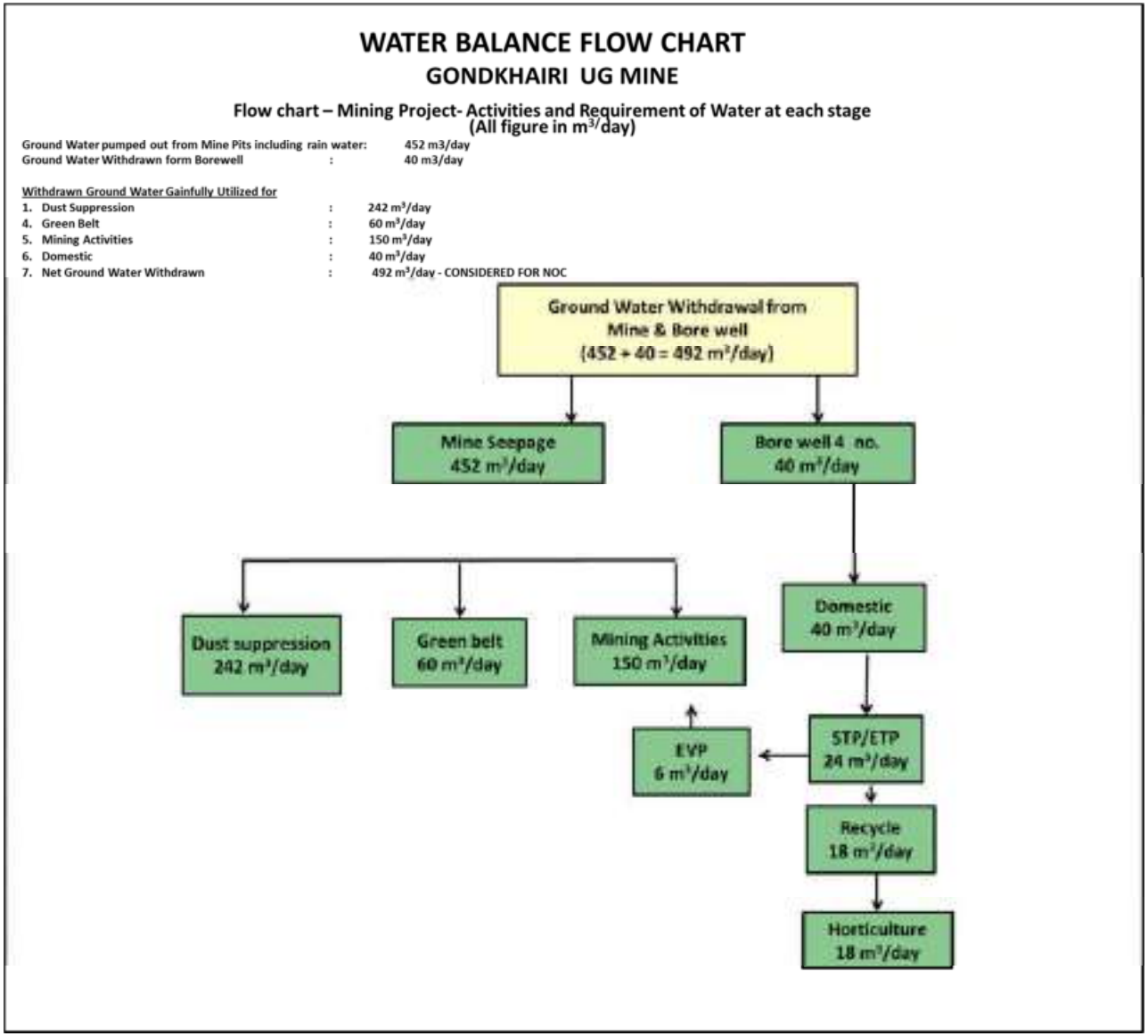


Figure 6.1: Flow Chart

7.0 IMPACT OF MINE DEWATERING/ ABSTRACTION AND MITIGATION MEASURES:

The area affected by underground mine is a function of mine depth and hydraulic diffusivity of the rock. The coal mining activity in Gondkhairi may create dis-equilibrium in environmental scenario of the area and impact may be on two accounts.

- Impact on the Groundwater Regime
- Impact of Surface Water Bodies

7.1 Impact on the Ground Water Regime:

The area affected by an underground mine is a function of mine depth and hydraulic diffusivity of the rocks. Due to consolidation and considerable mine depth, the impact on unconfined aquifer will be negligible beyond 500 m. During development also the aquifer lying above coal seam mine gets affected. However, the mine water discharged into the local drainage/tanks will behave as constant source of recharge and will improve the water levels near to the mine area. Study has been done for groundwater recharge in pre-mining and post-mining conditions. The modeling results reveal that recharge during pre-mining condition will be 203 mm (16% of annual rainfall) whereas 253 mm (20% of annual rainfall) will be under post-mining condition. Thus, there will be increase in ground water recharge due to mining **Table 7.1** and **Figure 7.1).**

Table 7.1: Change in Recharge

Phase/Condition	Average annual rainfall in m	Surface runoff Area $m^2 \times 10^6$	Model GW flow coefficient	Annual recharge to block area	Remark increase in recharge post mining MCM
Pre mining	1.111	8.62	0.16	1.53	0.39
Post mining	1.111	8.62	0.20	1.92	

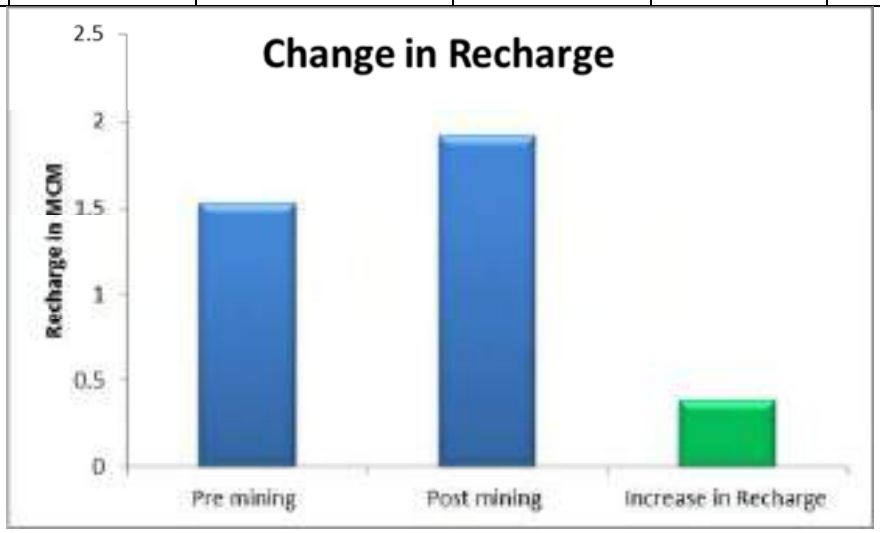


Figure 7.1: Change in Recharge

There will be additional recharge to the tune of 0.39 MCM due to mining. This will influence in increase of ground water recharge and mine water in flow. After the cessation of mining, the ground water levels will recoup and attain normalcy. Thus, the impact on ground water system is a temporary phenomenon. It is observed that the abandoned mine workings behave as groundwater reservoirs and improve recharge system and storage in the area.

Radius of Influence:

The formula used for estimation of Radius of Influence is as under.

$$R = \sqrt{\frac{2.25\ x\ k\ x\ d\ x\ to}{S}}$$

Where,

R= Radius of Influence

K = Hydraulic Conductivity m/day

d= Thickness of Aquifer affected (m)

t= Time at zero drawdown in days

Sy= Specific yield

The Data Available

R=?

K= 2.88 m/day

D= 25 m for 2nd Year

T= 365 days

Sy= 0.03 (As per GEC)

$$R = \sqrt{\frac{2.25\ x\ 2.88\ x\ 25\ x\ 365}{0.03}}$$

R = 1404 m

R = 1.4 km

The Radius of Influence will be 1.4 km.

3.3 Impact on Surface Water Sources:

It is established fact that high infiltration zone will serve as good media for high ground water recharge and reduces the surface run-off considerably in the core zone. Study carried out by modeling suggests that in pre-mining condition the surface runoff will be 317 mm i.e. 25% of annual rainfall whereas post-mining condition the runoff will be 292 mm i.e. 23% of annual rainfall. As such surface run-off contribution to the natural drains from the mining area would be reduced thereby some change is expected in hydrologic regime of the river system. It is expected that due to increase in recharge ground water runoff (base flow), the surface runoff may increase in nearby river. Thus, there will be only marginal change in quality and quantity of river water due to be proposed mining.

Table 7.2: Change in Runoff

Phase/Condition	Average annual rainfall in m	Surface runoff Area $m^2 \times 10^6$	Model GW flow coefficient	Annual recharge to block area	Remark change in runoff post mining MCM
Pre mining	1.111	8.62	0.25	2.39	-0.19
Post mining	1.111	8.62	0.23	2.20	

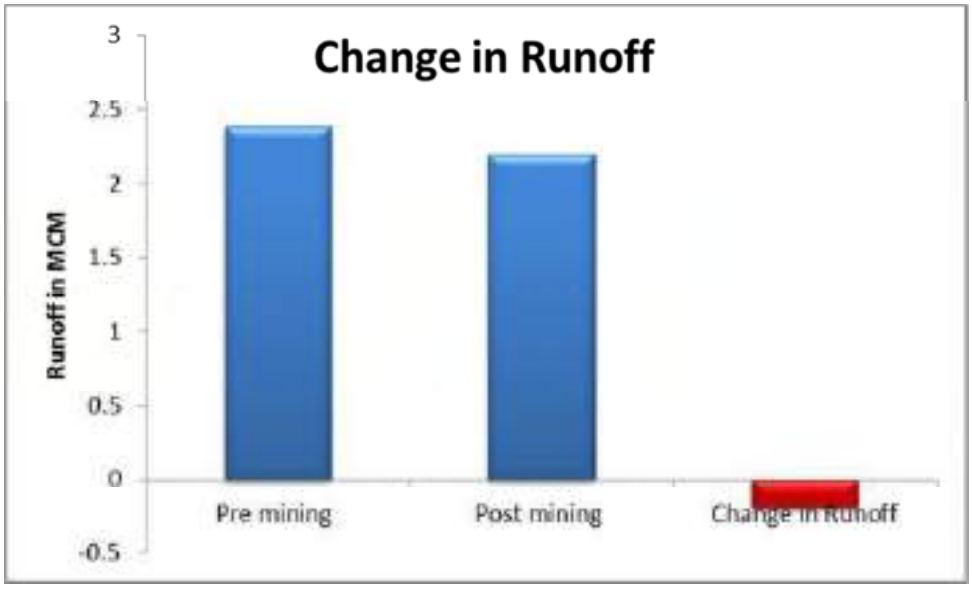


Figure 7.2: Change in Runoff

There will be reduction in surface water to the tune of 0.19 MCM.

7.2 Impact on Water Quality:

The impact on water quality has been studied using groundwater quality data and surface water quality data. The graphical representation of two sets of water quality from mine lease area and from reservoir have been done and placed at **Table 7.1** & graphically represented in **Figure 7.1**. The study reveals that during summer TDS of groundwater increases and again during post monsoon the TDS remains more or less similar. It can be concluded that there is no impact of groundwater quality due to mining whereas in surface water it found to be little polluted may be due to anthropogenic activities.

Table 7.3: EPM Values

Radicals	EPM factor	Tube Well	Surface Water	EPM Tube Well	EPM Surface Water
	1	2	3	1 X 2	1 X 3
Mg	0.08226	2.93	3.42	0.24	0.28
Ca	0.0499	3.2	8	0.16	0.40
Na	0.0435	255	81	11.09	3.51
Radicals	EPM factor	Tube Well	Surface Water	EPM Tube Well	EPM Surface Water
Cl	0.02821	289	17	8.15	0.48
SO4	0.02082	48	18	1.00	0.37
HCO3	0.03333	70	100	2.33	3.33

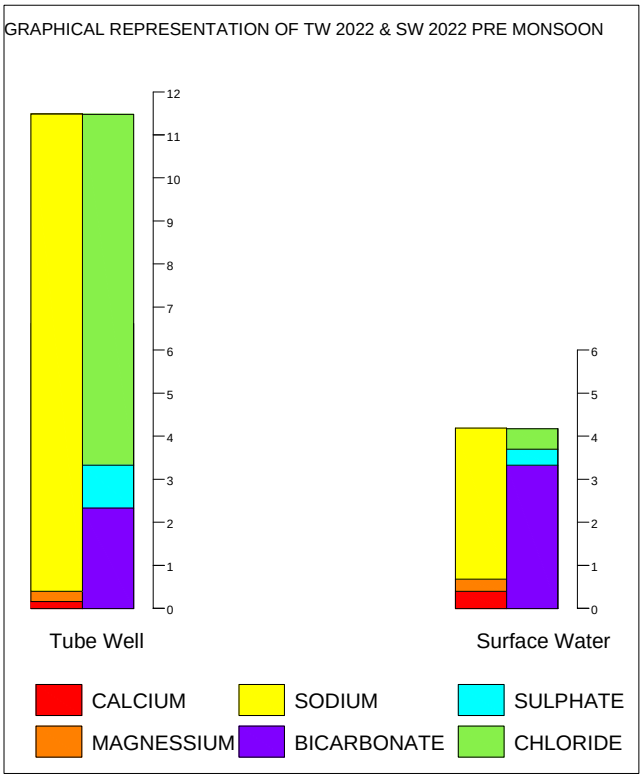


Figure 7.3: Graphical Representation

7.3 Mitigation Measures:

Rainwater harvesting is done as mitigation measure and details are given below.

Need for Rainwater Harvesting:

Groundwater scarcity has been felt in almost all the areas in our country and has emerged as one of the critical issues in the shallow aquifer of urban and rural areas as well as forest land nearby mining area. This phenomenon could be attributed to many factors including population increase, over exploitation of water sources, and failure in monsoon etc. Mining areas are not exception to the water scarcity particularly shallow aquifer and forest land area during summer seasons. In the context of ever expanding situation of water scarcity, there would be no other way but to conserve water through water harvesting mechanism to manage shallow aquifer and nearby forest land. This section deals with the strategies of simple and cost-effective technologies on water harvesting which can be implemented in mining areas more particularly villages adjoining to mine lease, to minimize the basic problems of availability of water.

Water Conservation Strategies:

Following approaches on water harvesting methods are recommended to conserve water in mining areas:

- Storing of pumped out mine water in suitable places
- Rainwater harvesting in open areas in buffer zone
- Rooftop rainwater harvesting in core zone and buffer zone

Mine Area:

Land use for Surface Water Resource for Rainwater Harvesting:

The following land use has been classified and same is represented in the format of CGWA Rainwater Harvesting estimation and given in **Table 7.2.**

Table 7.4: Land use for Surface Water Resource for Rainwater Harvesting

S.No.	Type of Land use	Catchment Area	Monsoon period for 120 days Rainfall	Rainfall Coefficient	Surface Water available	Roof shed water will be used for RWH (120 days)
		m^2	m		m^3/y	
1.	Roof & Shed	42632	1.1	0.85	39861	332
2.	Road pavement	15181	1.1	0.65	10854	

S.No.	Type of Land use	Catchment Area	Monsoon period for 120 days Rainfall	Rainfall Coefficient	Surface Water available	Roof shed water will be used for RWH (120 days)
		m^2	m		m^3/y	
3.	Green Belt	19671	1.1	0.10	2164	
4.	Open land	8542576	1.1	0.20	1879354	
	Total	**8620000**	**1.1**		**1932233**	
					1.93 MCM	

The total surface water will be available to the tune of 1.93 MCM/y. out of which only 39861 m^3/year should be allowed for RWH through roof top in mine area.

Identification of Recharge Zones for Rainwater Harvesting:

Recharge zone is characteristic of having shallow aquifers with thin veneer of soil cover. Geological disposition is the one of the major controlling factors wherein run-off potential and soil infiltration capacity facilitate the recharge activity. Run-off potential is calculated based on watershed basis, which has bearing on terrain characteristics of the area. Runoff factor is categorized depending on its potential to flow. Low run-off areas are comparatively better for recharge activity. Based on the water movement in the soil layers, soils are grouped into various hydrological soil groups. Categorization mainly depends on the parameters such as infiltration rate, texture, depth, drainage and water transmission rate. Hydrological soil group, which has high infiltration rate, well to excessively drained sands or gravels and high rate of water transmission capacity supports high recharge character. CGWB has specified that the area having post monsoon depth to water level more than 5 m is only recommended for rainwater harvesting structures. The depth to water level map for post monsoon indicating very small part of the area having water level near 5 meter hence, the proposal for rainwater harvesting will be limited and only 39861 m3/year water may be utilized for rain water harvesting through roof top. Apart from this there are possibilities for trenches i.e. water absorption trench and recharge pit.

Methods:

There are number of simple rainwater harvesting methods available to store and recharge rainwater. The Central Ground Water Board (2002 & 2008) has recommended simple but effective methods, which are presented below:

- **Rooftop Harvesting:** During the rainy season, water can be collected through down pipes, which are connected, to a filtration pit of 1m x 1m x 2m dimension filled with layers of gravel, pebbles and sand. There will be a facility to drain the filtered water to pit/ reservoir (**Figure 7.2**).

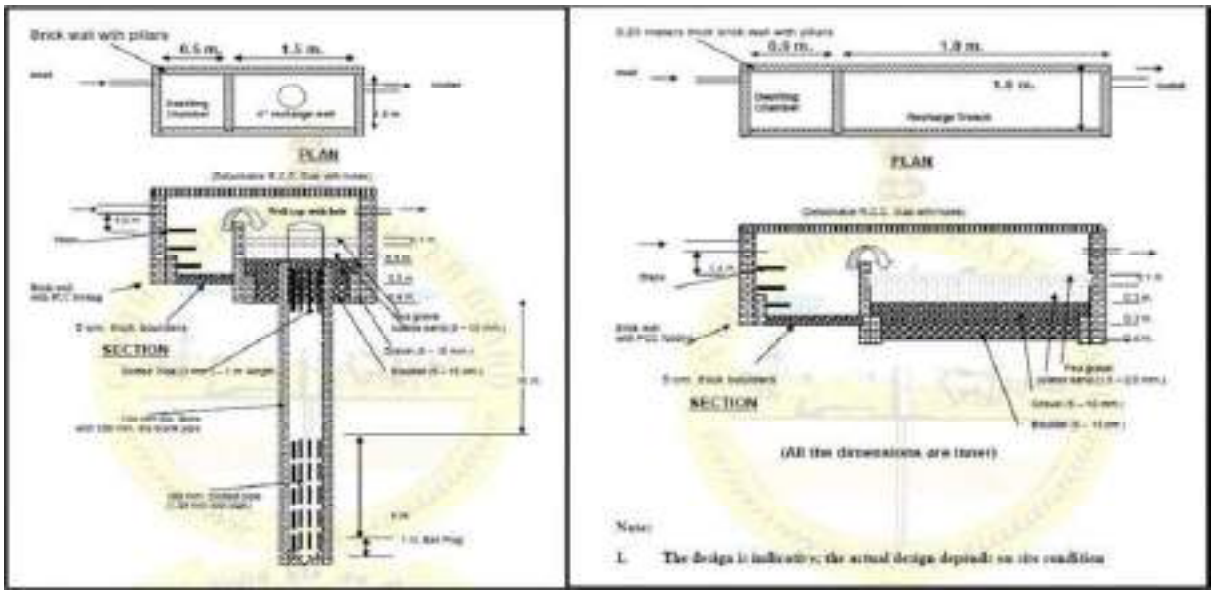


Figure 7.4: Roof Top Harvesting

- **Recharge Pits:** the recharges pits will be constructed at in land 500 m from northern mine boundary, administration buildings and office area. The recharge pits are constructed for recharging the shallow aquifers. These will be constructed 1 to 2 m. wide and 2 to 3 m. deep and back filled with boulders (5-20 cm), gravels (5-10 mm) and coarse sand (1.5-2 mm). The filter material will be filled in graded form. Boulders at the bottom, gravels in between and coarse sand at the top so that the silt content that comes with runoff will be deposited on the top of the coarse sand layer and can easily be removed. If clay layer is encountered at shallow depth, it will be punctured with auger hole and that auger hole will be refilled with fine gravel of 3 to 6 mm size.

  The Schematic Diagram of Rainwater Harvesting is given in **Figure 7.3.**

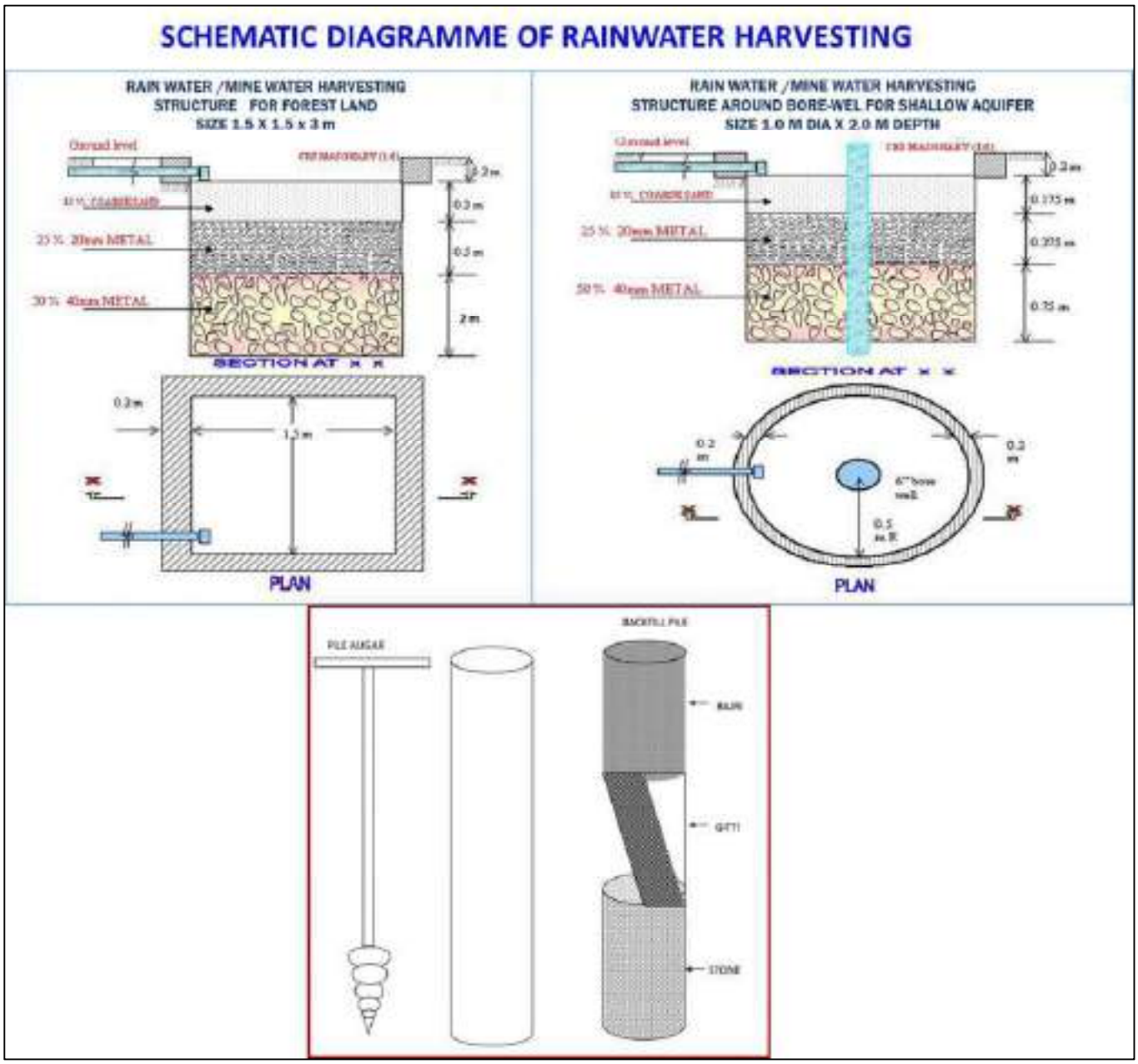


Figure 7.5: Schematic Diagram of Rain water Harvesting

Trenches: (Water Absorption Trench): This being mining activity trenches will be constructed at shallow depths in the forest hills of forest area and nearby permanent buildings and structures. The trench will be 0.5 to 1 m. wide, 1 to 1.5 m. deep and 10 to 20 m. long depending upon availability of water. These are back filled with filter materials. In case of clay layer encountered at shallow depth, the number of auger holes may be constructed and back filled with fine gravels. Figure is given in **Figure 7.4**.

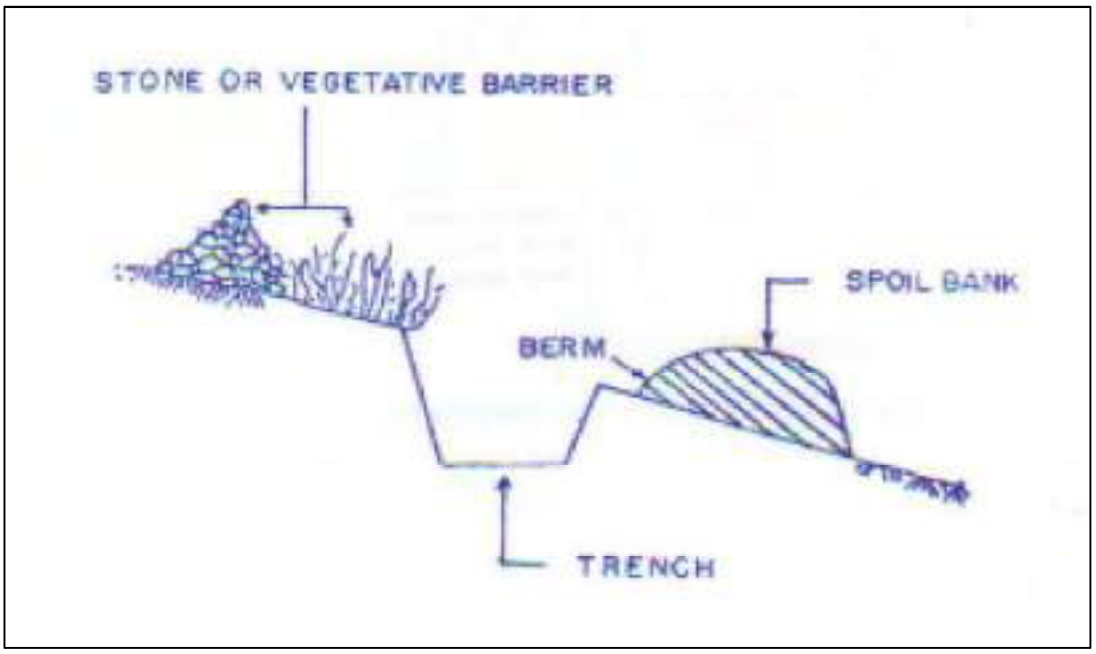


Figure 7.6: Trench

7.4 Saline Water Disposal Strategies:

There is no need for saline water disposal as mine water and surface water is of fresh category.

8.0 ANY OTHER DETAILS PERTAINING TO THE PROJECT:

NA

9.0 SUMMARY AND CONCLUSION:

- M/s. Adani Power Maharashtra Limited, Khodiyar, Ahmedabad, Gujarat state undertaking is engaged in exploration and scientific exploitation of mineral deposits. Gondkhairi Coal Block is located in Kamtee Coal field covering villages Gondkhairi, Nanda, Alesur, kalambi, Karale, Surabardi, Pendhari, Waddhamna Kalmeshwar tehsil of Nagpur district for production of coal. The mine is new project and hence coal production is not started. The total lease area is 862 ha out of which geological block area is 862 Ha.
- Out of 53.52 km2 area of core zone 29.75 km2 falls under crop land category whereas in buffer zone 274 km2 falls under crop land.
- The topography has gentle slope. In the central-west part of the mine boundary showing low elevation as there is a Surabardi reservoir found. The elevation ranges from 390 m in North, east and central portion to 302 m in Southern region.
- The lowest elevation in buffer zone ranges between 286-314 m amsl in southern portion of mine boundary. Inside the mine boundary patches of low elevation is found. Whereas, highest elevation ranges between 393 – 434 m amsl in the western boundary of mine boundary.
- Flat-topped ridges with steep slopes are observed in the northern and southeastern part of the block. The rest of the Gondkhari block has gentle undulating topography with the general slope towards South and Southwest.
- The drainage of the block is controlled by the south westerly flowing seasonal nallahs, which originating in the the northern part and meander towards the western part of the block. Two water bodies viz. Surabardi and Karle reservoirs are located in the, central eastern and central western part of the block respectively. These are earthen dams, which are fed by rainwater, and are known to hold water only seasonally.
- The annual normal rainfall is estimated for all stations falling in Wainganga River catchment. Normal rainfall in study area based on 50 years annual data is 1267.4 mm.
- The Gondkhairi block under report is geologically located south - west of Saoner - Khandala sub basin of the Kamptee coalfield. The block under report is no exception to the general characteristic of Kamptee coalfield and is capped by a thin cover of weathered mantle followed by thick Deccan trap. None of the Gondwana Lithological units are exposed on surface in the area under report. The

geological succession therefore, has been deciphered from the lithologs and subsurface data of boreholes falling within the block.

- In the area at most places, basalts from multilayered aquifers having alternate beds of weathered-fractured rocks also fractured-massive-fractured-weathered beds, which is indicating the presence of unconfined, semi-confined, and confined groundwater conditions. Shallow to medium aquifers often are mainly unconfined and almost occur in the entire project area if these aquifers have significant thickness.
- Study of CGWB reveals that the area formed of basalt overlain by weathered mantle act as aquifer and extends down to an average depth of 0.0 to 20 m. The yield may be 20 to 384 m^3/day. The shallow aquifer is exploited in the study area, mostly by dug well and hand pump.
- The pumping test had been conducted on discharge rate of 518 m3/day gives maximum drawdown of 14.81 m in pumping well and 0.67 m in observation well respectively. Aquifer thickness is 134 m Tranmsimissivity value is 386 m2/day, Storativity is 6.0 x 10^{-4} and Hydraulic conductivity is 2.88 m/day.
- In buffer zone, lowest water table contour is found to be 260 and highest water table contour 340 m amsl. In northern part of buffer zone water table flow direction is towards North direction whereas, in southern portion of buffer zone flow is towards southern side.
- Total 31 numbers of dug wells are monitored. Depth to water level in pre-monsoon varies between 2.00 to 14.15 m bgl average being 7.86 m. while during post monsoon it is 1.10 to 11.55 m bgl and average being 4.77 m. The average groundwater level in core zone during pre-monsoon is 8.86 m bgl while during post monsoon it is 4.11 m bgl. Average fluctuation of water level in core zone is 5 m.
- Hydraulic gradient in incline taken for seepage estimation 1.3 x 10^{-2}.
- The trend analysis of ground water at Waddhamna NHS Station which is 1 km from mine area is showing declining trend. The decline may be due to excessive ground water withdrawal in and around Waddhamna National hydrographic Station.
- The estimation of mine seepage is in the range of 50 to 446 m^3/day from 1st year to 5th year respectively. The maximum mine seepage is during 5th year to the tune of 446 m^3/day which is considered for CGWA NOC.
- Total water requirement is 492 m^3/day (Mine seepage including rain water considered for NOC 452 m^3/day + 40 m^3/day through Bore wells= 492 m^3/day).

- The modeling results reveal that recharge during pre-mining condition will be 203 mm (16% of annual rainfall) whereas 253 mm (20% of annual rainfall) will be under post-mining condition. Thus, there will be increase in ground water recharge due to mining.
- Study carried out by modeling suggests that in pre-mining condition the surface runoff will be 317 mm i.e. 25% of annual rainfall whereas post-mining condition the runoff will be 292 mm i.e. 23% of annual rainfall. As such surface run-off contribution to the natural drains from the mining area would be reduced thereby some change is expected in hydrologic regime of the river system. It is expected that due to increase in recharge ground water runoff (base flow), the surface runoff may increase in nearby river. Thus, there will be only marginal change in quality and quantity of river water due to be proposed mining.
- The total surface water will be available to the tune of 1.93 MCM/y. out of which only 39861 m^3/year should be allowed for RWH through roof top in mine area.

10.0 ACCREDITATION CERTIFICATE:



Accreditation Board of CGWA

Certificate of Accreditation

Mr. Nawal Kishore Prasad

Has been accredited as a Ground Water Professionals to prepare reports in the Functional Areas of

- Impact Assessment of Existing / Proposed GW Extraction
- Hydrogeological conditions in mining projects.

Valid from : 15.02.2021

Valid thru : 14.02.2026

Certificate No. : CGWA/RG1/017

Dated : 07.07.2021

क्षेत्रीय निदेशक
Regional Director
आरजीएनजीडब्ल्यूटीआरआई
RGNGWT&RI

सदस्य
Member
आरजीएनजीडब्ल्यूटीआरआई
RGNGWT&RI

ANNEXURE XIII
PUBLIC HEARING PROCEEDINGS

MAHARASHTRA POLLUTION CONTROL BOARD

Phone No. 24010437 / 24020781
Visit us at : http://mpcb.gov.in
Email : jdwaterdivision@mpcb.gov.in

Kalptaru Point 2nd floor,
Sion Matunga Scheme Road
No. 8, Infant of Sion Cercal,
Sion (E), Mumbai – 400 022.

"Your Service is our Duty"

No./MPCB/JD(WPC)/ENV/PH/B- 230912-FTS-0060 /09/2023

Date: 12.09.2023

To,
Ministry of Environment,
Forests & Climate Change Indira Paryavaran Bhavan,
Jor Bagh Road, New Delhi-110 003.

Sub: Environmental Clearance - Proceedings of Public Hearing in respect of **Proposed** Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur. **Proposed by** M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Maharashtra.

Ref: Sub-Regional Nagpur-I letter dtd-22.08.2023 received on 08.09.2023.

Sir,

The Public Hearing for the **Proposed** Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur. **Proposed by** M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Maharashtra.

Environmental public hearing extended on **dtd. 13.07.2023, Time-11.00 A.M, at Kh.No.9/5, Near Karli Lake, Vill-Karli, Tal-Kalmeshwar, Dist-Nagpur, Maharashtra.** The minutes of the public hearing approved and duly signed by the Public hearing panel along with the proceedings are enclosed

a. Minutes of public hearing duly signed by the Chairman of public hearing panel in (English & Marathi)
b. Copy of Office Order
c. Video DVD and Photograph of Public Hearing.
d. List of participants.
e. Newspaper Notices for Environmental Public Hearing in English & Marathi.

This is submitted for further necessary action please.

Yours Sincerely,

12/9

Dr. J. B. Sangewar
Joint Director (WPC)

Encl: As above

Copy submitted for information to:
The Member Secretary, MPCB, Mumbai.

Copy for information & necessary action to:
1) The Regional Officer, MPCB, Nagpur.
2) The Sub Regional Office, MPCB, Nagpur-I.
3) EIC, M.P. C. Board, Mumbai - For information & display of Minutes on website.

Copy to the applicant of the project:
M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Maharashtra.

CamScanner

1
1.9.2023

MAHARASHTRA POLLUTION CONTROL BOARD

Website : mpcb.mah.nic.in
E-Mail : soonagpur1@mpcb.gov.in
Fax : 2560851
Phone : 2565308, 2560139

Sub-Regional Office-I,
5th Floor, Udyog Bhawan,
Civil Lines,
Nagpur.-440 001.

MPCB/NSRO-1/ 866 /2023 230912-FTS-0059 Dated 22 /08/2023

To,
The Joint Director (Water Pollution Control)
Maharashtra Pollution Control Board,
Mumbai.

Sub :- Submission of Minutes of meeting of Public hearing of M/s. Adani Power Maharashtra Limited (APML), for their proposed Manganese Ore Project namely Gondkhari Underground Coal Mine (Kamptee Coalfield), Village- Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur having project Area 862 Ha, production capacity 3 MTPA conducted on 13.7.2023.

Sir,

Please find attached herewith the original set of minutes of meeting along with two set of photo album, 02 nos CD & 02 nos of Pen drive of public hearing conducted on 13.7.2023 of M/s. Adani Power Maharashtra Limited (APML for their proposed Manganese Ore Project namely Gondkhari Underground Coal Mine (Kamptee Coalfield), Village- Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur having project Area 862 Ha, production capacity 3 MTPA.

This is Submitted for your information & further needful please.

D.A.:- As above.

Yours Faithfully

(R. U. Patil)
Sub-Regional Officer,
M. P. C. Board, Nagpur-I

Copy submitted for information to :-
1) The Additional District Magistrate & Resident Deputy Collector, Collector Office, Nagpur.
2) Regional Officer, M. P. C. Board, Nagpur.

मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपुर यांचे ८६२ हेक्टर लिज क्षेत्रात मौजा – गोंडखैरी, भुमिगत खदान (कामठी कोल्डफिल्ड) ता. कळमेश्वर, जि. नागपूर येथे प्रस्ताविक २.० (निर्धारित क्षमता)/३.० (सर्वोच्च क्षमता) मिलीयन टन/वर्ष भुमिगत कोळशाचे उत्पादन घेणेबाबतच्या प्रकल्पासंदर्भात पर्यावरण विषयक जाहिर लोकसुनावणी बाबतचा इतिवृतांत...

मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपुर यांचे ८६२ हेक्टर लिज क्षेत्रात मौजा – गोंडखैरी, भुमिगत खदान (कामठी कोल्डफिल्ड) ता. कळमेश्वर, जि. नागपूर येथे प्रस्ताविक २.० (निर्धारित क्षमता) ३.० (सर्वोच्च क्षमता) मिलीयन टन/वर्ष भुमिगत कोळशाचे उत्पादन घेणेबाबतच्या प्रकल्पासंदर्भात पर्यावरण विषयक जाहिर लोकसुनावणी दिनांक १३ जुलै २०२३ रोजी सकाळी ११:०० वाजता ख. न. ९/५, कारली तलावाच्या बाजुला, गाव. कारली, ता. कळमेश्वर, जि. नागपुर आयोजित करण्यात आली.

सदरील पर्यावरण विषयक जाहीर सुनावणीबाबतची सुचना स्थानिक मराठी वृत्तपत्र दैनिक लोकमत व राष्ट्रीय इंग्रजी दैनिक वृत्तपत्र टाईम्स ऑफ इंडियामध्ये प्रसिध्दी दिनांक १० जुन २०२३ रोजीच्या वृत्तपत्रात देण्यात आली होती. **(सहपत्र क्र.१ सोबत जोडले आहे.)**

मा. सदस्य सचिव, महाराष्ट्र प्रदुषण नियंत्रण मंडळ, मुंबई यांच्या कार्यालयीन आदेश क्रं बीओ/जेडी(डब्लुपीसी)/पीएच/बी-२३०६१४-एफटीस-०१४५ दि १४/०६/२०२३ अन्वये पर्यावरण विषयक जाहीर लोकसुनावणी घेण्याकरीता मा. जिल्हाधिकारी किंवा त्यांचे प्रतिनिधी अतिरीक्त, जिल्हादंडाधिकारी, नागपुर, समिती अध्यक्ष, प्रादेशिक अधिकारी, म. प्र. नि. मंडळ, नागपुर, सदस्य व उप-प्रादेशिक अधिकारी, म. प्र.नि. मंडळ, नागपुर, समन्वयक म्हणून समिती गठीत करण्यात आली होती. **(सहपत्र क्र.२ सोबत जोडले आहे.)**

सदर पर्यावरण विषयक जाहीर लोकसुनावणीकरीता मा. सुभाष चौधरी, अतिरीक्त, जिल्हादंडाधिकारी, नागपुर, तथा समिती अध्यक्ष, सौ. हेमा देशपांडे, प्रादेशिक अधिकारी, म. प्र. नि. मंडळ, नागपुर तथा सदस्य व श्री. राजेंद्र उ पाटील, उप-प्रादेशिक अधिकारी, म. प्र.नि. मंडळ, नागपुर तथा समन्वय, तथा ग्रामस्थ, सरपंच, पर्यावरणप्रेमी गट, स्थानिक व इतर प्रतीनिधी उपस्थिती होते. या बाबतचे हजेरी पट सोबत जोडत आहे. **(सहपत्र क्र.३ सोबत जोडले आहे.)**

<u>कार्यपध्दती व उद्देश :</u>

मा. अतिरिक्त जिल्हादंडाधिकारी, नागपुर तथा समिती अध्यक्ष यांच्या मान्यतेने सर्वप्रथम श्री. राजेंद्र उ. पाटील, उप-प्रादेशिक अधिकारी, म. प्र. नि. मंडळ, नागपुर तथा समन्वयक पर्यावरण विषयक जाहीर लोकसुनावणी समिती, यांनी उपस्थित असलेले ग्रामस्थ, सरपंच, पर्यावरणप्रेमी गट, स्थानिक व इतर प्रतीनिधी यांचे हार्दिक स्वागत केले. समिती समन्वयक यांनी पुढे सांगितले की, या प्रकल्पाच्या पर्यावरण विषयक जाहीर सुनावणीची सुचना भारत सरकारच्या पर्यावरण, वने व वातावरणीय बदल मंत्रालय, नवी दिल्ली यांचे दि १४ सप्टेंबर २००६ च्या अधिनियमान्वये व सुधारीत अधिनियम दि ०१ डिसेंबर २००९ च्या तरतुदीनुसार सदरील लोकजाहीर सुनावणी जनतेच्या माहितीसाठी लोकसुनावणी प्रसिध्दी सुचना दोन दैनिक वृत्तपत्रात जसे मराठी

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वृत्तपत्र दैनिक लोकमत व इंग्रजी दैनिक वृत्तपत्र टाईम्स ऑफ इंडियामध्ये ३० दिवस आधी दि १० जुन २०२३ रोजी देण्यात आली होती.

प्रस्तावित मे. अदानी पॉवर महाराष्ट्र नागपूर लिमिटेड यांचे ८६२.० हेक्टर लिज क्षेत्रात मौजा गोंडखैरी भूमिगत कोळसा खदान (कामठी कोल फिल्ड्स) गाव-गोंडखैरी, तालुका- कळमेश्वर, जिल्हा-नागपूर, महाराष्ट्र येथे प्रस्तावित २.० (निर्धारित क्षमता)/३.० (सर्वोच्च क्षमता) मिलियन प्रति वर्षे भूमीगत कोळश्याचे उत्पादन घेण्याच्या प्रकल्पासंबंधी पर्यावरणीय व्यवस्थापन आराखडाचा मसुदा, कार्यकारी सारांशच्या प्रती जनतेच्या अवलोकनार्थ व माहितीसाठी स्थानीक मराठी भाषेत व इंग्रजी भाषेत भारत सरकारच्या पर्यावरण, वने व वातावरणीय बदल मंत्रालय, नवी दिल्ली यांचे दि १४ सप्टेंबर २००६ च्या अधिनियमान्वये व सुधारीत अधिनियम दि ०१ डिसेंबर २००९ च्या तरतुदीनुसार अभ्यासण्याकरीता खालील अधिसूचित स्थानिक कार्यालये व ग्रामपंचायती येथे उपलब्ध करुन देण्यात आलेल्या होत्या.

१) क्षेत्रीय कार्यालय, पश्चिम मध्य झोन, पर्यावरण, वने व हवामान बदल मंत्रालय, न्यु सेक्रेटरिएल बिल्डिंग तळमजला, ईस्ट विंग, सिव्हिल लाईन, नागपूर 440 001
२) पर्यावरण व वातावरणीय बदल विभाग, 15वा मजला, नवीन प्रशासकीय इमारत, महाराष्ट्र शासन, मंत्रालय, मादाम कामा रस्ता, मुंबई -400 032
३) सहसंचालक (जल प्रदूषण नियंत्रण), महाराष्ट्र प्रदूषण नियंत्रण मंडळ, कल्पतरू पॉईंट, 3रा माळा, पीव्हीआर सिनेमागृहासमोर, सायन सर्कलजवळ, सायन पूर्व, मुंबई – 400 022
४) प्रादेशिक अधिकारी, महाराष्ट्र प्रदषण नियंत्रण मंडळ. उद्योग भवन, 5 वा मजला, सिव्हिल लाईन्स, नागपूर – 440 001
५) उप प्रादेशिक अधिकारी, नागपूर – 1, महाराष्ट्र प्रदषण नियंत्रण मंडळ. उद्योग भवन, 5 वा मजला, सिव्हिल लाईन्स, नागपूर – 440 001
६) जिल्हाधिकारी, जिल्हाधिकारी कार्यालय, सिव्हिल लाईन्स, नागपूर;
७) मुख्य कार्यकारी अधिकारी, जिल्हा परिषद, सिव्हिल लाईन्स, नागपूर;
८) महाव्यवस्थापक, जिल्हा उद्योग केंद्र, उद्योग भवन, सिव्हिल लाईन्स, नागपूर;
९) उप-विभागीय अधिकारी, कळमेश्वर, तालुका-कळमेश्वर, जिल्हा-नागपूर;
१०) तहसीलदार,तहसील कार्यालय, कळमेश्वर, तालुका-कळमेश्वर, जिल्हा-नागपूर
११) ग्रामपंचायत, पेठकाळडोंगरी, पंचायत समिती, नागपूर, जिल्हा-नागपूर
१२) ग्रामपंचायत,व्याहाड, पंचायत समिती, नागपूर, जिल्हा-नागपूर
१३) ग्रामपंचायत,सुराबर्डी, पंचायत समिती, नागपूर, जिल्हा-नागपूर,
१४) ग्रामपंचायत,धामणा लिंगा, पंचायत समिती, नागपूर, जिल्हा-नागपूर,
१५) ग्रामपंचायत,दवलामेटी, पंचायत समिती, नागपूर, जिल्हा-नागपूर,
१६) ग्रामपंचायत,दुगधामणा, पंचायत समिती, नागपूर, जिल्हा-नागपूर,
१७) ग्रामपंचायत,सोनेगाव निपाणी, पंचायत समिती, नागपूर, जिल्हा-नागपूर,
१८) ग्रामपंचायत,गोंडखैरी, कळमेश्वर,जिल्हा-नागपूर,
१९) ग्रामपंचायत,निमजी, कळमेश्वर,जिल्हा-नागपूर,
२०) ग्रामपंचायत,लोणारा, कळमेश्वर,जिल्हा-नागपूर,

२१) ग्रामपंचायत,आष्टीकला, कळमेश्वर,जिल्हा-नागपूर,
२२) ग्रामपंचायत,सेलू, कळमेश्वर,जिल्हा-नागपूर,
२३) ग्रामपंचायत,उपरवाही, कळमेश्वर,जिल्हा-नागपूर,
२४) ग्रामपंचायत,कळंबी, कळमेश्वर,जिल्हा-नागपूर,
२५) ग्रामपंचायत,सावंगी, कळमेश्वर,जिल्हा-नागपूर,
२६) ग्रामपंचायत,दहेगांव, कळमेश्वर,जिल्हा-नागपूर,
२७) ग्रामपंचायत,साहुली, कळमेश्वर,जिल्हा-नागपूर,
२८) ग्रामपंचायत,लिंगा, कळमेश्वर,जिल्हा-नागपूर,
२९) ग्रामपंचायत,रायपुर,हिंगणा,जिल्हा-नागपूर,
३०) ग्रामपंचायत,डिंगडोह (देवी),हिंगणा,जिल्हा-नागपूर,
३१) ग्रामपंचायत,नागलवाडी,हिंगणा,जिल्हा-नागपूर,
३२) ग्रामपंचायत,नागलवाडी,हिंगणा,जिल्हा-नागपूर,
३३) ग्रामपंचायत,खैरी पन्नासे,हिंगणा,जिल्हा-नागपूर,
३४) ग्रामपंचायत,वडधामना,हिंगणा,जिल्हा-नागपूर,

त्यामध्ये प्रस्तावित प्रकल्पाविषयी सूचना, विचार, टीकाटिप्पणी, आक्षेप तोंडी तसेच लेखी तसेच ई-मेल स्वरुपात देण्याबाबतचे आव्हान ३० दिवस आधी जनतेला व पर्यावरणविषयक काम करणा-या संस्थांना आव्हान करण्यात आलेले होते. सदील जाहीर सुचनेच्या अनुषंगाने या कार्यालयास **एकुण ४४** सुचना लेखी स्वरूपात प्राप्त झाले आहेत. **(सहपत्र क्र. ४ सोबत जोडले आहे.)**

संबंधित प्रकल्पाविषयी ज्या कोणालाही लेखी निवेदन, सूचना, हरकती, द्यावयाचे असल्यास त्यांनी प्रकल्पधारकाचे सादरीकरण झाल्यावर आपले नाव व गावाचे नाव सांगून प्रश्न/सूचना/हरकती विचारू शकता. या प्रश्न-उत्तराच्या कार्यवाहीची नोंद जशीच्या तशी घेण्यात येऊन या जाहीर सुनावणीचे इतिवृत्त राज्यस्तरी किंवा केंद्रस्तरीय आघात मूल्यांकन प्राधिकरण / समितीकडे महाराष्ट्र प्रदूषण नियंत्रण मंडळ, मुख्यालय, मुंबई यांच्यामार्फत पाठविण्यात येईल.

सदरील समिती ही फक्त लोकांचे सदरील प्रकल्पाबाबतचे मत नोंदविण्याकरिता असून कोणतेही निर्णय घेण्याचे अधिकार या समितीस नाही.

समन्वयक पर्यावरण विषयक जाहीर लोकसुनावणी समिती, यांनी प्रकल्पधारकास विनंती केली की, त्यांच्या प्रस्तावित प्रकल्पासंबंधीची पर्यावरण अनुमतीच्या प्रस्तावाकरिता पर्यावरण विषयक लोक जाहीर सुनावणीचे सादरीकरण करावे. माननीय अध्यक्षांच्या परवानगीने प्रकल्प पर्यावरण सल्लागार यांनी प्रकल्पाविषयी व पर्यावरण व्यवस्थापन योजनेविषयी सादरीकरण मराठी भाषेत सुरु केले.

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सादरीकरणात प्रामुख्याने खालील बाबी स्पष्ट करण्यात आल्या:-

प्रकल्पाबाबतची सविस्तर माहिती

- प्रकल्पाचे क्षेत्रफळ, अक्षांश-रेखांश,नकाशा, बुडित क्षेत्र, लाभक्षेत्र, वन क्षेत्र,प्रकल्पाचे वैशिष्ट्ये,प्रकल्पाचे महत्व, परिणाम, जमीन वापर, भूकंप स्थिरता,
- प्रकल्पाचा उद्देश, सामाजिक स्थिती, रोजगाराची संधि, शेतक-यांच्या प्रकल्पामुळे होणारा विकास,
- प्रकल्पाचे विश्लेषण, सारांश, निष्कर्ष
- सामाजिक व आर्थिक स्थितीचे विश्लेषण
- हवा, पाणी, जमीन, ध्वनी, विस्थापन इ.बाबतची माहिती,
- नियोजित प्रकल्पामुळे हवा,पाणी,विस्थापन,जैवविविधता यावर होणारे परिणाम व व्यवस्थापन
- प्रकल्प कार्यान्वित झाल्यानंतर केले जाणारे पर्यावरण व्यवस्थापन याबाबतची माहिती, इतर पर्यावरण व्यवस्थापन विषयीची माहिती.
- खाणीतील हरितपट्टयासाठी व इतर कामकाजासाठी जमिनीचा वापर, खाणकामाचा प्रकार भुमीगत व खाणीचे आयुष्य हे ३० वर्षे.
- पर्यावरण व्यवस्थापन योजनेसाठी भांडवली खर्च व आवर्ती खर्च करीता प्रयोजन केले.

खाणीमध्ये प्रत्यक्ष व अप्रत्यक्ष मनुष्यबळाची आवश्यकता लागणार आहे. ८६३ प्रत्यक्ष मनुष्यबळ व १६०० अप्रत्क्ष मनुष्यबळाची आवश्यकता लागणार असल्याची माहिती देत असते वेळी आमदार मा. सुनील केदार यांचे आगमन झाले. त्यांनी सादरीकरण थांबविण्याची सूचना केली.

मा. अध्यक्ष, लोकसुनावणी समिती तथा अतिरिक्त जिल्हादंडाधिकारी यांनी सादरीकरण तात्पुरते थांबविण्याची सूचना केली.

समन्वयक, यांनी प्रस्तावना परत सांगितली. त्यावेळी आमदार मा. सुनील केदार व इतरांनी आक्षेप नोंदविला की पर्यावरण आघात मुल्यांकन (EIA) अहवाल हा मराठीत उपलब्ध करण्यात आलेला नाही.

त्यावेळी श्री पालीवाल, राहणार-नागपूर यांनी आक्षेप नोंदविली का आपण जो मसुदा पर्यावरण आघात मुल्यांकन (EIA) अहवाल उपलब्ध केला, तो मराठीत नाही. त्यांनी सांगितले की मसुदा पर्यावरण आघात मुल्यांकन (EIA) अहवाल हा त्या त्या राज्याच्या शासकीय भाषेत येथे मराठीत सामान्य जनतेस उपलब्ध करुन देणे बंधनकारक असताना तो करण्यात आलेला नाही. तो इंग्रजीत असून तो ग्रामपंचायतीस पाठविण्यात आलेला आहे. श्री पालीवाल यांना आक्षेप नोंदविला की ईआयए अधिसूचना, २००९ नुसार प्रस्तावित प्रकल्पाचा पर्यावरण आघात मुल्याकन अहवाल तसेच पर्यावरण व्यवस्थापन आराखडा हा स्थानिक भाषा तसेच मराठी मध्ये देणे आवश्यक आहे. मा. आमदार श्री. सुनील केदार यांनी आक्षेप नोंदविला की महाराष्ट्र राज्याची भाषा ही मराठी असून मराठी अहवाल जनतेस उपलब्ध करुन देण्यात आलेला नाही. त्यांनी पुढे

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आक्षेप नोंदविला की देशात लोकशाही आहे. ग्रामीण भागातील सामान्य लोकांना इंग्रजी कळत नाही. त्यांच्यापर्यंत माहिती पोहोचलेली नाही. जर आपणाकडे मराठीतील प्रत आहे तर ती दाखवा. मराठीत ईआयए अहवाल सामान्य जनतेस उपलब्ध करण्यात यावा, त्यांना अभ्यासासाठी पुरेसा वेळ दिल्यानंतर जनसुनावणी आयोजित करण्यात यावी. आम्ही प्रकल्पाच्या विरुध्द नाही. राष्ट्राला कोळशाची गरज ही आहे.

मा. अध्यक्ष, यानी सांगितले की सदरहू आक्षेपाची नोंद घेण्यात आलेली असून त्याचा इतिवृतात समावेश करण्यात येईल. त्यावेळी आमदार श्री. सुनील केदार यांनी आक्षेप नोंदविला की प्रथम ईआयए अहवाल हा मराठीत उपलब्ध करण्यात यावा. मा. अध्यक्ष, महोदय यांनी मत मांडले की सादरीकरण मराठीत असल्याने प्रकल्पाची माहिती मिळू शकते.

उपस्थितांनी आक्षेप नोंदविला की म.प्र.नि. मंडळाने गावात इंग्रजी प्रत पाठविलेली आहे. तरी मराठी ईआयए प्रत उपलब्ध केल्याशिवाय जनसुनावणी प्रक्रिया पुढे चालू ठेवता येणार नाही.

श्री. कोरडे, नागपूर यांनी सांगितले की हा रिपोर्ट बोगस आहे. कारण यासाठी केलेला अभ्यास, सर्वेक्षण हे चुकीचे आहे. बेसलाईन, हायड्रो झुऑलॉजी सर्वेक्षण केलेले नाही. तेथे दोन मोठे तलाव आहेत, सदर भागातील विहीरींमध्ये भुजल पातळी ही ५०० फुटापेक्षा खाली आहे.

एका स्थानिक व्यक्तीने आक्षेप नोंदविला की सर्व कागदपत्रे ही इंग्रजीमध्ये आहे. पर्यावरण विषयक जनसुनावणी समिती ही शासनाने गठित केलेली असूनही सामान्य जनतेच्या ऐवजी प्रकल्प प्रस्तावकांच्या बाजुने असल्याचे जाणवते.

आमदार श्री. सुनील केदार यांनी मा. अध्यक्ष व इतर समिती सभासदांना सांगितले की मराठी ईआयए दिल्याशिवाय जनसुनावणी पुढे जाणार नाही. मराठी ही आपल्या राज्याची राज भाषा आहे. ब-याच वेळा विविध जिल्ह्यातील जिल्हाधिकारी यांनी जनसुनावणी ही स्थगित केलेली आहे.

मा. अध्यक्ष, पर्यावरण विषयक जाहिर जनसुनावणी समिती यांनी उपस्थितांना सांगितले की सदरहू पर्यावरण आघात मुल्यांकन अहवाल (ईआयए -Environment Impact Assessment Report) हा प्रारुप अहवाल आहे. आपण उपस्थित करीत असलेले आक्षेप मत याचा विचार करुन तो अंतीम करण्यात येईल.

एका उपस्थितांने पर्यावरणविषयक जाहिर जनसुनावणी समितीस विचारणा केली की सदरहू ईआयए हा सर्व प्रकल्प बाधित ग्रामपंचायतींना उपलब्ध करण्यात आलेला आहे का? मराठी ईआयए अहवाल न उपलब्ध करणे हे पूर्णपणे कायद्याच्या विरुध्द आहे, त्यामुळे येथे जनसुनावणी प्रक्रिया पुढे चालू ठेवता येणार नाही.

एका स्थानिक शेतकरी, यांनी सांगितले की या जनसुनावणीची सूचना ही एक स्थानिक मराठी वृत्तपत्रात व एक देश पातळीवरिल इंग्रजी वृत्तपत्रात इंग्रजीत प्रसिध्द केलेला आहे. मात्र आपण येथील सांध्य दैनिकात जनसुनावणी सूचना प्रसिध्द केलेली नाही. मला मिळालेल्या माहितीनुसार सर्व माहिती ही इंग्रजीतच ग्रामपंचायत कार्यालयात उपलब्ध करण्यात आलेली आहे. त्याचप्रमाणे आमच्या वडीलोपारजीत जमिनीचा मोबदला कवडीमोल भावाने दिला जाणार आहे. येथील पर्यावरण दुषीत होणार आहे. मा. अध्यक्ष, यांनी सांगितले की सदरहू मुददयाची नोंद घेण्यात आलेली आहे.

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मा. अध्यक्ष, पर्यावरण विषयक जाहिर जनसुनावणी समिती यांनी सांगितले की अधिसूचनेतील निर्देशांनुसार प्रस्तावित प्रकल्पाचा कार्यकारी सारांश हा त्या त्या राज्याच्या अधिकृत्त भाषेत उपलब्ध करणे आवश्यक असून त्याप्रमाणे कार्यकारी सारांश अहवाल (Executive Summary Report) हा इंग्रजी व मराठीत उपलब्ध करण्यात आलेला आहे.

उपस्थितांनी मागणी केली की फक्त कार्यकारी सारांश अहवाल नाही तर पर्यावरण आघात मुल्यांकन (Environment Impact Assessment -EIA Report) अहवाल हा मराठीत प्रथम उपलब्ध करुन देण्यात यावा, नंतरच जनसुनावणी आयोजित करण्यात यावी.

उपस्थितांनी पुढे आक्षेप नोंदविताना सांगितले हा अहवाल स्थानिक लोकांना कळु नये म्हणुन शासकीय कार्यालयात इंग्रजी दस्तावेज उपलब्ध केला आहे असा समज होतो. मा. अध्यक्षांना ही जनसुनावणी स्थगित करण्याचा पूर्ण अधिकार आहे. तरी आम्ही ही जनसुनावणी होऊ देणारच नाही. प्रथम ईआयए अहवाल हा प्रकल्प बाधित गावांना मराठीतच उपलब्ध करुन देण्यात यावा व याची नोंद घेऊन मा. अध्यक्षांनी ही जनसुनावणी बैठक स्थगित करण्यात यावी अशी सर्व उपस्थित ग्रामस्थ घोषणा करत होते.

श्री. कोरडे, राहणार-नागपूर यांनी आक्षेप नोंदविला की सादरीकरण हेही पूर्णपणे चुकीचे आहे. तसेच येथे जे बसलेले आहेत, त्यांना इंग्रजी येत नाही. त्याचप्रमाणे हे सादरीकरण करताना बरेच इंग्रजी शब्द वापरण्यात आलेले आहे. एअर, वॉटर, सॉईल्स, हायड्रो झुऑलॉजी हे सामान्य माणसाच्या समजण्याच्या फार पुढे गेलेले आहेत. कृपा करुन सादरीकरण हे मराठीतून करा, नाहीतर पर्यावरण सल्लागार हा बदला. हा ब्लॅक लिस्टेड कन्सल्टंट आम्हांला नको.

उपस्थित स्थानीक महिला यांनी आक्षेप नोदविला की काही ग्रामपंचायतीस आपण पर्यावरण दस्तावेज उपलब्ध करुन दिलेलाच नाही. येथील स्थानीक शेतकरी हे इंग्रजी समजू शकत नाहित. ही जनसुनावणी घेण्यापूर्वी मराठी ईआयए अहवाल उपलब्ध करणे गरजेचे होते. या निर्देशांचे आपण उल्लंघन केलेले आहे. तरी येथील सर्व उपस्थित महिलांची अशीच इच्छा आहे की ही जनसुनावणी प्रक्रिया ही पुढे चालवू नये.

त्यावेळी उपस्थित महिला समुहाने मागणी केली की येथे सर्वांनाच कळले पाहिजे की मराठीत काय आहे जे इंग्रजीत लिहिलेले आहे. येथे ग्रामपंचायत सदस्य आहेत, सरपंच आहेत, त्यांना कळलेच पाहिजे की अहवालात काय लिहिलेले आहे. महिला समुहाने जनसुनावणी बंद करण्याबाबत घोषणा दिल्या.

समन्वयक, पर्यावरण जनसुनावणी समिती यांनी माहिती दिली आणि सर्व उपस्थितांना नम्र विनंती केली की, या संदर्भात EIA अहवाल मराठीत उपलब्ध करून दिला नाही परंतु आपल्या निदर्शनास आणु इच्छितो की, जनसुनावणीची सूचना मराठी आणि इंग्रजी दैनिकांमध्ये दैनिक बातम्यांमध्ये ३० दिवस अगोदर प्रकाशित करण्यात आली होती. पेपर मराठी दैनिक लोकमत आणि दैनिक इंग्रजी वृत्तपत्र द टाइम्स ऑफ इंडिया ज्यामध्ये प्रस्तावित प्रकल्पाबाबत हरकती/सूचना/मत/टिप्पण्या मागवल्या गेल्या असतील तर लेखी/तोंडी/ई-मेलद्वारे. मात्र, आमच्या कार्यालयात याबाबत कोणतीही हरकत प्राप्त झालेली नाही.

स्थानिक शेतकरी, दहेगांव ग्रामपंचायत, तालुका-कळमेश्वर, जिल्हा-नागपूर तथा संचालक, कृषि उत्पन्न बाजार समिती, कळमेश्वर, जिल्हा-नागपूर यांनी सांगितले की त्यांनी Under Protest सही केलेली आहे. त्यावेळी सदस्या, पर्यावरण जन सुनावणी समिती, यांनी सांगितले की ही जनसुनावणी लोकांकरीता आहे.

त्यावेळी महिलांनी समुहाने एकत्रित मागणी केली की प्रथम ईआयए हा मराठीत उपलब्ध झाल्यानंतर लोकांना अभ्यासासाठी काही कालावधी/वेळ देणे गरजेचे आहे व नंतर ही जनसुनावणी आयोजित करण्यात यावी. सर्व उपस्थितांना जनसुनावणी थांबविण्याची मागणी केली.

जिल्हा परिषद सदस्य यांनी मत मांडेल की हा प्रकल्प कुठल्याही परिस्थिती होऊ नये असे माझे व गावातील सर्वांचेच मत आहे.

उपस्थित महिलेने आक्षेप नोंदविला की खाणीमुळे लोकांच्या जीवनमान खालावेल खाणीमुळे येथे भूकंप होण्याचे प्रमाण वाढेल व शेतीचे व पाण्याचेही नुकसान होऊ शकते. वेणा धरण येथून जवळ आहे. सर्व महिला व पुरुष एकत्रित मागणी करु लागले की हा प्रकल्प नको.

मा. अध्यक्ष महोदय, यांनी कार्हीना वारंवार न बोलण्याची व इतरांना संधि देण्याची सूचना केली.

काही महिलांनी एकत्रित विचारणा केली की अहवालानुसार भूमिगत कोळासा खाण ही २१०० एकरमध्ये होणार आहे. या २१०० एकरात अमरावती हायवे आहे, ऑर्डिनन्स फॅकटरी आहे, पाण्याचे तलाव, अभयारण्य आहेत. अहवालात माहीती खोटी दिलेली आहे. फक्त दोन लाख लोकसंख्या सांगितलेली आहे.

सर्व पुरुष व महिलांना जनसुनावणी रद्द झाल्याबाबतची घोषणा करण्याची वारंवार मागणी केली. त्यांनी अध्यक्षांना जनसुनावणी रद्द केल्याचे जाहिर करावे अशी मागणी केली.

मा. अध्यक्ष महोदय यांनी मत मांडले की जोपर्यंत येथे उपस्थित बोलत आहेत आपले विचार, मते व्यक्त करत आहेत, तोपर्यंत जनसुनावणीचे कामकाज थांबवता येणार नाही.

मा. अध्यक्ष, महोदय यांनी येथे सांगितले की येथे बंद करण्याची एकत्रित घोषणा करण्यात येत आहे. परंतु नंतर आक्षेप येतील की आम्हांला बोलू दिले नाही.

आमदार श्री. सुनील केदार यांनी सांगितले की ईआए अहवाल मराठीत द्या, तदनंतर जनसुनावणी सुरु करा.

मा. अध्यक्ष यांनो कोणाला काही बोलायचे आहे का याबाबत विचारणा केली. त्यावर सर्वांनी "नाही" असे उत्तर दिले. नंतर मा. अध्यक्ष यांनी उपस्थितांना कंपनीचे म्हणणे ऐकायचे आहे का याबाबत विचारणी केली, त्यावेळी एकमताने सर्वांनी नकार दिला. मा. अध्यक्ष यांनी घोषणा केली की जनभावना लक्षात घेता ही पर्यावरणविषयक जनसुनावणी ही येथे थांबवितो.

जनसुनावणी संपल्यानंतर माजी मंत्री आमदार श्री. अनिल देशमुख हे मंचावर आले व त्यांनी प्रस्तावित प्रकल्पाविषयी आपले निवेदन हे लेखी स्वरुपात पर्यावरणविषयक जाहिर जनसुनावणी समितीस सादर केले.

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श्री. अनिल देशमुख यांनी माईकवरुन असे सांगितले की मी अधिका-यांना सूचना दिल्या की येथे सर्व भागात मराठी बोलणारे लोक आहेत. तरी प्रकल्पाची सर्व माहिती ही मराठीतच दिली पाहिजे. सदरहू प्रकल्पाबाबत माझे आक्षेप असून ते पत्र वाचून दाखविले.

(सुभाष चौधरी)
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Minutes Of Environmental Public Hearing for proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of M/s. Adani Power Maharashtra Limited (APML) for their proposed production capacity of 2.0 MTPA (Rated Capacity) 3.0 MTPA (Peak Capacity) in the Mine lease area of 862 Ha. At Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur.

The Environmental Public Hearing for proposed project of M/s. Adani Power Maharashtra Limited (APML) for their proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) production capacity of 2.0 MTPA (Rated Capacity) 3.0 MTPA (Peak Capacity) in the Mine lease area of 862 Ha. At Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur was conducted on 13 July, 2023 at 11.00 AM at the Kh. NO. 9/5, Near Karli Lake, Vill-Karli, Tal-Kalmeshwar, Dist-Nagpur, Maharashtra.

The Notice regarding the Environmental Public Hearing was published in Local Marathi News Paper in Lokmat & in English National Newspaper Times of India on dated 10/06/2023 are hereby attached as **Annexure – I.**

A panel has been constituted by the Hon'ble Member Secretary, Maharashtra Pollution Control Board, Mumbai vide Office Order No. BO/JD(WPC)/PH/B-230614-FTS-0145 dated 14/06/2023 for conducting Environmental Public Hearing On 13 July 2023 at 11:00 am Kh. No. 9/5, Beside Karli Lake, Village-Karli, Tal. Kalameshwar, Dist. Nagpur. In which Hon'ble Collector or his representative Additional, District Collector, Nagpur & Chairman, Regional Officer, M. P. C. Board, Nagpur, Member and Sub-Regional Officer, M. P. C. Board, Nagpur-I, as convenor of the panel. **(Annexure-II)**

Hon'ble Subhash Chaudhary, Additional, District Magistrate, Nagpur, Chairman of environmental public hearing panel, Mrs. Hema Deshpande, Regional Officer, M.P.C. Board, Nagpur was member of public hearing panel and Shri. Rajendra U. Patil, Sub Regional Officer, M.P.C. Board, Nagpur-I was convenor environmental public hearing panel. Attendance sheets of villagers, sarpanch, environmentalists, NGOs, journalists, representative of media channels, local people/ participants who were present at public hearing are attached as **Annexure-III.**

- **Purpose & Procedure:-**

With permission of Hon'ble Chairman Environmental Public Hearing panel has initiated the public hearing procedure. Shri. R. U. Patil, Sub-Regional Officer, Maharashtra Pollution Control Board, Nagpur-I & Convenor of Environmental Public Hearing panel welcomed Shri. Subhash Chaudhary, Additional, District Magistrate, Nagpur, Chairman of environmental public hearing panel, Mrs. Hema Deshpande, Regional Officer, M.P.C. Board, Nagpur & villagers, sarpanch, environmentalists, NGOs, journalists, representative of media channels, local people/ participants present. Convenor, Environmental Public Hearing Panel informed that as per the

Environment Impact Assessment (EIA) notification of Ministry of Environment & climate change Government of India i. e (MoEF & CC, GoI) dated 14th September 2006 as amended on 1st December 2009 Accordingly, the said notification the notice of the said public hearing was published in the two local widely circulated daily news paper i.e. in Marathi, Dainik Lokmat & in National English News Paper i.e. The Times of India on dated 10 June 2023.

The copies of draft Environment Impact Assessment & Environmental Management Plan, (EIA & EMP), Executive summary containing silent features of the proposed project of M/s. Adani Power Maharashtra Limited (APML) Gondkhari Underground Coal Mine (Kamptee Coalfield) of proposed production capacity of 2.0 MTPA (Rated Capacity) 3.0 MTPA (Peak Capacity) in the Mine lease area of 862 Ha. At Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur in Marathi & English languages were made available in various Government Offices as well as Grampanchayats offices as per the notification, of Ministry of Environment & Climate Change, Government of India, New Delhi 14th September 2006 i. e (MoEF & CC, GoI) dated as amended on 1st December 2009. Notified local offices & Grampanchyat as under :-

1) Environment Department, Govt. of Maharashtra, New Administrative Building, 15 Floor, Madam Kama Marg, Mantralaya, Mumbai –32.
2) Joint Director (Water Pollution Control), Maharashtra Pollution Control Board, Kalpataru Point, 2ndand 4th Floor, Opp. Cine Planet, Near Sion Circle, Sion (E), Mumbai-400022.
3) Ministry of Environment Forest & Climate change Office, Civil Lines, Nagpur.
4) District Collector Office, Civil Lines, Nagpur, Dist-Nagpur.
5) Regional Office, M.P.C.Board, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur.
6) Sub-Regional Office-I, M. P. C. Board, 5th Floor, Udyog Bhawan, Civil Lines, Nagpur.
7) Zilla Parishad Office, Civil Lines, Nagpur.
8) District Industries Center, Udyog Bhavan Civil lines Nagpur.
9) Sub Divisional Office, Kalmeshwar, Tal – Kalmeshwar, Dist – Nagpur.
10) Tahsildar, Tahsil Office, Kalmeshwar, Tal – Kalmeshwar, Dist – Nagpur.
11) Gram Panchayat Peth Kaldongri, Nagpur, Dist – Nagpur
12) Gram Panchayat Wyahad, Panchayat Samiti, Nagpur, Dist – Nagpur.
13) Gram Panchayat Surabardi, Panchayat Samiti,Nagpur, Dist – Nagpur.
14) Gram Panchayat Dhamna Linga, Panchayat Samiti,Nagpur, Dist – Nagpur.
15) Gram Panchayat Dawlameti, Panchayat Samiti,Nagpur, Dist – Nagpur
16) Gram Panchayat Dugdhamna, Panchayat Samiti, Nagpur, Dist – Nagpur
17) Gram Panchayat Sonegaon Nipani, Panchayat Samiti, Nagpur, Dist – Nagpur
18) Gram Panchayat Gondkhairi, Kalmeshwar, Dist – Nagpur.

19) Gram Panchayat Nimji, Kalmeshwar, Dist – Nagpur.
20) Gram Panchayat Lonara, Kalmeshwar, Dist – Nagpur.
21) Gram Panchayat Aashtikala, Kalmeshwar, Dist – Nagpur.
22) Gram Panchayat Selu, Kalmeshwar, Dist – Nagpur.
23) Gram Panchayat Uparwahi, Kalmeshwar, Dist – Nagpur.
24) Gram Panchayat Kalambi, Kalmeshwar, Dist – Nagpur.
25) Gram Panchayat Sawangi, Kalmeshwar, Dist – Nagpur.
26) Gram Panchayat Dahegaon, Kalmeshwar, Dist – Nagpur.
27) Gram Panchayat Sahuli, Kalmeshwar, Dist – Nagpur.
28) Gram Panchayat Linga, Kalmeshwar, Dist – Nagpur.
29) Gram Panchayat Raipur, Hingna, Dist – Nagpur.
30) Gram Panchayat Digdoh (Devi.), Hingna, Dist – Nagpur.
31) Gram Panchayat Nigdoh, Hingna, Dist – Nagpur.
32) Gram Panchayat Nagalwadi, Hingna, Dist – Nagpur.
33) Gram Panchayat Khairi Pannase, Hingna, Dist – Nagpur.
34) Gram Panchayat Waddhamna, Hingna, Dist – Nagpur.

In which about said proposed project were challenged to give the suggestion, views, comments, & objections in orally /writing as well as through email 30 days before from the of public & organisation working on environmental issue. In accordance with said public notice the total 44 suggestion have been received in written form. **(Annexure-IV is attached herewith)**

The suggestion or objection raised in the said public hearing & subsequently the reply given by the project proponent will be included in the minutes of meeting & will be submitted to State level or Central Impact Assessment Authority/Committee through Maharashtra Pollution Control Board, Head Quarters, Mumbai. The said committee is only for recording the opinion of the people about the said proposed project & has no authority to take any decision.

Regarding said project whom so ever to submit written statement, suggestion, objection, can be asked after the presentation of project proponent by stating his /her name, village name. The reporting of question - answer will be taken as it is in the minutes of meeting & will be submitted to State level or Central Impact Assessment Authority/Committee through Maharashtra Pollution Control Board, Head Quarters, Mumbai.

The Convenor of the Public Hearing Panel was requested to the project proponent to give their presentation of said public hearing about the proposed project related to the Environmental Clearances of said public hearing related with it. Accordingly, with permission of the Hon'ble chairman the project consultant gave the presentation about the project & environmental management plan.

The Project Environmental Consultant gave presentation of project about expansion & Environment Management Plan in Marathi language. In presentation mainly the following points were explained :-

Detailed Information of the Project -

- Project Area, Latitude-Longitude, Map, Submerged Area, Beneficiary Area, Forest Area, Project; Features, Project Significance, Consequences, Land Use, Earthquake Stability;
- Project objectives, social status, employment opportunities, development of farmers due to the project;
- Project analysis, summary, findings;
- Analysis of social and economic status
- Information about air, water, land, sound, project affected areas etc.
- Impact and management of air, water, displacement, biodiversity due to planned project
- Information on environmental management to be carried out after project implementation, other environment Management information.
- Land use pattern for green belt and other activities in the mine, mining type is underground and life of the mine is 30 years.
- Projected capital expenditure and recurring expenditure for environmental management plan.

While informing about direct and indirect manpower requirement Shri. Sunil Kedar, MLA Saoner arrived. He suggested to stop the presentation & asked to explain the procedure of public hearing.

Accordingly Chairman of the Environment Public Hearing Panel suggested that the presentation be stopped temporarily.

As per request the convenor explain the procedure & asked project proponent to restart presentation of proposed project.

Mr. Paliwal, resident-Nagpur object that the draft Environmental Impact Assessment (EIA) is not in Marathi. He said that the draft Environmental Impact Assessment (EIA) report was not made available to the general public in Marathi. As per EIA notification executive summary EIA /EMP reports in vernacular language & English language. Further Shri. Sunil Kedar, MLA warned that, Marathi is official language in Maharashtra. He further told that the country is a democratic. Common people in rural areas do not understand English. The information has not reached up to them. If you have Marathi EIA copy show it. The EIA report should be made available to the general public in Marathi language, We are not against the project. The nation needs coal.

The Chairman informed that the said objection has been recorded and it will be included in the minutes. At that time Shri. Sunil Kedar MLA objected that the first EIA report should be made available in Marathi. The chairman opined that since the presentation is in Marathi people can understand it.

The participants objected that MPCB had sent the English copies to the village gram panchayat offices. However, the public hearing process cannot be continued unless we get the Marathi EIA copy.

Mr. Korde, Nagpur said that this report is bogus. Because the study, survey done for this is wrong. Baseline, hydrogeology survey not conducted. When there are two big lakes, if the water goes down in the underground mine, the lake water will depleting, The water level in the wells here is 500 feet deep.

A local person objected that are all documents in English & Environmental Public Hearing Panel constituted by Government agency seems favouring project proponent instead of common people.

Shri. Sunil Kedar, MLA Mr. told the Chairman that they would not allowed to continue public hearing unless EIA report is given in Marathi, which is official language of our State. Many times, Collector of various districts have suspended the environment public hearing.

Hon'ble Chairman, Environment Public Hearing Panel told the audience that the said Environment Impact Assessment Report (EIA) is a draft report. The objection raised by you will be considered and finalized.

One of the attendees asked the Environmental Public Hearing Panel whether the said EIA has been made available to the affected Gram Panchayats. As Marathi EIA report is not available which is completely against the law. Hence public hearing process cannot continue here.

A farmer, stated here that the notice of this public hearing was published in one local newspaper in Marathi and one in English newspaper national level. But not publish the notice of public hearing in Sandhya daily news paper. As far as I know all information is available in Gram Panchayat office in English only. Similarly, our ancestral land will be taken at very meagre amount. The environment here is going to deteriorate. The Chairman, Public Hearing Panel said that the suggestion noted.

At that time Hon'ble Chairman, Environmental Public Hearing Panel said that as per the instructions in the notification, the summary must be made available in the official language of that state (here in Marathi) and accordingly the Executive Summary Report has been made available in English and Marathi.

The attendees demanded that not only the executive summary report but also the Environment Impact Assessment (EIA) report should be made available in Marathi first, and then a public hearing should be held.

The participants further objected that if the English document was made available in a notified government office, it is believed that this report is given in English because the local people will not understand it. Chairman has full authority to adjourn this public hearing. However, we will not allow this public hearing. The first EIA report should be made available to the affected villages in Marathi language and taking note of this, All the present villagers were announcing that the chairman should suspend this public hearing.

Mr. Korde, Resident Nagpur objected that the presentation is also completely wrong. Also those who are sitting here do not know English. Similarly, many English words are used in this presentation. Air, Water, Soils, Hydro Geology is far beyond the understanding of the common man. Kindly make the presentation in Marathi, else change the Environmental Advisor. We don't want this black listed consultant.

Local women present in the meeting objected that Environmental Impact Assessment documents were not available to some Gram Panchayats. Local farmers here cannot understand English. It is necessary to make the Marathi EIA report available before conducting this public hearing. However, all the women present here wish that this public hearing process should not be continued.

Group of women demanded that Gram Panchayat Members, Sarpanch are present. They should know what is written in the report. What are contends in the English report should be in Marathi, so that we people can understand it. The women in groups started shouting the slogans of Stop the Meeting.

Coordinator, Environmental Public Hearing Panel informed & humbly request to all participants that if the EIA report is not made available in Marathi in this regards it is noticed that, The public hearing notice was published in Marathi and English daily newspapers 30 days prior in daily News Paper Marathi Dainik Lokmat & Daily English News Paper The Times of India in which the objections/suggestions/opinion/comments were called regarding the said proposed project in written/orally/through e-mail. However, no objection has been received in this regard in our office.

Local farmers, Dahegaon Gram Panchayat, Taluka-Kalameshwar, District-Nagpur and Director, Agricultural Produce Market Committee, Kalameswar, District-Nagpur said that they have signed attendance sheet Under Protest. The Regional Officer, M.P.C. Board & Member, Environmental Public Hearing Panel, said that this public hearing is for the public.

The women group collectively demanded that the EIA should be made available in Marathi, some period/time should be given to people for study and then this public hearing should be held. All present asked to stop the public hearing.

Zilla Parishad Member expressed that everyone including me in the village is of the opinion that this project should not be executed under any circumstances.

The woman present objected that the quality of life of the people will affected by the mining. The mine will increase the frequency of earthquakes here and may damage agriculture and water. Vena Dam is near the project site. All attendees started opposing the propose project.

Panel Chairman, instructed gathering not to speak repeatedly by some people and give opportunity to others.

Some women asked that underground coal mining will take place in 2100 acres which included Amravati Highway, Ordnance Factory, water ponds, sanctuaries. But false information is give in the report. In the report, only two lakh population is stated, which is totally wrong.

All men and women repeatedly demanded to announce the cancellation of public hearings. They demanded that Chairman, Environment Public Hearing announce the cancellation of the public hearing.

Chairman, Environment Public Hearing Panel said that no decision can be taken regarding the meeting as long as the participants desires to speak. Participants told that they will not go until the hearing is cancelled.

Chairman opined that as long as the people present here are expressing their views and opinions, the proceedings of the public hearing cannot be stopped.

Chairman, Environment Public Hearing Panel said that a collective demand announcement of shutdown is being made. But later there will be objections that people are not allowed to speak.

Chairman of the Environment Public Hearing Panel asked the gathering if anyone wanted to speak. There was huge shout "NO" from the people.

Chairman of the Environment Public Hearing Panel asked whether attendees want to hear the company's say. All unanimously refused.

Shri Sunil Kedar, MLA remarked that first make available the EIA report Marathi, then only proceed for public hearing.

Chairman, Environment Public Hearing announced that the environmental public hearing is held up due to public sentiment.

After discontinuation of the meeting, Shri Anil Deshmukh, MLA and former minister came on stage and submitted his memorandum in writing to Environment Public Hearing Panel.

MLA Shri Anil Deshmukh stated that I informed the Authorities that there are Marathi speaking people in all areas. However, all information about the project should be made available in Marathi only. I have objections regarding the said project and read out memorandum submitted to the Panel.

(Subhash Choudhri)
Chairperson,
Environment Public Hearing Committee
Additional District Magistrate, Nagpur

(Hema Deshpande)
Member,
Environment Public Hearing Committee
Regional Officer, MPCB, Nagpur

(R. U. Patil)
Convener,
Environment Public Hearing Committee &
Sub Regional Officer, MPCB, Nagpur-1

वृत्तपत्रात सार्वजनिक सुनावणीची जाहिरात



MAHARASHTRA POLLUTION CONTROL BOARD

NOTICE FOR ENVIRONMENTAL PUBLIC HEARING

Sub-Regional officer,
MPCB, Nagpur-I & Convener,
Environment Public Hearing



महाराष्ट्र प्रदूषण नियंत्रण मंडळ, नागपूर



महाराष्ट्र प्रदूषण नियंत्रण मंडळ

3366

adani Power

ANACON

ARASHTRA POLLUTION CONTROL BOARD

Phone : 24010437/24020781
/24037124/24035273
Fax : 24044532/24024068/24023516

Email : jdwater@mpcb.gov.in
Visit At : http://mpcb.gov.in

Kalpataru Point, 3rd & 4th floor,
Sion- Matunga Scheme Road No. 8,
Opp. Cine Planet Cinema,
Near Sion Circle, Sion (E),
Mumbai – 400022.

"Your Service is our Duty"

No. BO/JD (WPC)/PH/B- 230614-FTS-0145 Date: 14 / 06/2023

OFFICE ORDER NO. E- 40 OF 2023

Ref: Office Memorandum issued by MoEF & CC vide No F. No. 22-25/2020.IA.III dtd 09.06.2021.

In compliance of Notification S. O. 1533 dt. 14/09/2006 and amended Notification S.O. 3067 (E) dt. 01/12/2009 of Ministry of Environment and Forests, Government of India, the Public Hearing Panel in respect of **Proposed** Gondkhari Underground Coal Mine (Kamptee Coalfield), Village-Gondkhari, Tahsil-Kalmeshwar, Dist-Nagpur. **Proposed by** M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur, Is as below;

1)	**District Magistrate, Nagpur** Or his representative not below the Rank of an **Additional District Magistrate**	**Chairman**
2)	Representative of Maharashtra Pollution Control Board **Regional Officer, M.P C. Board, Nagpur**	**Member**
3)	**Sub Regional Officer, M. P. C. Board, Nagpur-I** **Will work as:**	**Convener**

The public hearing is proposed on **13.07.2023, Time- 11.00 A.M** The Public hearing shall be conducted in compliance with the Office Memorandum issued on 09.06.2021 by MoEF&CC which should be followed strictly during public hearing.

The Members are requested to make it convenient to attend the Public Hearing scheduled on **dtd. 13.07.2023, Time-11.00 A.M, at Kh.No.9/5, Near Karli Lake, Vill-Karli, Tal-Kalmeshwar, Dist-Nagpur**. Positively.

This office order issued with approval of Hon'ble Member Secretary

14/6

(Dr.J.B.Sangewar)
Joint Director (WPC)

Copy submitted for information to:

1) The Principal Secretary, Environment Department, Govt. of Maharashtra, Mantralaya, Mumbai- 400 032.
2) The Chairman M. P. C. Board, Mumbai.

Copy for information to:

District Collector, Nagpur.

Copy for information & necessary action to:

1) Regional Officer, M. P. C. Board, Nagpur. He is directed to bring the OM to notice of District Magistrate.
2) Sub Regional Officer, M. P. C. Board, Nagpur-I, - He is instructed to ensure that the copies are served to all concerned.
3) EIC, M. P. C. Board, Mumbai - For information & display on website. – Soft copy of Executive Summary sent to EIC section.

Copy to project proponent:

M/s. Adani Power Maharashtra Limited (APML),Tahsil-Kalmeshwar, Dist-Nagpur.

मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपुर गोंडखैरी भूमिगत कोळसा खाण, (अदानी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा –नागपुर, यांनी महाराष्ट्र प्रदुषण नियंत्रण मंडळास पर्यावरण विषयक जाहीर लोकसुनावणी घेण्याबाबत अर्ज केला आहे. गोंडखैरी, गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा –नागपुर,या खदानीची उत्पादन क्षमता ३ मिलीयनटन/वर्ष प्रस्तावित आहे व खदानीचे क्षेत्र ८६२ हेक्टर आहे. प्रस्तावित प्रकल्पाची पर्यावरणविषयक जाहीर जनसुनावणी

सुनावणीचेठिकाण :- **ख. न. ९/५, कारली तलावाच्या बाजुला, गाव.कारली, ता. कळमेश्वर, जि. नागपुर-४४००२३.**

सुनावणीची तारीख :- **१३/०७/२०२३**

सुनावणीचेवेळ :- **११:०० वाजता**

अ.क्र			
	सौ. शिल्पा वि. पाचखेडे	निमंत्रित	Speech
१)	श्री. कुणाल चोरसिया	निमंत्रित	Klm
२)	सौ Jyoti A Dalhadale	सोनेगाव निपाणी	Jyoti
३)	421012		421012
४)	Manisha Bhivankar	Sonegav Nipani	M Bhivankar
५)	Aruna Manwatkar	Sonegav Nipani	Aruna
६)	Vasha pillay	Sonegav Nipani	V pillay
७)	Kiran Singh	Sonegav Nipani	Kiran
८)	Aruna Arvind Rondhi	Sonegav Nipani	Aruna Rondhi
९)	Chitra Ajay Ingale	Sonegaon Nipani	Chitra
१०	Smita M. Narole	Sonegaon Nipani	Narole
११	विना शालेश्वर वाघमारे	ग्रा.सदस्या	विना वाघमारे
१२	ज्योत्स्ना नथ्थू ढोक	ग्रा.सदस्या	ज्योत्स्ना
१३	रंजना सोनवाने	ग्रा.सदस्या	रंजना
१४	सौ.गीता सदाशिव गणराज	ग्रा.सदस्या	गीता गणराज
१५	पुरुषोत्तम ठाकरे	ग्रा.सदस्य	P. S. Thakre
१६			
१७	मंदा दशरथ आसकरे	ग्रा.सदस्या	मंदा आसकरे
१८	अंजना बर्वे ठाकरे	ग्रा.सदस्या	अंजना

Page No. 3
Date:

अ.क्र.	उपस्थित सभासदांचे नाव	गावाचे नाव	सही
1.	मीना शेंडुरकर	सुरावडी	मीना
2.	रत्ना शेंदरे	सुरावडी	रत्ना
3.			
4.	वनिता सोनुले	सुरावडी	वनि
5.	पुजा दुर्विण चौधरी	सुरावडी	P.C
6.	सौ कल्पना चंद्रशेखर राऊत	सुरावडी	K.S
7.	दिवाली विनोद गुरनुले	सुरावडी	D.V
8.	करिश्मा अर्जुन गुरनुले	सुरावडी	K.A
9.	सरस्वती सुधाकर गुरनुले	सुरावडी	सरस्व
10.	सविता रामायण राऊत	उपरवाही / दिगा	(सवि
11.	रेखा खांडेकर	आरोग्यसेविका मुक्ति.	(
12.	कु. हर्षा चरपे	सावंगी मा.से.	
13.	कु. मायावती गोतीराम देशपांडे	साकुरी / हेटीनाव ग्रा.पं.	
14.	सौ. मधु मुरलीधर मुधाकर	रोंजरवरे (सरपंच)	
15.	सौ. वर्षा विलास सतकरी	रोंजरवरे, (सरपंच)	Vs
16.	सौ. लेखा रविंद्र धुर्वे	सोनगाव (वि. सरपंच)	
17.	सौ. गिता प्रविण डमरेकर	दवणमेटी ग्रा.पं. सभ.	
18.	सौ. माला सुरेश घोपटे (नि.प.सदस्य)	ढवळमेढी	
19.	सौ. प्रमिला देवीदास कु (माजी नि.पं.सभ्य)	रेवडगाव	
20.	आरती अनिल पाटील		
21.	कु. अश्विनी किशनराव	रेवा विमापरी	
22.	कु. अश्विनी पंढरीनाथ	कुरखामारा	
23.	सौ रक्षा सुरजलेवे	[illegible]	
24.	कु उज्वला उपाध्याय	सिरोडा	
25.	२२ मी शशिराव कोटरंगे नि.	सदस्य डिगडोह	
26.	विजय रामेश्वर वांढरकर	वडधामना	
27.	सुषमा गणेश मुके	वडधामना	
28.	[illegible]	[illegible]	
29.	दिक्षा वावाजले	वडधामना	
30.	माधुरी [illegible]	[illegible]	

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Date :

अ.क्र.	उपस्थितांचे नाव	गावाचे नाव	सही
शाळीकवा	~~श्री. इंदुमणी सुरेश कांबळे~~	ग्रा.प. उंगडेदेवी	~~सही~~
34	शिपक शेखरीय	प्रगती ग्रामपंचायत	
35	शोकेश्वर दे. लोणारे	नं.१ मुली अंगणवाडी	

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अ.क्र.	उपस्थितांचे नांव	गावाचे नांव	सही
1	[illegible]	[illegible]	
2	गोविंदा माले	-11-	
3	नवीन शर्मा	-11-	
4.	अशोक आढव	-11-	
5.	आशा [illegible]	[illegible]	
6.	[illegible]	[illegible]	
	[illegible]	[illegible]	
7.	V. Sunanda Dy DG Environment Govt	9848179729	
8	Manoj Sharma	Sirsbuli	
10	Ruslikesh Gurnule	Naglwadi	
11	manoj Pali	wadd ramora	
12	pavan Lashkary	Subabadi	
13	G.K. Bore	Seemalawadi	
14	Avinash Gaikwad	Syabadi	
15	[illegible]	[illegible]	

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अ.क्र.	उपस्थितांचे नांव	गावाचे नांव	सही
१६.	प्रविण गायकवाड	म्याहाड.	
१६	राकेश शिवणकर	म्याहाड	
	दिगंबर आत्माराम कुरकुरे		दिगंबर
१८	शेखर निंबोडी	सुरावली	शेखर नि.
१९	अशोकराव गणवीर	सुरावली	गणवीर
२०	कौसल्या बघेरे	सुरावली	बघेरे
२१	Smt. Marchare Sudhir	Sukali	
२२	देवदास साने	सुरेवेली सुरावली	देवदास
२३	श्री एच. एल. पुंडे	गोडबोरी	
२४	[illegible]	[illegible]	
२५	[illegible]	[illegible]	
२६	हरिभाऊ सोनवाने	सुरावली	
२६	Nilshil Dahare	Sakuli	
२८	Vedshree Tidke	Sakuli	
२९	Harshal Wankhede	Sakuli	
३०	Suraj Mankar	Dahegaon	

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अ. क्र.	उपस्थितांचे नाव	गावाचे नाव	सही.
३२	मारोती गुणाजी वाहुरे	सुरवडी	मारोती वाहुरे
३३	विनायक गुरनुले	सुरवडी	विनायक गुरनुले
३४	दामोदर बोहरे	सुरवडी	दामोदर
३५	देविदास डेहनकर	कुंभली	
३६	नामदेव चिमोटे	कुंभली	नामदेव चि
३७	लक्ष्मीराम मोटघरे	कुंभली	
३८	Shaikh kalam Sadique	देहगाँव	337-0377
३९	Pradeep Ganeshrao Wankhade देहेगाँव		13/7/2
४०	विलास सोनुले सावली		विलास सो
४१	दामोदर निंबे	साकुली	दामोदर नि
४२	सुधाकर खोब्रागडे	साकुली	
४३	एकनाथ गोरख मडकी	साकुली	ए. जी. मडकी
४४	Vinit N. Gajbhiye	Nayaat Nagar Gadchiroli	
४५	डॉ. एच. गाईचे		
४६			

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अ.क्र.	उपस्थितांचे नांव	गावाचे नांव	
४८	अमूल मलिक	आलेगूर	A
४९	Shivaji M. Shinde	Sakuli	S
५०	रामराव वसाके	आलेगूर	
५१	नारायण वानखेडे	आलेगूर	
५२	ज्ञानेश्वर वी Sonkar	आष्टी (वर्धा)	
५३	जाहिद शेख	देहगाव	
५४	भीमराव मो. शिंदे	— —	
५५	[illegible] Matkhare	देहगाव	
५६	[illegible]	[illegible]	
५७	[illegible]	[illegible]	
५८	किशोर काशिराव आसोले	सेलू	
५९	सचिन नामदेवराव वाघधरे	सेलू	
६०			
६१			
६२			

मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपुर गोंडखैरी भूमिगत कोळसा खाण, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा –नागपुर, यांनी महाराष्ट्र प्रदुषण नियंत्रण मंडळास पर्यावरण विषयक जाहीर लोकसुनावणी घेण्याबाबत अर्ज केला आहे. गोंडखैरी, गाव-गोंडखैरी, तालुका-कळमेश्वर जिल्हा –नागपुर,या खदानीची उत्पादन क्षमता ३ मिलीयनटन/वर्ष प्रस्तावित आहे व खदानीचे क्षेत्र ८६२ हेक्टर आहे. प्रस्तावित प्रकल्पाची पर्यावरणविषयक जाहीर जनसुनावणी

सुनावणीचेठिकाण :- ख. न. ९/५, कारली तलावाच्या बाजुला,
गाव.कारली, ता. कळमेश्वर,
जि. नागपुर-४४००२३.
सुनावणीची तारीख :- १३/०७/२०२३
सुनावणीचेवेळ :- ११:०० वाजता

अ.क्र.	उपस्थितांचे नाव	हुद्दा	स्वाक्षरी
०१.	श्री. सुभाष चौधरी अतिरिक्त ~~जिल्हाधिकारी~~ जिल्हा दंडाधिकारी, नागपुर	अतिरिक्त जिल्हा दंडाधिकारी	
०२.	श्रीमती. हेमा देशपांडे प्रादेशिक अधिकारी म.प्र.नि. मंडळ. नागपुर	प्रादेशिक अधिकारी.	
०३.	श्री. राजेंद्र पाटील उप-प्रादेशिक अधिकारी म.प्र.नि. मंडळ, नागपुर-३	उप-प्रादेशिक अधिकारी.	

[illegible]

अ.क्र.	उपस्थितांचे नांव	गावाचे नाव	सह्या
01.	B.K. Agrawal 9732511932	Surabarti	
02.	Sudhir Patil	VEAG	
03.	Amit Gupta	NGP	
04.	Aditya Agrawal	Surabardi	
05.	Adarsh Tiwari	Surabardi	
06.	S.P. Kwalal	SDM, Kam	
07.	M.V. Pote	SDM, Nhp Rural	
08.	R.S. Malewar	Tahsildar, Kalwan	
09.	Sandeep Tadse	Nayb Tahsildar K/m	
10.	DR. UDAY SHEDREY +1	Nagpur Kalmeshwar	
11.	Mohsin R. Zaidi	Gondhimuk	
12.	[illegible]	[illegible]	
13.	D.D. Kolhale	Gen. of Advocate	
14.	[illegible]	Dheeraj Patole	
15.	Prashant S. Nimbalkar 9422222623 / 9822224700	Dahiyan	
16.	V.B. Bhange	Kalmeshi	
17.	M.S. Kwadi	Gen...	
18.	H. Pohankar	Gondkhairi	
19.	Kishor Mohod	LINGA	
20.	Devendra K. Panmase	Sukali	
21.	Mangal P. Tidke	Farmer	
22.	Deorao G. Mankar	Farmer Umrer	
23.	Ravi S. Kyada	[illegible]	
24.	[illegible]	[illegible]	
25.			
26.	Rajendra M. Sute	Kalmbi	
27.	Satyanarayan Dasak	Nanda Kalmeshwar	
28.	Sanjay Tabhane	Saangi	
29.	C.B. Mohod.	Kalmbi	
30.	Hemant Dwivedi	Kanhkhairi	
31.	[illegible]	Ghorki	

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Date :

अ.क्र	उपस्थितांचे नाव	गावाचे नाव	स्वाक्षरी
67.	Mohan Rahangdale	Nagpur	
68.	Gyan Chand Bohra	〃	
69.	Virendra	〃	
70.	Raveesh Chandra	Ahmedabad	
71.	Anirudh Sarange	Ahmedabad	
72.	Vaishali patel	Ahmedabad	
73.	Narsh Nirwal	Nagpur	
74.	Prashant Bhende	Nagpur	
75.	Shrikant B. Vyavahare	Nagpur	
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उपस्थिती मतदे यादी

अ क्र.	उपस्थितांचे नांव	गावाचे नाव	स्वा
01.	B.K. Agrawal	Surgaon	
02.	Sudhir Palimkar 9325111932	VEPA.	
03.	Amit Gupta	N.G.P	
04.	Aditya Agrawal	Surgaon	
05.	Adarsh Tiwari	Surgaon	
06.	S.P. Khadat	SDM, Saoner	
07.	M.V. Pote	SDM, Ramtek	
08.	R.S. Malewar	Tahsildar, Kalmeshwar	
09.	Sandeep Tadse	Nayab Tahsildar Kalmeshwar	
10.	DR. UDAY SHEOREY	Nagpur Kalmeshwar	
11.	Mohan R. Zodape	Gondkhairy	
12.	[illegible]	[illegible]	
13.	[illegible]	[illegible]	
14.	[illegible]	[illegible]	
15.	Prashant S Nimbalkar 9422222621/9822226700	Dahiagaon	
16.	V.B. Bhange	Kalmeshwar	
17.	M.S. Kyadi	[illegible]	
18.	H. Pohankar	Gondkhairy	
19.	Kishor Mohod	LINGA	
20.	Devendra Ko Punyase	Suheli	
21.	Mangal P. Tidke	Farmer	
22.	Deorao G. Mankar	Farmer Dahegaon	
23.	Ravi S. Kyade	[illegible]	
24.	[illegible]	[illegible]	
25.			
26.	Rajendra M. Suke	Kalmeshwar	
27.	Satyanarayan Dasak	Nanda Kalmeshwar	
28.	Sanjay Tabhane	Saangi	
29.	C.B. Mohod	Kalmeshwar	
30.	Hemant Dwivedi	Kanhegaon	
31.	[illegible]	GHOGLI	

3379

प्रकृती फाउंडेशन

① 1/44

चंद्रपूर
दिनांक : 17/06/2023

प्रति

1. मा. जिल्हाधिकारी
जिल्हाधिकारी कार्यालय, सिव्हील लाईन्स
नागपूर. 440 001.

2. मा. प्रादेशिक अधिकारी तथा समन्वयक
म.प्र.नि. मंडळ नागपूर, 5, वा माळा, उद्योग भवन
सिव्हील लाईन्स नागपूर 440 001.

3. उप - प्रादेशिक अधिकारी
म.प्र.नि. मंडळ नागपूर, 5, वा माळा, उद्योग भवन
सिव्हील लाईन्स नागपूर 440 001.

REGIONAL OFFICE
Card No 1140
Date 20/6/23
M. P. C. BOARD, NAGPUR

विषय : दिनांक: 10/07/2023 रोजी मेसर्स अदानी पॉवर महाराष्ट्र लिमीटेड, नागपूर यांच्या गोंडखैरी भुमीगत कोळसा खाण (कामठी कोळसा क्षेत्र) प्रकल्पाच्या पर्यावरण विषयक जन सुनावणी मध्ये उपस्थित राहून व्हिडीओ शुटींग करण्यास परवानगी मिळण्याबाबत.

संदर्भ : दि. 10 जून 2023 च्या दै. लोकमत मध्ये प्रकाशित करण्यात आलेली जाहिरात

GPOI

महोदय,

वरिल विषयाला अनुसरुन संदर्भिय वर्तमान पत्रात प्रकाशित करण्यात आलेल्या जाहिरातीनुसार **ख.न.** 9/5, कारली तलावाच्या बाजुला, गाव - कारली, ता. कळमेश्वर, जि. नागपूर येथे दिनांक 10 जून 2023 रोजी आयोजित जन सुनावणी मध्ये पर्यावरण विषयी मत प्रदर्शित करण्याकरिता आमच्या संस्थेतर्फे (1) **दिपक दिक्षीत** (2) **राजेश मिश्रा** हे सदर सभेत उपस्थित राहून पर्यावरण विषयक मत प्रदर्शित करतील, तसेच संस्था स्वखर्चाने जन सुनावणी कार्यक्रमाची व्हिडीओ शुटींग करु इच्छिते, कृपया सभेत उपस्थित राहून मत प्रदर्शित व व्हिडीओ शुटींग करण्यास परवानगी प्रदान करण्यात यावी ही विनंती. आपल्या माहिती व आवश्यक कार्यवाहीस्तव सविनय सादर.

दिपक दिक्षीत
अध्यक्ष
प्रकृती फाउंडेशन
चंद्रपूर.

शॉप नंबर ५, कन्नमवार बचत भवन, जूना वरोरा नाका, चंद्रपूर ४४२ ४०१ (महाराष्ट्र)
Phone : 07172 - 253210 Email : fprakruti@gmail.com
रजि.नं. : महा/२९८/२०१५ ट्रस्ट रजि.नं. : एफ-१३९२९(चंद्रपूर)

महाराष्ट्र विधानसभा

REGIONAL OFFICE
Inward No. 14.00
Date 12/07/23
M.P.C. BOARD, NAGPUR

अनिल देशमुख
माजी गृहमंत्री
महाराष्ट्र

दि. १२ जुलै २०२३

प्रति,
महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशीक कार्यालय / उप-प्रादेशीक कार्यालय - १
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर – ४४०००१

विषय – मेसर्स अदानी पॉवर, गोडखैरी ता. कळमेश्वर जि. नागपूर भुमीगत कोळसा खाणीबाबत

महोदय,

गोडखैरी ता. कळमेश्वर जि. नागपूर येथे मेसर्स अदानी पॉवर च्या वतीने ८३२ हेक्टर मध्ये भुमीगत कोळसा खान होणार आहे. सदर खानीतील क्षेत्र हे मेट्रोरिजन मध्ये येत असल्यामुळे पुढील येणाऱ्या १०० वर्षाचे एन.एम.आर.डी.ए. चे नियोजन आहे. खाणीच्या क्षेत्रात वेणा जलाशय असून या जलाशयाचे पाणी अमरावती रोडवरील सर्व गावात व खाणीच्या क्षेत्रात येणाऱ्या सर्व गावात पिण्यासाठी वापरले जाते. तसेच या क्षेत्रात ऑर्डनस्न फॅक्टरी असून केंद्राच्या सरंक्षण विभागाशी संबंधीत आहे. या ऑर्डनस्न फॅक्टरीमध्ये सुध्दा या जलाशयाचे पाणी वापरण्यात येते व [redacted] वस्तीचा भाग आहे.

तसेच या खाणीकरीता मोठ्या संख्येने जमीन अधिग्रहीत केल्या जाईल तसेच त्यामुळे गावांचे व घरांचे पुर्नवसन करण्यात येईल त्यामुळे लोकांना याचा त्रास सहन करावा लागणार आहे. यामुळे या परिसरातील नागरीकांचा या भुमीगत कोळसा खाणीला मोठ्या प्रमाणात विरोध आहे.

(अनिल देशमुख)

नागपुर :- 'श्रद्धा', जी.पी.ओ. स्क्वेअर, सिविल लाईन्स, नागपुर – ४४० ००१.
मुंबई :- बी-१००१, सुखदा को-ऑप.हौ. सोसायटी, सर पोचखानवाला रोड, वरळी, मुंबई – ४०० ०३०.
मोबाईल : ९८६९० १०४०० ☎(नागपुर कार्यालय) ०७१२-२५२४९८९ ई-मेल : deshmukhav09@gmail.com

महाराष्ट्र विधानसभा

सत्यमेव जयते

अनिल देशमुख
माजी गृहमंत्री
महाराष्ट्र

दि. १२ जुलै २०२३

प्रति,
महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशीक कार्यालय / उप-प्रादेशीक कार्यालय - १
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर — ४४०००१

विषय — मेसर्स अदानी पॉवर, गोडखैरी ता. कळमेश्वर जि. नागपूर भुमीगत कोळसा खाणीबाबत

महोदय,

गोडखैरी ता. कळमेश्वर जि. नागपूर येथे मेसर्स अदानी पॉवर च्या वतीने ८३२ हेक्टर मध्ये भुमीगत कोळसा खान होणार आहे. सदर खानीतील क्षेत्र हे मेट्रोरिजन मध्ये येत असल्यामुळे पुढील येणाऱ्या १०० वर्षाचे एन.एम.आर.डी.ए. चे नियोजन आहे. खाणीच्या क्षेत्रात वेणा जलाशय असून या जलाशयाचे पाणी अमरावती रोडवरील सर्व गावात व खाणीच्या क्षेत्रात येणाऱ्या सर्व गावात पिण्यासाठी वापरले जाते. तसेच या क्षेत्रात ऑर्डनस्न फॅक्टरी असून केंद्राच्या सरंक्षण विभागाशी संबंधीत आहे. या ऑर्डनस्न फॅक्टरीमध्ये सुध्दा या जलाशयाचे पाणी वापरण्यात येते व खाणीच्या क्षेत्रातील सर्व भाग निमशहरी असून दाट वस्तीचा भाग आहे.

तसेच या खाणीकरीता मोठया संख्येने जमीन अधिग्रहीत केल्या जाईल तसेच त्यामुळे गावांचे व घरांचे पुर्नवसन करण्यात येईल त्यामुळे लोकांना याचा त्रास सहन करावा लागणार आहे. यामुळे या परिसरातील नागरीकांचा या भुमीगत कोळसा खाणीला मोठया प्रमाणात विरोध आहे.

जावक आवक विभाग
प्रादेशिक कार्यालय
महाराष्ट्र प्रदुषण नियंत्रण मंडळ
12 JUL 2023
उद्योग भवन, ५ वा माळा,
सिव्हील लाईन्स, नागपूर.

(अनिल देशमुख)

नागपुर :- 'श्रद्धा', जी.पी.ओ. स्क्वेअर, सिविल लाईन्स, नागपुर - ४४० ००१.
मुंबई :- बी-१००१, सुखदा को-ऑप.हौ. सोसायटी, सर पोचखानवाला रोड, वरळी, मुंबई - ४०० ०३०.
मोबाईल : ९८६९० १०४०० (नागपुर कार्यालय) ०७१२-२५२४९८९ ई-मेल : deshmukhav09@gmail.com

महाराष्ट्र विधानसभा

सुनील केदार

आमदार (सावनेर)

'शेतकरी भवन', नवीन एस.टी. स्टँडच्या समोर
गणेशपेठ, नागपूर - 440018
☎ : (0712) 2720611, 2726508
मो. : 9422108360
Email ID : sunil.kedar8@gmail.com

दिनांक : 11/07/2023

REGIONAL OFFICE
Inward No. 1411
Date. 13/7/23
M.P.C.B. BOARD, NAGPUR

पत्र क्र./आम./सावनेर /823/

प्रती,
मा. जिल्हाधिकारी,
नागपूर.

विषय : मेसर्स अदानी पॉवर महाराष्ट्र लि. नागपूर यांच्या गोंडखैरी येथील भुमीगत कोळसा खाण (कामठी कोळसा क्षेत्र) मौजा गोंडखैरी, ता. कळमेश्वर येथील नवनिर्मित खाणीला हरकत असल्याबाबत.

संदर्भ : 1) उप प्रादेशिक कार्यालय -1, यांचे पत्र क्रमांक मप्रनि/उप्र/काना-1/602/2023 दिनांक 09/06/2023

3) उप प्रादेशिक कार्यालय -1, यांचे पत्र क्रमांक. उ प्राकना-1/658/2023 दिनांक 23/6/2023

उपरोक्त संदर्भिय विषयान्वये कळविण्यात येते की, माझ्या मतदार संघातील तालुका कळमेश्वर येथील मौजा गोंडखैरी, निमजी, लोणारा, आष्टीकला, सेलू, उपरवाही, कळंबी, सावंगी, केतापार, खापरी आलेसुर, चिचभवन दहेगांव, साहुली, लिंगा येथील शेतकऱ्यांची तसेच गावकऱ्यांची संदर्भ पत्र क्रमांक -1, अन्वये दिनांक 13/07/2023 रोजी सकाळी 11.00 वाजता ख. नं. 9/5 कारली तलावाच्या बाजूला मौजा कारली, ता. कळमेश्वर येथे जनसुनावणी आयोजित केली आहे. परंतु वरील नमुद गावातील गावकऱ्यांनी व शेतकऱ्यांनी मेसर्स अदानी पॉवर महाराष्ट्र लिमीटेड, नागपूर यांच्या गोंडखैरी भुमीगत कोळसा खाण (कामठी कोळसा क्षेत्र) या खदानीची उत्पादन क्षमता 3 मिलियन टन प्रती वर्ष प्रस्तावित आहे. या खदानीचे क्षेत्र 862 हेक्टर आहे. प्रस्तावित खदानीला वरील गावकऱ्यांनी तिव्र नाराजी व्यक्त केली आहे व प्रस्तावित खदान मौजा गोंडखैरी येथे होवू नये अशी लोकांची मागणी आहे. वरील भाग हा नागपूर शहराच्या जवळ आहे व येथील शेतकऱ्यांचा मुख्य व्यवसाय शेती असून बागाईत शेती आहे. त्यामुळे येथे प्रस्तावित खदान करण्यात येवु नये अशी मागणी केलेली आहे.

तसेच मौजा गोंडखैरी च्या लगत कळमेश्वर वनपरिक्षेत्रातील मौजा निमजी कक्ष क्रमांक -6 क्षेत्र 191.42 हे.आर. व कक्ष क्रमांक 07 क्षेत्र 202.55 हे. आर. व मौजा लिंगा कक्ष क्र. 08 क्षेत्र 182.92 हे.आर. व कक्ष 09 क्षेत्र 244.84 हे. आर. क्षेत्र गावपरिक्षेत्रातील राखीव वन क्षेत्र आहे. मौजा लिंगा येथे 102.74 हे.आर. आष्टीकला व लोणारा येथे 296.74 हे. आर. क्षेत्र हे संरक्षीत वन क्षेत्र आहे. मौजा बाजारगांव नियंतक्षेत्र येथे 460.80 हे. आर. मौजा धनकुंड येथे 343.56 हे.आर. मौजा खैरी येथे 572.39 हे. आर. क्षेत्र असे एकुण 2441.89 हे.आर. राखीव वनक्षेत्र म्हणुन घोषित आहे व 1544.69 हे.आर. क्षेत्र संरक्षीत वनक्षेत्र म्हणु घोषीत आहे.

प्रस्तावित जागी खाण सुरु केल्यास वन्यजीव, कॉरीडोर आणि जंगल क्षेत्रावर खाणीचे दुष्परिणाम होवु शकतो वन्य प्राण्याचा अधिवास नष्ट होऊ शकतो व विखंडण होवु शकतो ज्यामुळे वन्यजिवांच्या लोकसंख्येवर आणि लॅन्डस्केप मधुन फिरण्याच्या त्यांच्या क्षमतेवर नकारात्मक परिणाम होतो. कोळसा खान क्रियाकलाप जसे ब्लास्टींग, उत्खनन व वाहतुक यामुळे ध्वनी प्रदुषण व वायु प्रदुषण तसेच जल प्रदुषण होवु शकते वन्यजीव आणि त्यांच्या अधिवासांना हानी पोचु शकते.

महाराष्ट्र विधानसभा

सुनील केदार

आमदार (सावनेर)

'शेतकरी भवन', नवीन एस.टी. स्टँडच्या मा
गणेशपेठ, नागपूर - 440018

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दिनांक : _____

कोळसाच्या खाणी वन्यजीव कॉरीडोर मध्ये व्यत्यय आणु शकतात जे प्राण्यांना निवास्थानापासून फिरण्यासाठी आणि अन्न व पाणी तसेच जोडीदार शोधण्यासाठी आवश्यक आहे. दिनांक 03 जुलै 2023 रोजी बोर व्याघ्र प्रकल्पाचे बफर क्षेत्र व्याघ्र प्रकल्पाचे एकसंघ नियंत्रणाखाली आले असून बोर व्याघ्र प्रकल्पाचे एकुण क्षेत्र 816 चौ.कि.मी झालेले आहे. या भागात मोठया प्रमाणात वाघांची संख्या असून येथे वाघांचे 15 पिल्लांना जन्म सुध्दा दिलेला आहे व येथे त्यांचे वास्तव्य आहे. वन्यजीवांना ब्लास्टींग, जमीनीत होणारे बदलामुळे व आवाजामुळे वन्यप्राणी जंगल सोडण्याची शक्यता नाकारता येत नाही. प्रस्तावित खाणीमुळे आजुबाजुच्या जमीनी / शेतीची सुपीकता कमी होवु शकते व पाण्याची भुगर्भातील पातळी संपू शकते त्यामुळे त्या भागातील शेतकऱ्यांना व गावकऱ्यांना पाणी मिळणार नाही. शेतकऱ्यांना व गावकऱ्यांना पाणी मिळणार नाही मातीची धुप होते, पाण्याची गुणवत्ता कमी होते जंगलाचे आच्छादन नष्ट होते यामुळे वन्यजीव जगण्याला या परिसंस्थेवर अवलंबुन असलेल्या वन्यजीव लोकसंख्येला आणखी हानी पोहोचु शकते.

तसेच मौजा गोंडखैरी, केतापार, कळंबी, खापरी, आलेसुर, साहुली, चिचभवन हे गांव प्रस्तावित खाणी पासून अंदाजे 1 ते 2 कि.मी च्या परिसरात असल्यामुळे या गावाला ब्लास्टींगमुळे, धुरामुळे मोठा त्रास होईल व या गावाच्या परिसरातील भुगर्भातील पाण्याची पातळी संपूण होईल जाईल व या गावकऱ्यांना व शेतकऱ्याना भुगर्भातुन मिळणार नाही.

करीता मौजा गोंडखैरी व प्रस्तावित खान क्षेत्रातील शेतकऱ्यांच्या व गावकऱ्यांच्या हरकती लक्षात घेता राखीव वनक्षेत्रातील व संरक्षीत वनक्षेत्रातील वन्यजीवांचा विचार करता मौजा गोंडखैरी येथील प्रस्तावित कोळसा खान करण्यात येवु नये हि विनंती.

सुनील केदार

प्रतिलीपी : 1) मा. प्रादेशिक अधिकारी, महाराष्ट्र प्रदुषण नियंत्रण मंडळ, नागपूर यांना कार्यवाहीस्तव सादर.

2) मा. उप प्रादेशिक अधिकारी, महाराष्ट्र प्रदुषण नियंत्रण मंडळ, नागपूर-1 यांना कार्यवाहीस्तव सादर.

5/44

प्रेषक - सुनील गायकवाड
रा. आंबोडा, नि-

REGIONAL OFFICE
Inward No. 1410
Date 13/7/23
M.P.C. BOARD, NAGPUR

प्रति
उपप्रादेशिक अधिकारी
महाराष्ट्र प्रदूषण नियंत्रण मंडळ
वा माझा उद्योग भवन
एमआयडीसी लेआऊट, नागपूर

विषय - ग्रीनइंडेक्स इंडस्ट्रीज प्रदूषणाबाबत
कोकवा ग्रामपंचायत विरोधाबाबत
महोदय,

मी आंबोडा (पंच), नि. नागपूर येथील रहिवासी असून माझे गाव ग्रीनइंडेक्स कंपनीपासून पश्चिमेकडे अंदाजे ५ किमी अंतरावर आहे. या कंपनीतील कामगार कोकवा ग्रामपंचायत हद्दीत राहतात. या ग्रामपंचायत हद्दीतील नागरिकांना श्वसनाचे आजार होत असल्याचे निदर्शनास आले आहे. या कंपनीतील प्रदूषणकारी यंत्रणा नसल्याने या कंपनीतून निघणाऱ्या धुरामुळे व दुर्गंधीमुळे नागरिकांना त्रास होत आहे. तरी या ग्रामपंचायत हद्दीतील नागरिकांचे आरोग्य लक्षात घेऊन ग्रीनइंडेक्स कंपनीवर योग्य ती कारवाई करण्यात यावी ही विनंती.

नागपूर
दि. १३/७/२३

कळावे, धन्यवाद
सुनील अ. गायकवाड
(सुनील गायकवाड)

SPOT
13/07/23

6/44

प्रकृती फाउंडेशन

To,

1) **The Regional Office and**
Sub-Regional Office, Maharashtra
Pollution Control Board,
Uddyog Bhavan, 5th floor,
Civil Lines, Nagpur 440001.



2) **The Collector,**
Collector Office, Nagpur.

Subject:- **Objection for proposed Gondkhairi Underground Coal Mine (Kamptee Coalfield) of production capacity 2.0 MTPA (Rated Capacity)/3.0 MTPA (Peak Capacity) In the Mine Lease of area 862.00 HA of M/s Adani Power Maharashtra Limited (AMPL).**

Hon'ble Sir,

1. The objector is a society registered under the Societies Registration Act, having Registration No.MH-298/2015. The Aim & Object of the Objector Society is to protect environment throughout the length and breadth of Maharashtra and more particularly in Nagpur and Chandrapur Districts, which district is one of the most polluted districts of India. As your good-selves are well aware, Chandrapur is at Sr.No.15 and Nagpur is at Sr. No. 50 in

PF Chandrapur
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Phone : 07172 - 253210 Email : fprakruti@gmail.com
रजि.नं. : महा/२९८/२०१५ ट्रस्ट रजि.नं. : एफ-१३९२९(चंद्रपूर)

the National Index of most polluted Districts. The Nagpur is also only 150 kms from Chandrapur.

2. The objector is intensely opposing the proposed project since it would cause huge air pollution. In the industrial areas respectively and rural areas of Gondkhairi, Tah. Kalmeshwar and its surroundings. The concentrations of PM_{10}, PM $_{2.5}$, SO_2 and NO_x are not at all within the National Ambient Air Quality Standard. The PM_{10} of the surrounding area where the project is proposed to be started is more than 100 UG/M^3. Likewise, PM $_{2.5}$ is more than 60 UG/M^3, SO_2 is more than 80 UG/M^3 and NO_x is also more than 80 UG/ M^3. This clearly demonstrates that the concentrations are not within the National Ambient Air Quality standard. No details and specifications of such locations have been mentioned by the project proponent in the executive summary. Thus, the locations are farce and imaginary. The impacts on air quality would be huge. Even the emissions released from the stack during the operation will cause severe air pollution and would hugely impact the air quality. The fugitive dust emissions from raw materials handling areas would be extremely high.

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3. In view of the aforesaid factual scenario, the objector submits that the project proponent is not taking all measures to effectively control the air emissions and periodic monitoring of the stack emissions. The project proponent is taking no care and mitigation measures to control the Air emissions in the existing TPA Sponge Iron plant, coal washery and power plant.

4. Likewise, the water samples have not been analysed by project proponent in terms of ETA Notifications, 2006 and they are not as per the standard methods for analysis of water and waste water, APHA publication. In reality, the mining project if allowed to operate, would cause severe damage to water environment. The proposed project would also cause much impact on water in as much as the water requirement for the proposed project would be sourced from various rivers like Saptdhara, Vena Canal, Devadkasha Nala, Ghordyo and Surabardi etc. which itself is hugely polluted at present. There will be huge discharge of waste water too and such industrial waste water would be causing severe damage to the locality.

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5. One the proposed project is allowed to operate, there shall be no monitoring of ground water level and its quality as well as quantity. In the circumstances, the citizens would be deprived off good quantity and quality of water mainly in summer season, where citizens are already facing tonnes of problems of clan and unpolluted water as well as the citizens are, at present, not getting appropriate quantity of water. Resultantly, if the consent to operate the proposed project is granted, it is the citizens who would be the wickedest sufferers. In summer season and pre-monsoon season, the village wells go dry on account of scarcity of water. If the proposed project is allowed to operate, the nearby villages would additionally suffer on account of Wells going dry due to dewatering. In addition, there will be a huge problem of sewage on account of waste water. Due to the blasting the water in the lakes would be depleted because of the vibrations of blasting, which will not only affect the citizens but also the fisheries and wild life dependent on the water bodies.

6. Even noise levels at present for residential area of Gondkhairi are much above the prescribed limitation of 55 (dB)(A) for residential area and 75 (dB)(A) for Industrial area. The existing

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noise environment is enormously dangerous and noise levels are beyond the limits of given in MOES gazette notification for National Ambient Noise Level Standard. As such, if the project is given green signal, the same would add to the woes of public who are already facing severe noise pollution. If the project proponent is permitted to go ahead with the project, major noise arising out of electric motors, loading section etc. would cause severe noise pollution and impact of noise levels on the surrounding will be extremely significant causing severe noise pollution. The noise due to vibration etc. would be so huge that the residents of nearby areas would suffer terribly.

7. The proposed project would also be a cause of concern for even the land environment. The soil conditions around the proposed project site are already beyond the prescribed limits.

8. Even the impact would be on biological environment if the project proponent is allowed go ahead with the project. The fugitive emissions and transportation activity would impact the terrestrial flora. The settlement of dust on the laminar surface of

plants would definitely affect the productivity of plants and would cause severe impact on ecology in the area which is almost dry now. Solid waste generation would also be very huge and the project proponent has not given any good proposal for solid waste management and mitigation measures. The solid waste such as char, bottom ash, fly ash, dust from ESP, Washery reject etc. would be very huge and no mitigation measures as required by law and even been suggested by the project proponent.

9. The project proponent is guilty of not carrying out the environmental monitoring on regular basis in accordance with the CPCB guidelines for the existing project itself. There is no Ambient Air Quality, water quality and noise environment monitoring being done by the project proponent for the existing project also. Therefore, the measures suggested by the project proponent for the proposed project are just an eyewash.

10. If the proposed project is permitted to be operated, the objector submits that it would be wholly against the letter and spirit of Environmental Impact Assessment Notification, 1994 and

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subsequent amendments thereto. The proposed project would also cause huge inconvenience to the citizens of Gondkhairi.

11. It is a matter of record and known to all and sundry that the proponent never uses delay detonators for blasting and therefore no mitigation measures for control of ground vibration are taken by the proponent.

12. There is no progressive Afforestation Plan proposed to be implemented by proponent along with roads and Infrastructure as well as the embankment and vacant land. Therefore, such a project, if allowed to operate, would escalate the problems of pollution being already hugely faced by the citizens.

13. When it is a familiar fact that MIDC area is already hugely air polluted on account of various industries being operational, it would be extremely hazardous if the proposed project is permitted to operate.

14. The residents of the locality and nearby villages would suffer respiratory and dust problems, thereby causing asthmatic and

other chest infection diseases. which are already been suffered by them on account of existing industries including that of the proponent. In this Covid-19 pandemic era, it is a well-known scenario that people suffering from respiratory problems are more prone to getting infected with Covid-19 and many such people have lost their lives. In such a situation, the objector is sure that the project would not be approved at the cost of lives of several innocent citizens.

15. The objector earnestly requests your good-self to independently collect air, water and soil samples, which would definitely show that the existing index of the same are much beyond the prescribed limits. In such circumstances, it would be tremendously dangerous to allow the project proponent to go ahead with the proposed project.

16. The objector submits that in view of mushrooming growth of industries in MIDC Area near Gondkhairi, there are severe environmental problems, particularly issue related to air,

water as well as noise pollution and they are of immediate concern. The objector has been rigorously following the said issue of environmental related problems in Gondkhairi area and in Nagpur and Chandrapur Districts and is seeking immediate action for amelioration of the situation. Considering the intensity of the situation, it is now need of the hour to stop granting environmental clearance to any new project, unless and until the present situation regarding serious pollution in Gondkhairi area is accurately controlled.

17. The objector submits that the summary of the project submitted by the proponent, is just imaginary. The figures and data submitted are only a fantasy. The environment management plan and the post project monitoring submitted by proponent is just with a view to obtain the environmental clearance at the cost of lives of citizens. The data placed by proponent is fully unsatisfactory and based on surmises and assumptions only. The proposal does not even prima-facie demonstrate that the detailed study has been undertaken by the proponent for seeking consent to operate.

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Phone : 07172 - 253210 Email : fprakruti@gmail.com
रजि.नं. : महा/२९८/२०१५ ट्रस्ट रजि.नं. : एफ--१३९२९(चंद्रपूर)

Pollution Control Measures as required by settled standards are not reflected in the proposal. Taking into consideration the environmental impacts, the mitigation measures suggested by the proponent are extremely feeble and scrawny and therefore consent to operate cannot at all be granted. The objector submits that no environmental clearance and consent to operate can be granted on the strength of a proposal which is totally undeserving and unworthy.

18. In fact, the proponent has made vague and irresponsible statements in the proposal summary with a view to prejudice this Hon'ble Authority as well as Government of India, Ministry of Environment and Forests with the sole intention of obtaining environmental clearance by misleading the authorities.

19. The objector wishes to point out that Hon'ble Supreme Court of India has time and again cautioned the Pollution Control Board as well as Environmental Clearance Authorities, not to grant

शॉप नंबर ५, कन्नमवार बचत भवन, जूना वरोरा नाका, चंद्रपूर ४४२ ४०१ (महाराष्ट्र)
Phone : 07172 - 253210 Email : fprakruti@gmail.com
रजि.नं. : महा/२९८/२०१५ ट्रस्ट रजि.नं. : एफ-१३९२९(चंद्रपूर)

प्रकृती फाउंडेशन

environmental clearance to such aspirants who intend to cause severe pollution for the purpose of their commercial establishment/s.

20. In the above circumstances, the objector is placing on record its objection with a request to this Hon'ble Authority to grant personal hearing to the objector and the objector reserves right to place additional material in support of this objection at the time of personal hearing and thereafter. The said opportunity of hearing deserves to be granted to the objector in view of specific provision of hearing envisage them EIA Notification.

21. Thanking your good-selves in anticipation and with the hope and trust that appropriate cognizance shall be taken in respect of the present objection.

Thanking you,

Yours faithfully,

13/7/2023

दिपक दीक्षित

(Deepak Bharatsingh Dixit)
PRESIDENT
Prakruti Foundation
CHANDRAPUR.

शॉप नंबर ५, कन्नमवार बचत भवन, जूना वरोरा नाका, चंद्रपूर ४४२ ४०१ (महाराष्ट्र)
Phone : 07172 - 253210 Email : fprakruti@gmail.com
रजि.नं. : महा/२९८/२०१५ ट्रस्ट रजि.नं. : एफ-१३९२९(चंद्रपूर)

7/44

ग्रामपंचायत निलडोह

मं.अ. ता. हिंगणा, जि.नागपूर

सौ.वनीताताई कि. गळमळे	श्री. मनोज सं. सुभेकर	श्री.जि. व्ही. त्रिगोटे
सरपंच	उपसरपंच	ग्राम विकास अधिकारी

ग्रा. पं. निलडोह, जि. प. नागपूर
आवक क्रं. २८९
दिनांक ०५/०६/२०२३

दिनांक ०५/०६/२०२३

मा. उप-प्रादेशिक अधिकारी
म.प्र.नि.मंडळ नागपूर-१

विषय :- मेसर्स अदानी पॉवर महाराष्ट्र लिमीटेड नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र) गाव गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत.

संदर्भ :- आपले कार्यालयीन पत्र क्र. जा.क्र. मप्रनि/उप्राकाना-१/६०२/२३ दिनांक ०९/०३/२०२३ अन्वये

महोदय,

आपणास वरील विषयाचे अनुषंगाने कळविण्यात येते की, ग्राम पंचायत निलडोह मासिकसभा दिनांक ३०/०६/२०२३ ठराव क्र. ९ नुसार असे ठरविले की, त्यानुसार सभेत सविस्तर चर्चा करण्यात आली यापैकी सदर प्रकल्पा बाबत ग्राम पंचायत निलडोह चे खालील प्रमाणे अटी व शर्ती आहे.

१) सदर प्रकल्पामुळे प्रदुषण मोठ्या प्रमाणात वाढणार असल्यामुळे सदर प्रकल्पास अटी व शर्ती आहे.

२) स्थानिक नागरीकांना सदर प्रकल्पात नोकरी देण्यात नमुद नाही की रोजगार देण्यात यावा.

३) प्रकल्पामुळे पुनर्वसन होणार आहे किंवा असे या बाबत स्पष्टता नाही.

४) प्रकल्पामुळे किती क्षेत्र बाधीत होईल व कोणते क्षेत्र बाधीत होईल याची नोंद नाही व स्थानिक लोकांना मुवावजा मिळणार की नाही याची नोंद नाही.

वरील सदर प्रकल्प ग्राम पंचायत ला मान्य असुन सदर प्रकल्पावर ग्राम पंचायत चा आक्षेप आहे. वरीला आमचे माहितीस्तव व कार्यवाहीस्तव सादर.

सरपंच
ग्रामपंचायत निलडोह

ग्राम विकास अधिकारी
ग्रामपंचायत निलडोह

8/44

प्रति

दिनांक 13/6/2023

माननीय वरिष्ठ प्रादेशिक अधिकारी,
महाराष्ट्र राज्य पोल्युशन कंट्रोल बोर्ड,
सिव्हील लाईन्स,नागपूर

आक्षेपक / आवेदन : लक्ष्मीकांत देविदास किरपाने ,राहणार प्लॉट नं ५०५/अ नेर सक्करदरा ,
पोलिस स्टेशन ,आझमशाह ले आऊट, नागपूर-440009
मोबाईल नंबर - 9503141001

संदर्भ :

वरिष्ठ प्रादेशिक अधिकारी, महाराष्ट्र राज्य पोल्युशन कंट्रोल बोर्ड, सिव्हिल लाईन्स नागपूर मेसर्स अदानी पावर महाराष्ट्र लिमिटेडचे गोंडखैरी अंडरग्राउंड कोल माईन्स करिता जन सुनावणी दिनांक 13/6/2023

माननीय महोदय,

मी लक्ष्मीकांत देविदास किरपाने माझ्या नावे शेत सर्वे नंबर २११/१ अ, २११/२ ब मौजा कारली [वानेरी] तालुका कळमेश्वर, माझे शेत ऑक्टर रिंगरोड महामार्गवर असून या शेतमालक आहे.

मेसर्स अदानी पवार लिमिटेड चे अंडरग्राऊंड कोल माईन्स करिता कारली गाव कळमेश्वर तालुका येथे करणार आहे. या कोल माईन्स च्या उद्योग प्रकल्पाने माझे वरील, शेत सर्वे कोणत्या तऱ्हेने बाधित होत आहे काय ? बाधित होत असल्यास कशा प्रकारे बाधित होत आहे ? या उद्योग प्रकल्पा चे संपूर्ण बाधित व संपादित होणाऱ्या जागेचा रंगीत नकाशा संपूर्ण माहितीसह मला पुरवण्यात यावा पुरविण्यात येणाऱ्या माहिती करिता मी शासकीय दरापप्रमाणे येणार खर्च देण्यास तयार आहे.

या मेसर्स अदानी कोल माईन्स उदयोग प्रकल्पाला माझे तीव्र हरकत आहे. या कोल माईन्स उद्योगामुळे जमिनीतील पाणयाची पातळी खूपच जमिनीच्या स्तराच्या खोलवर जाणार आहे असे समजते शेत जमीन शेती योग्य राहणार नाही. तशेच कोळश्याच्या धुळीमुळे शेतजमिनीचा पोत खराब होणार. म्हणून आपणास विनंती आहे कि वरील कोल माईन्स या भागात होऊ देण्याचे टाळावे.

करीत हे पत्र कारली गाव तालुका कळमेश्वर इथे जन सुनावणी ला देण्यात येत आहे

आपला

लक्ष्मीकांत देविदास किरपाने
आक्षेपक

9/44

कार्यालय ग्राम पंचायत दुगधामणा

पंचायत समिती नागपूर (ग्रा) जिल्हा नागपूर.

सौ.मंगला योगेश्वर रागीट
सरपंच
m. 9637340480

श्री .शंकरराव सहादेव गजभिये
उपसरपंच
m.8888697994

REGIONAL Office
Inward No. 1259
Date 31/7/23
M.P.C. BOARD, NAGPUR

27/06/2023

प्रति,

मा.उप-प्रादेशिक अधिकारी,
महाराष्ट्र प्रदुषण नियंत्रण मंडळ,
उप-प्रादेशिक कार्यालय-१,५ वा माळा,
उद्योग भवन सिव्हील लाईन नागपूर.

विषयः- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खान,(कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर, यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत आक्षेप नोंदविण्याबाबत.

संदर्भः-१) जा.क्र.मप्रनि/उप्राकाना-१/६०२/२३ उप-प्रादेशिक कार्यालय-१, ५ वा माळा उद्योग भवन,

महोदय,

उपरोक्त विषयानुसार मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भुमिगत कोळसा खान, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर, यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत मौजा दुगधामणा हे गाव नागपूर (ग्रामिण) तहसिल च्या हद्दीत येत असुन मौजे दुगधामणा च्या हद्दीत कोळसा/ मॅगनीज आढळत नसेल तर विनाकारण गावातील लोकांना अडचणी निर्माण न करता या प्रकलपतुन दुग्गधामणा हे गाव वगळण्यात यावे.

करिता सदर प्रस्ताव आपल्या कार्यवाहीस सविनय सादर.

उपसरपंच
ग्राम पंचायत दुगधामना
पं. स. नागपूर

10/4

ग्रामपंचायत डिगडोह

पं.स.ता.हिंगणा, एम.आय.डी.सी.एरीया, जि.नागपुर फोन नं. ०७१०४-२९७७४९

सौ. इंद्रायणीताई सुरेश काळबांडे — सरपंच
कैलाश बा. गिरी — उपसरपंच
किशोर एन.अलोने — ग्राम विकास अधिकारी

पत्रक क्र./ ग्रा.प्र. / ६२ / २०२३ दिनांक : दि. 06/20/23

ग्रा. पं. डिगडोह ता. हिंगणा जि. नागपूर

प्रति,

मा. उप-प्रादेशिक अधिकारी
म.प्र.नि.मंडळ नागपूर-१

विषय :- मेसर्स अदानी पॉवर महाराष्ट्र लिमीटेड नागपूर यांच्या गोंडखैरी भुमिगत कोळसा खाण (कामठी कोळसा क्षेत्र) गाव गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत.

संदर्भ :- आपले कार्यालयीन पत्र क्र. जा.क्र. मप्रनि/उप्राकाना-१/६०२/२३ दिनांक ०९/०३/२०२३अन्वये

महोदय,

आपणास वरील विषयाचे अनुषंगाने कळविण्यात येते की, ग्राम पंचायत डिगडोह(देवी) मासिकसभा दिनांक २८/०५/२०२३ ठराव क्र. ४/९ - नुसार असे ठरविले की, त्यानुसार सभेत सविस्तर चर्चा करण्यात आली यापैकी सदर प्रकल्पा बाबत ग्राम पंचायत डिगडोह(देवी) चे खालील प्रमाणे अटी व शर्ती आहे.

१) सदर प्रकल्पामुळे प्रदुषण वाढ्या प्रमाणात वाढणार असल्यामुळे सदर प्रकल्पास अटी व शर्ती आहे.
२) स्थानिक नागरीकांना सदर प्रकल्पात नोकरी देण्यात नमुद नाही की रोजगार देण्यात यावा.
३) प्रकल्पामुळे पुनर्वसन होणार आहे किंवा असे या बाबत स्पष्टता नाही.
४) प्रकल्पामुळे किती क्षेत्र बाधीत होईल व कोणते क्षेत्र बाधीत होईल याची नोंद नाही व स्थानिक लोकांना मुआवजा मिळणार की नाही याची नोंद नाही.

करीता सदर प्रकल्प ग्राम पंचायत ला मान्य नसुन सदर प्रकल्पावर ग्रामपंचायत चा आक्षेप आहे.

करीता आपले माहीतीस व कार्यवाहीस सविनय सादर.

SAD-I
Please note
[illegible]

सरपंच
ग्राम पंचायत डिगडोह(देवी)

ग्राम विकास अधिकारी
ग्रा.पं. डिगडोह(देवी)

11/44

जिल्हा परिषद, नागपूर.

सौ.ममता सुरेश धोपटे
सदस्या : जि.प.नागपूर, दवलामेटी सर्कल
सदस्या : समाजकल्याण समिती
सदस्या : जल व्यवस्थापन व स्वच्छता समिती
निवास : रामकृष्ण सभागृह जवळ, वाडी, नागपूर – ४४० ०२३. मो. क्र.९९२२३३७०८८

पत्र क्र.

दिनांक : 26/6/23

प्रती,

महाराष्ट्र प्रदूषण नियंत्रण मंडळ ,
नागपूर.

विषय :- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड नागपूर यांच्या गोंडखैरी भूमीगत कोळसा खाण,(कामठी कोळसा खेत्र) गाव गोंडखैरी तालुका कळमेश्वर जि. नागपूर, बाबत हरकत.

संदर्भ :- दिनांक ०९/०६/२०२३ चे जा. क्र. भप्रति/ उप्राकाना -१/६०२/२३ चे पत्र.

महोदय,

आपणास वरील विषयानुसार कळविण्यात येते कि,मौजा गोंडखैरी येथील प्रस्तावित खाणीबाबत पर्यावरण लोकसुनावणीचा नोटीस ग्रामपंचायत कार्यालय व तसेच जिल्हा परिषद नागपूरला मिळाले असता माझ्या जि.प. सर्कल अंतर्गत गाव मौजा -दवलामेटी त.जि. नागपूर हे गावाच्या यादीमध्ये समाविष्ट आहे.पण प्रत्यक्षात नोटीसमध्ये हे गाव प्रत्यक्ष - अप्रत्यक्ष खाणीद्वारे प्रभावित गावात मोडल्याचे स्पष्टीकरण नाही. दवलामेटी या गावाची लोकसंख्या तीस ते पस्तीस (३०-३५) हजार हया संख्येत असून या ठिकाणी लोकांची पक्की वस्ती आहे, लोकांचे पक्के घरे या ठिकाणी आहेत व तसेच, या गावाला येणारा पाणीपुरवठा हा गोंडखैरी येथील भागातील वेणा जलाशयातून होत आहे. तसेच दवलामेटी या भागात पूर्वी काही वर्षापासून डोलामाईट (Dolamite) व इतर गौण खनिजाचे उत्खणन झालेले आहे. गोंडखैरी येथील प्रस्तावित खाणीद्वारे वेणा जलाशय प्रदूषित होऊन दवलामेटी येथील रहिवास्याचे आरोग्य धोक्यात येण्याची शक्यता आहे व तसेच गोंडखैरी येथील भूमिगत कोळसा खाणीमुळे मौजा दवलामेटी येथील भूमिगत भाग पोकळ होईल, या भागात डोलामाईट व इतर गौण खणिजाचे उत्खणन झालेले आहे, तरीपण सदर खाणीमुळे एवढी मोठी लोकसंख्या प्रत्यक्ष –अप्रत्यक्ष प्रभावित होऊन त्यांच्या जीवाला धोका निर्माण होण्याची मोठी शक्यता आहे.

तरीपण,दवलामेटी या गावातील नागरिकांचा व माझा या खाणीला विरोध आहे. सदर खाणीला मंजुरी देण्यात येऊ नये हि विनंती.

सौ. ममता सुरेश धोपटे
सदस्य : जि. प. दवलामेटी सर्कल
नागपूर

12/49

पंचायत समिती नागपूर

सौ. रेखा नरेन्द्र वरठी
सदस्य, पंचायत समिती नागपूर
(माजी सभापती पंचायत समिती नागपूर).

मोबाईल नं. 8767825421, 9834868930
दुरध्वनी क्रं. (कार्या) 0712-2552973

निवास पत्ता: घर नं. 34, दुगधामना, पोस्ट दवलामेटी ता. जि. नागपूर

पत्र क्र.

दिनांक : 28/06/2023

REGIONAL OFFICE
Inward No. 1258
Date 3/7/23
P.C. BOARD, NAGPUR

प्रति,

मा.उप-प्रादेशिक अधिकारी,
महाराष्ट्र प्रदुषण नियंत्रण मंडळ,
उप-प्रादेशिक कार्यालय-१,५ वा माळा,
उद्योग भवन सिव्हील लाईन नागपूर.

विषय:- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खान,(क्रमठी कोळसा क्षेत्र), गाव-गोडखैरी, तालुका कळमेश्वर जिल्हा नागपूर, यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत आक्षेप नोंदविण्याबाबत.

संदर्भ:-१) जा.क्र.मप्रनि/उप्राकाना-१/६०२/२३ उप-प्रादेशिक कार्यालय-१, ५ वा माळा उद्योग भवन, सिव्हील लाईन नागपूर दिनांक:-०९/०६/२०२३.

महोदय,

उपरोक्त विषयानुसार मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भुमिगत कोळसा खान, (क्रमठी कोळसा क्षेत्र), गाव-गोडखैरी, तालुका कळमेष्वर जिल्हा नागपूर, यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत १) मौजे दुगधामणा हा संपुर्ण ग्रामिण भाग असुन सर्वसामानया नागरीकांच्या उपजिविकेच्या शेतीउद्योग व ऑर्डनन्स फॅक्ट्री मध्ये काम करून उदनिर्वाह करतात. दुगधामना गावातील नागरीकांना या खाणीपासुन काहिहि उपयोग होणार नाही. त्याच्या रोजीरोटीचा प्रश्न उद्भवेल.

२) या खदानीमुळे प्रदूषण निर्मीती होवून पावसावर परिनाम होइल भुस्कलन होईल, भविष्यात जमिनी पोकळ होइल, भविष्यात शेतक-यांना शेती करणे शक्य होणार नाही.

३) पाणीटंचाई सुध्दा उद्भवण्याची शक्यता नाकारता येत नाही.

या कारणाणे मौजा दुगधामना या प्रकल्पातून वगळण्यात यावे.

R.N. Warthi
सौ.रेखा नरेन्द्र वरठी
सदस्या
पंचायत समिती,नागपूर

13/44

REGIONAL OFFICE
Inward No. 1251
Date. 31/7/23
M. S. P. C. BOARD, NAGPUR

प्रति,

दि.०३-०७-२०२३

महाराष्ट्र प्रदुषण नियंत्रक मंडळ,

प्रादेशिक कार्यालय/उप-प्रादेशिक कार्यालय -१

५ वा माळा, उदयोग भवन, सिव्हील लाईन्स, नागपुर ४४० ००१.

विषय :- मे. अदानी पाँवर महाराष्ट्र लिमिटेड, नागपुर यांच्या गोंडखैरी भूमिगत कोळसा खानीबाबत आक्षेप नोदविन्याबाबत.

अर्जदार :- श्री. शैलेश नारायण थोराने, अध्यक्ष वाड़ी शहर कांग्रेस कमिटी.

रा. ३८, मारोती नगर, वाड़ी, नागपुर

महोदय,

उपरोक्त विषयाचा अनुषंगाने, आपण मे. अदानी पाँवर महाराष्ट्र लिमिटेड, नागपुर यांच्या गोंडखैरी भूमिगत कोळसा खानीबाबत आक्षेप नोदविन्याबाबत आपण लोकमतच्या दि. १०-०६-२०२३ मध्ये पर्यावरण विषयक जाहीर लोक सुनवनीची सूचना प्रकाशित केलेली होती.

सदर गोंडखैरी भूमिगत कोळसा खानीसाठी आपण ज्या गावाचा समावेश केलेला आहे त्या मध्ये रहिवासी श्रेत्र, व्यवसायीक श्रेत्र, कृषी श्रेत्रचा समावेश आहे.

यातिल बहुसख्य श्रेत्र मध्ये रित सर परवानगी घेऊन सदर श्रेत्रचा उपभोग सुरु आहे. तसेच जेव्हा यातील संबंधित श्रेत्रसाठी संबंधित विभागामध्ये परवानगी साठी गेले असता सदर गोंडखैरी भूमिगत कोळसा खानीचा कुठेही उल्लेख झालेला नाही आहे.

तरी आपण गोंडखैरी भूमिगत कोळसा खानी मध्ये जे-जे गाव असेल, आपण त्याची नकाशाची प्रत व त्या संबंधीची कागदपत्रे उपलब्ध करुण द्यावी, हि विनंती.

धन्यवाद!

(श्री. शैलेश नारायण थोराने)
9552819099

14/44

प्रति,

महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशिक कार्यालय / उप-प्रादेशिक कार्यालय-१
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर - ४४०००१



विषय:- मैसर्स अदानी पॉवर, गोंडखैरी, ता. कळमेश्वर, जि. नागपूर भूमिगत कोळसा खाणीबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १०.०७.२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर, जिल्हा नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे.

सदर भूमिगत खाण ही ८३२ हेक्टर मध्ये होणार असून सदर खानीतील क्षेत्र हे मेट्रोरिजन मध्ये येत असल्यामुळे पुढील येणाऱ्या १०० वर्षांचे एन.एम.आर.डी.ए.चे नियोजन आहे. खाणीच्या क्षेत्रात वेणा जलाशय असून या जलाशयाचे पाणी अमरावती रोडवरील सर्व गावात व खाणीच्या क्षेत्रात येणाऱ्या सर्व गावात पिण्यासाठी वापरले जाते. तसेच या क्षेत्रात ऑर्डनरने फॅक्टरी असून केंद्राच्या संरक्षण विभागाशी संबंधीत आहे व या ऑर्डनस्न फॅक्टरीमध्ये सुध्दा या जलाशयाचे पाणी वापरण्यात येते व खाणीच्या क्षेत्रातील सर्व भाग निमशहरी असून दाट वस्तीचा भाग आहे.

तसेच या खाणीकरीता मोठ्या संख्येने जमीन अधिग्रहीत केल्या जाईल तसेच त्यामुळे गावांचे व घरांचे पुर्नवसन करण्यात येईल त्यामुळे लोकांना याचा त्रास सहन करावा लागणार आहे.

करिता या भूमिगत कोळसा खाणीला आमचा विरोध आहे.

दिनांक : ०३.०७.२०२३

(सौ. प्रणिता कडू)
माजी जि.प. सदस्य
दवलामेटी सर्कल, ता.जि. नागपूर

SRO I

15/44

पंचायत समिती नागपूर

सौ. सुलोचना सिध्दार्थ ढोके
सदस्या

मोबाईल : ८००७१३०६७८, ९३२२०७५८९
दुरध्वनी क्र. (कार्या) ०७१२-२५५२९७३

निवास पत्ता : प्लॉट नं. १६४, बुटले ले-आऊट, हिलटॉप कॉलोनी, दवलामेटी, नागपूर

पत्र क्र.

दिनांक 30/06/2023

REGIONAL OFFICE
Inward No. 1257
Date 3/7/23
M.S. P.C. BOARD, NAGPUR

प्रती,

महाराष्ट्र प्रदूषण नियंत्रण मंडळ,
नागपूर.

विषय :- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड नागपूर यांच्या गोंडखैरी भुमीगत कोळसा खाण (कामठी कोळसा खेत्र) गाव गोंडखैरी तालुका कळमेश्वर जि. नागपुर, बाबत हरकत.

संदर्भ :- दिनांक ०९/०६/२०२३ चे जा. क्र. भप्रति / उपाकाना -१/६०२/२३ चे पत्र. पत्र

महोदय,

आपणास वरील विषयानुसार कळविण्यात येते कि, मौजा गोंडखैरी येथील प्रस्तावित खाणीबाबत पर्यावरण सुनावणीचा नोटीस ग्रामपंचायत कार्यालय व तसेच जिल्हा परिषद नागपूरला मिळाले असता माझ्या पंचायत समिती सर्कल अंतर्गत गाव मौजा दवलामेटी त. जि. नागपूर हे गावाच्या यादीमध्ये समाविष्ट आहे. पण प्रत्यक्षात नोटीसमध्ये हे गाव प्रत्यक्ष अप्रत्यक्ष खाणीद्वारे प्रभावित गावात मोडल्याचे स्पष्टीकरण नाही. दवलामेटी या गावाची लोकसंख्या तीस ते पस्तीस (३०-३५) हजार हया संख्येत असून या ठिकाणी लोकांची पक्की वस्ती आहे. लोकांचे पक्के घरे या ठिकाणी आहेत व तसेच या गावाला येणारा पाणीपुरवठा हा गोंडखैरी येथील भागातील वेणा जलाशयातून होत आहे. तसेच दवलामेटी या भागात पूर्वी काही वर्षापासून डोलामाईट (Dolamine) व इतर गौण खनिजाचे उत्पन झालेले आहे. गोंडखैरी येथील प्रस्तावित खालीद्वारे वेणा जलाशय प्रदूषित होऊन रहिवास्याचे आरोग्य धोक्यात येण्याची शक्यता आहे व तरोच गोंडखैरी येथील भूमिगत कोळसा खाणीमुळे मौजा दवलामेटी येथील भूमिगत भाग पोकळ होईल. या भागात डोलामाईट व इतर गौण खनिजाचे उत्यणन झालेले आहे तसेच या भागात ऑर्डनन्स फॅक्टरी आहे व दवलामेटी आणि गोंडखैरी गावाच्या मधात बारूद साठा प्रकल्प सुद्धा आहे.. तरीपण सदर खाणीमुळे एवढी मोठी लोकसंख्या प्रत्यक्ष-अप्रत्यक्ष प्रभावित होऊन त्यांच्या जीवाला धोका निर्माण होण्याची मोठी शक्यता आहे.

तरीपण दवलामेटी या गावातील नागरिकांचा व माझा. या खाणीला विरोध आहे. सदर खाणीला मजुरी देण्यात येऊ नये हि विनंती

13-06-2023

S.S.Dhoke
सौ. सुलोचना सिध्दार्थ ढोके
सदस्या
पंचायत समिती, नागपूर

3405

16/44

जिल्हा परिषद, नागपूर
(ग्रामपंचायत विभाग)
नविन ईमारत, रविभवन समोर, सिव्हील लाईन, नागपूर 440001
☎ 0712-2564203 Email Address : dyceopanchayatnagpur@gmail.com

REGIONAL OFFICE BOARD, NAGPUR

जा.क्र.जिपना/पंचा/स्था-14/म.प्र.नि.मं. सुनावणी/3586 /2023 दिनांक: 20/6/2023

प्रति,
विषय: जाहिर लोकसुनावणी दिनांक 13/7/2023

विकास अधिकारी
पंचायत समिती नागपूर/कळमेश्वर/हिंगणा

विषय: मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण, (कामठी कोळसा क्षेत्र) गाव-गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत.

संदर्भ:- उप-प्रादेशिक अधिकारी, म.प्र.नि.मंडळ, उप-प्रादेशिक कार्यालय-1, 5 वा माळा, उद्योग भवन, सिव्हील लाईन, नागपुर-1 यांचे पत्र जा.क्र.म्प्रनि/उप्राकाना-1/602/2023 दिनांक 9/6/2023

उपरोक्त संदर्भिय विषयाचे अनुषगांने, मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी दिनांक 13/7/2023 रोजी सकाळी 11.00 वाजता मा.जिल्हाधिकारी, नागपूर यांचे अध्यक्षतेखाली ख. न. 9/5 कारली तलावाच्या बाजुला, गाव कारली, ता.कळमेश्वर जि.नागपूर 440023 येथे आयोजित करण्यात आलेली आहे. सोबत ऑनलाईन लिंक तपशिल जोडण्यात आलेला आहे.

सदर प्रकल्पासबंधी प्रकल्पधारकाकडुन कार्यकारी सारांश (इंग्रजी व मराठी), EIA, EMP अहवाल, वर्तमानपत्र जाहिरात प्रत व सि.डी. संदर्भिय पत्रान्वये प्राप्त झालेले असुन या कार्यालयाकडे अवलोकनार्थ उपलब्ध आहे. सुनावणीचे अनुषगांने उपरोक्त प्रस्तावित कंपनीच्या परिसरातील रहिवाशी, पर्यावरण विषयी काम करणा-या संस्था, सदर प्रकल्पामुळे वा अन्यप्रकारे प्रभावित होणारे रहिवाशी यांना सुचना, विचार, टिका, टिप्पणी, आक्षेप लेखी किंवा लेखी स्वरुपात जाहिर सुणावणी दरम्यान नोंदविता येईल.

विषयांकित प्रकरणी संदर्भिय विषयाचे अनुषंगाने आपणांस निर्देशीत करण्यात येते की, निर्धारीत पर्यावरण विषयक जाहिर लोकसुनावणीची योग्य प्रसिध्दी आपल्या कार्यालयाकडुन तसेच संबंधित ग्रामपंचायतीकडुन करण्यानाबत संबंधितांना आपल्या स्तरावरुन कार्यवाहीसाठी निर्देश देण्यात यावेत. संदर्भिय पत्र यासोबत पाठविण्यात येत असुन त्याबाबत संबंधित ग्रामपंचायतीला कळविण्यात येवून केलेल्या कार्यवाहीचा प्रसिध्दी अहवाल ऊलट टपाली या कार्यालयास सादर करावा यास प्रथम प्राधान्य दयावे. करीता माहितीस व यथाशिघ्र कार्यवाहीस अग्रेषित.

सहपत्र:- संदर्भिय पत्राची छायांकित प्रत

(विपुल जाधव)
उपमुख्य कार्यकारी अधिकारी (ग्रा.प.)
जिल्हा परिषद नागपूर

प्रतिलिपी:1) मा.जिल्हाधिकारी, जिल्हाधिकारी कार्यालय नागपूर यांना माहितीस सविनय सादर.
2) मा.मुख्य कार्यकारी अधिकारी, जिल्हा परिषद, नागपूर यांना माहीतीस सविनस सादर.
3) मा.उप मुख्य कार्यकारी अधिकारी (सा.प्रवि), जिल्हा परिषद नागपुर यांना माहितीस तथा उपरोक्त व संदर्भिय पत्र जिल्हा परिषदेच्या संकेतस्थळावर प्रसिध्दी देण्यासंबंधाने कार्यवाहीस समादराने सादर.
4) उप-प्रादेशिक अधिकारी, म.प्र.नि.मंडळ, उप-प्रादेशिक कार्यालय-1, 5 वा माळा, उद्योग भवन, सिव्हील लाईन, नागपुर यांना विषयांकित प्रकरणी माहितीस सादर.

उपमुख्य कार्यकारी अधिकारी (ग्रा.प.)
जिल्हा परिषद नागपूर

17/44

REGIONAL OFFICE
Inward No. 1250
Date 3/7/23
M.P.C. BOARD, NAGPUR

दि.०३-०७-२०२३

प्रति,

महाराष्ट्र प्रदुषण नियंत्रक मंडळ,

प्रादेशिक कार्यालय/उप-प्रादेशिक कार्यालय -१

५ वा माळा, उदयोग भवन, सिव्हील लाईन्स, नागपुर ४४० ००१.

विषय :- मे. अदानी पॉवर महाराष्ट्र लिमिटेड, नागपुर यांच्या गोंडखैरी भूमिगत कोळसा खानीबाबत आक्षेप नोदविन्याबाबत.

अर्जदार :- श्रीमती वनिता नारायण थोराने,

रा. ३८, मारोती नगर, वाड़ी, नागपुर

महोदय,

उपरोक्त विषयाचा अनुषंगाने, आपण मे. अदानी पॉवर महाराष्ट्र लिमिटेड, नागपुर यांच्या गोंडखैरी भूमिगत कोळसा खानीबाबत आक्षेप नोदविन्याबाबत आपण लोकमतच्या दि. १०-०६-२०२३ मध्ये पर्यावरण विषयक जाहीर लोक सुनवनीची सूचना प्रकाशित केलेली होती.

सदर गोंडखैरी भूमिगत कोळसा खानी साठी आपण मौजा उपरवाही हे गाव सुध्या घेतलेले असल्याचे जाहीराती मध्ये दिसून येते. माझी व माझ्या कुटुंबियाची तसेच माझी सासरवाडी व शेती हि मौजा उपरवाही येथे आहे. या गावामध्ये गोंडखैरी भूमिगत कोळसा खानी होत आहे तर किती श्रेत्रफळ येत आहे ते अद्याप स्पष्ट नाही. मौजा उपरवाही ह्या गावाचा मुळ व्यवसाय हि शेती व शेतीवर आधारीत ईतर व्यवसाय आहे. सदर गाव जर या मध्ये समाविष्ट असेल तर पूर्ण शेती हि नष्ठ होऊन जाईल.

तरी आपण गोंडखैरी भूमिगत कोळसा खानी मध्ये जर हे गाव असेल तर आपण त्याची नकाशाची प्रत व त्या संबंधीची कागदपत्रे उपलब्ध करुण द्यावी, हि विनंती.

धन्यवाद!

SPOT

03-07-2023

(श्रीमती वनिता नारायण थोराने)

9552819059

18/44

पंचायत समिती नागपूर

अविनाश धनराज पारधी
उपसभापती

मोबाईल नं. 9764719192
दुरध्वनी क्रं. (कार्या) 0712-2552973

मु. पो. धामणा (लिंगा) ता. जि. नागपूर

पत्र क्र. 29 दिनांक : 28/06/2023

REGIONAL OFFICE
Inward No. 1255
Date 3/7/23
M.I.D.C. BOARD, NAGPUR

प्रति,
महाराष्ट्र प्रदुषन नियंत्रण मंडळ
प्रादेशिक कार्यालय/उप–प्रादेशिक कार्यालय–१
५ वा माळा,उद्योग भवन,सिव्हील लाईन्स
नागपूर–४४०००१

विषय :– मौजा धामणा (लिंगा) ता. कळमेश्वर, जि. नागपूर–भूमिगत कोळसा खाणीबाबत.

महोदय ,

उपरोक्त विषयांचे अनुषंगाने दिनांक १०.०७.२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसिल कळमेश्वर ,जिल्हा नागपूर येथे जनसुनावणीचे आयोजन करण्यात आलेले आहे.

प्रस्तावित खान ही ८०० मेगावॅट क्षमते करीता सदर प्रस्तावीत क्षेत्र हे मेट्रोरिजन मध्ये येत असल्यामुळे पुढील १०० वर्षाचे एन.एस.आर.डी.पी. निकषानुसार आहे खाणीच्या क्षेत्रात अंतर्गत सर्व गावात असलेल्या तलावाचे पाणी आसपासची गोदामे, सर्व गावात असलेले जलस्रोत या क्षेत्रात असलेल्या पॉवर प्लॅन्ट मधुन केंद्राच्या मार्गदर्शन विभागाचा सल्ला घेवुन या जलाशयाचे पाणी वापरण्यात येईल.

जर कोळसा खाण आहे तर सगळी खाण भुमिगत आहे की खुली आहे, कारण हे विलीयन हा प्रतिवर्ष कोळसा भुमिगत खाणीमधुन उत्खनन करणे संभव आहे.

सदर ग्रामपंचायत धामणा (लि.) हे गाव वेणा जलाशयामुळे ५० वर्षापुर्वी या गावाचे पुनर्वसन करण्यात आले आहे, परंतु या गावातील नागरीकांना तसेच शेतकरी शेतीवर अवलंबुन आहे खान सुरु झाल्यामुळे या गावातील नागरीकांचे व शेतकऱ्यांचे व्यवसायाचे काही काय उपाय योजना करण्यात आली आहे.

मौजा धामणा (लिंगा) भुमिगत खनी पासुन नागरीकांचे आरोग्यावर व शेती व्यवसायावर इतर पुरक व्यवसायावर विपरीत परिणाम होईल करीता या गावातील नागरीकांचे विरोध आहे, करीता आपणास विनंती करण्यात येत की, या खाणीस मंजुरी प्रदान करण्यात येवु नये.

(अविनाश धनराज पारधी)
उपसभापती
पंचायत समिती, नागपूर

SR07 03-07-2023

OFFICE OF THE
Regional Office
M.I.D.C., Nagpur
30 JUN 2023

3408

19/44

कार्यालय

ग्रामपंचायत धामना (लिंगा)

पंचायत समिती नागपूर, जिल्हा नागपूर

सौ. वंदनाताई मा. थुटूरकर	श्री. मनोहर अ. चैलेकार	श्री. जी.आर. सेंदेकर
सरपंच	उपसरपंच	सचिव

❖ सदस्य ❖

श्री. राजकुमार भा. पा...

❋

श्री. सिद्धार्थ म. तागडे

❋

श्री. विनोद ग. खंडाळे

❋

श्री. शरद पां. उईके

❋

१. चंदाताई दि. पाटणकर

❋

. मनिषाताई नं. देशभ्रतार

❋

१. देवकुताई गो. निखाडे

❋

१. सरोजताई रा. सरोदे

❋

१. विनाताई सु. सरदार

ग्रा. पं. धामना (लिंगा) आवक क्र. ७ दि. ३०/६/२०२३ पं. स. नागपूर

प्रति,

दिनांक : 30/6/2023

ग्रा. उप-प्रादेशिक अधिकारी

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

उप-प्रादेशिक कार्यालय -१,५ वा माळा

उद्योग भवन सिव्हील लाईन नागपूर.

REGIONAL OFFICE
Inward No. 1256
Date 5/7/23
M.P.C. BOARD, NAGPUR

विषय:-मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र),गाव गोंडखैरी तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत आक्षेप नोंदविण्याबाबत

संदर्भ :- १) आ.क्र. मप्रनी/उप्राकलना-१/६०२/२३ उप-प्रादेशिक कार्यालय -१,५ वा माळा, उद्योग भवन, सिव्हील लाईन नागपूर. दिनांक :-०४/०६/२०२३.

२)ग्रामपंचायत धामना (लिंगा) मासिक सभा दि. २८/०४/२०२३ ठराव क्र. ०७ नुसार

उपरोक्त विषयानुसार मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र),गाव गोंडखैरी तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत संदर्भ क्र. ०७ नुसार ग्रामपंचायत धामना (लिंगा) ता. जि. नागपूर येथील मासिक सभा दि. २८/०४/२०२३ ठराव क्र. ०७ नुसार या परिसरात भूमिगत कोळसा खान करण्यात येऊ नये याप्रकारचा प्रस्ताव मंजूर करण्यात आलेला आहे.

करिता सदर प्रस्ताव आपल्या कार्यवाहीस सविनय सादर.

सहपत्रे :-मासिक सभा ठरावाची प्रत

प्रतिलिपी :-मा. सौ. आरतीताई पाटील

माजी अर्थ व शिक्षण सभापती धामना

सरपंच/सचिव

ग्राम पंचायत धामना (लिंगा)

प्रोसिडिंगबुक (कारवाई बुक)

ग्राम सभा ग्रामपंचायत :- धामना(लिंगा) पं.स. नागपूर(ग्रामीण) जिल्हा.- नागपूर वर्ष-२०२२-२०२३

सभेचा दिनांक	हजर सभासदाची नावे	ठरावाचा मसुदा	थोडक्यात चर्चा
२८/०६ /२०२३	हजेरी रजिस्टर प्रमाणे सौ वंदना मारोती थुटूरकर (सरपंच) व हजर सर्व सदस्य	<u>विषय क्र. वि. क्र. ०७</u> मेसर्स अदानी पॉवर महाराष्ट्र लि. नागपूर यांच्या गौंडखैरी भूमिगत कोळसा खाण यांच्या (कामठी कोळसा क्षेत्र) गाव गौंडखैरी तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत चर्चा करणे	आज दिनांक २८ /०६/२०२३ रोज बुधवार ला ग्रा.पं. धामना (लिंगा) ची माही जून ची मासिक सभा मा.सरपंच सौ.वंदनाताई थुटूरकर यांच्या अध्यक्षतेखाली सकाळी १२:०० वाजता ग्रा.पं. कार्यालयामध्ये घेण्यात येऊन खालील विषयावर चर्चा करण्यात आली. <u>खुलासा</u> :- आजच्या सभेत या विषयावर चर्चा करताना महाराष्ट्र प्रदूषण नियंत्रण मंडळ यांचे पत्र क्र. जा.क्र. मप्रनी/उप्राकाना-१/६०२/२३ उप-प्रादेशिक कार्यालय -१,५ वा माळा, उद्योग भवन, सिव्हील लाईन नागपूर. दि.०९/०६/२०२३. ह्या पत्राचे वाचन करण्यात आले. त्यानुसार मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गौंडखैरी भूमिगत कोळसा खाण (कामठी कोळसा क्षेत्र) गाव गौंडखैरी तालुका कळमेश्वर जिल्हा नागपूर यांनी महाराष्ट्र प्रदूषण नियंत्रण मंडळाला पर्यावरण विषयक जाहीर लोकसुनावणी घेण्याचे म्हटले आहे.त्यानुसार दि. १३/७/२०२३ला दुपारी ११:०० वा ख.नं. ९/७ कारली तलावाच्या बाजूला गाव कारली ता.कळमेश्वर येथे प्रकल्पाची जाहीर लोकसुनावणी घेण्यात येणार आहे ह्याबाबत काही आक्षेप वा सूचना असल्यास कळविण्याचे म्हटले आहे. त्यावर सभेमध्ये सविस्तर चर्चा करून चर्चेअंती खालील मुद्द्यावर आक्षेप नोंदविण्यात यावे असे सभेमध्ये सदस्यांनी सुचविले ते खालील प्रमाणे १) वायू प्रदूषण :- भूमिगत कोळसा खाणी मधून निघणाऱ्या कच्च्या मालाचे रुपांतर पक्क्या मालात रुपांतर करताना निघणाऱ्या धुरामुळे व मालाच्या वाहतुकीमुळे होणाऱ्या धुरामुळे वायू प्रदूषण मोठ्या प्रमाणात होऊन धामना (लिंगा)व आजूबाजूच्या परिसरातील नागरिकांचे आरोग्य धोक्यात येण्याची शक्यता नाकारता येत नाही. २) पाण्याची पातळी व गुणवत्ता :- भूमिगत कोळसा मुळे कोळस्याचे उत्खनन झाल्यामुळे भूमर्गात पोकळी निर्माण होऊन व त्यामुळे धामना लिंगा व इतर परिसरातील पाण्याची पातळीखाली जाण्याची शक्यता आहे. व त्यामुळे भविष्यात भीषण पाणी टंचाई उदभवन्याची शक्यता नाकारता येत नाही.

३) नैसर्गिक साधन संपत्ती नष्ट होणे :- कोळसाचे उत्खनन जरी भूगर्भात होत असेल तरी त्याचा दुष्परिणाम भूपृष्टावरील वृक्ष ,पशु पक्षी ,इतर नैसर्गिक साधन संपत्ती ह्यांचावर होऊन ते नष्ट होण्याची शक्यता नाकारता येत नाही.

४) भूसंघलन व भूपृष्ठावरील पाणी ऱ्हास पावणे :- भूमिगत कोळसा खाणीमुळे भूभर्गात पोकळी निर्माण झाल्यामुळे भविष्यात हया भागामध्ये भूकंपाचे तीव्र झटके येऊन भूसंघलन होऊन भूपृष्टावरील पाण्याचे साधने जसे धमना येथील वेना धरण , सुराबर्डी येथील तलाव व इतर साधने नष्ट होऊन भूपृष्टावरील पाणी ऱ्हास पावण्याची शक्यता नाकारता येत नाही.

वरील सर्व कारणामुळे गोंडखैरी भूमिगत कोळसा खान प्रकल्प सुरु करण्यात येऊ नये असे सभेमध्ये सर्वानुमते ठरविण्यात आले.

वि.क्र. ०७ सर्वानुमते मंजूर

Om. Tatkare

सरपंच/सचिव

★ग्राम पंचायत धामना (लिंगा)★

प.स.त.जि. नागपूर

3410

20/44

Apposition to the Gondkhairi underground coal mine near Nagpur

Suresh Chopane <smchopane@gmail.com>
Sun 09-07-2023 12:17
To:RO Nagpur <ronagpur@mpcb.gov.in>;SRO Nagpur 1 <sronagpur1@mpcb.gov.in>

To The Chairperson/Convener
Environment Public hearing

Subject-Apposition to the Gondkhairi underground Coal mine near Nagpur

Respected Sir,
Myself,on behalf of Green planet society,object the proposed Gondkhairi underground Coal mine(Adani power pvt.ltd) on the following grounds.
1) Indian govt has made the policy and also signed the COP agreement that we will not pramote Coal energy to reduce carbon emissions.We have also given assurance to zero emissions upto 2050.We should promote Solar energy or other renewal energy resources and quickly stop coal energy.The coal is responsible for climate change and extreme weather events which has huge impact on GDP and economic loss.
2)We are already importing coal from Indonesia and Australia.Then why should we need to destroy precious forest and wildlife? Why should we change the Nature and land use pattern? Already Maharashtra is generating extract energy We can't afford mines in Maharashtra.If need better we import coal .
3) Underground mines deplete surface and underground water.This mine area has nearest River , Dam and cannels.There is a danger of water sepage in the mine as well as there will be shortage of drinking water to the nearby village s and wildlife as well.
4)The forest and plants may die due to unavailability of ground water due to water sepage in the mine .
5) Vibration is a major issues in Manual and mechanical digging for coal.Need to do a detailed study on the ,"Effects of vibration on the ground and underground wildlife such as reptiles,birds and animals."
6) This area includes in Seismic zone 2 ,which is dangerous to mine safety and mine workers.
7) Air and water Pollution is a major issues of coal mine.Nagpur and Vidarbha is already criticality polluted area.Many Global and national health studies proved that coal kills crores of citizens in India .Then why should we more and more coal mines in this area? We should decentralise industry and mines for overall development of Maharashtra.
8) Though the Coal mine is underground pollution from transportation is high.Tarpolene covered trucks make more noise and dust pollution

Coal mines have many social and environment problems.So I request govt.and chairperson not to give Environment and forest clearance and all the permissions to start the mine.
09/07/2024

Yours
S.M.Chopane
Dr.Yogesh Dudhpachare
Green planet society
(Environment Organization)

प्रोसिडींग बुक (कारवाई बुक)

ग्रामपंचायत दुगधामणा　　तहसिल:—नागपूर　　जिल्हा:—नागपूर

सभेचा दिनांक	हजर सभासदांची नावे	ठरावाचा मसुदा	सुचक/अनुमोदक		मतदान			ठराव पास किंवा नापास	सचिवाचे मत
					तर्फेची संख्या व सही	विरोधकांची संख्या व सही	तटस्थांची संख्या व सही		
१	२	३	४	५	६	७	८	९	१०
दिनांक:— २६/०६/२३	सौ मंगला योगेश्वर रागीट सरपंच श्री शंकर सहादेव वजमिये उपसरपंच	विषय १३:— मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर याच्या गोंडखैरी भुमिगत कोळसा खान,(कामठी कोळसा क्षेत्र) गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर याच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत चर्चा करणे.		आज दिनांक२६/०६/२०२३ ला नोटीस अन्वये ग्रामपंचायत दुगधामणा ची सर्व साधारण मासीक सभा सौ मंगला योगेश्वर रागीट यांच्या अध्यक्षतेखाली ठिक सकाळी.११.०० वाजता खालील विषयावर घेण्यात आली. ठराव क्र १३ :— आजच्या सभेत विषय चर्चेला घेतला असता सदर विषयानुसार ग्रामपंचायत दुगधामणा मासिक सभेत महाराष्ट्र प्रदुषण नियंत्रण मंडळ याचे पत्र क.जा.क.मप्रनि/उप्राकाना—०१/६०२/२३ उप—प्रादेशिक, कार्यालय—१, ५ वा माळा उद्योग भवन सिव्हील लाईन नागपूर दिनांक:—०१/०६/२०२३, नोटीस नुसार चर्चा करण्यात आली चर्चे अंती सभेत उपस्थित असलेल्या ग्र.पं सदस्य व स्थांना ग्रामपंचायत क्षेत्रातील नागरिकांना केलेल्या तक्रारीनुसार खालीलप्रमाणे या खदानी विषयी खालील समस्या निर्माण होउ शकतात कारण या अगोदर ज्याभागात कोळसा खदन किंवा इतर खदानी झाल्यास त्या परिसरात जन खानाऱ्याचे जीवन अत्यंत दुखत कारण झालेले आहे. त्यामुळे विषयानुसार खदान या भागात करण्यात येउ नये असे आजच्या सभेचे स्पष्ट मत आहे. या खदानी मुळे निर्माण होणा—या समस्या:— १) वायु प्रदुषण:—वायु प्रदुषित झाल्यामुळे लोकांचे आरोग्य धोक्यात येउन विविधप्रकारचे रोगांना लोक बळी पडतात. २) पाण्याची गुणवत्ता:— भुजलाकरील पाण्याची पातळी कमी होउन					

ग्रामपंचायत दुगधामणा
ग्रा. ह. .....
दि. .....
पं. स. नागपूर

भुजलपातळी पाचपेक्षा जास्त होते त्यामुळे लोकांना दुष्काळी परिस्थितीचा सामना करावा लागतो. पाण्यात विविध घटक मिसळत असल्यामुळे पाण्याची गुणवत्ता खराब होऊन लोकांना निरनिराळे रोग होतात.

३) जैवव्यवस्था बिघडली होईल.—खदानीमुळे हवा प्रदुषित झाल्यामुळे सर्व प्रकारची नैसर्गिक संपत्ती वृक्ष, भुजलावरील पशु पक्षी यांना सुध्दा हानी पोहचते त्यामुळे नैसर्गिक साधन संपत्ती नष्ट होऊन पर्यावरण हानी होते.

४) गौण दुगधामणा येथे कोळसा/मॅगनिज खान असल्यास गावात राहणा—या लोकांबद्दल काय विचार केला जाईल दुगधामना लोकसंख्या अवघ्यास ३५०० असुन गावातील लोकांनी जमिनी, घरे जागा अधिग्रहीत झाल्यास मिळणारा मोबदला मोठया प्रमाणात मिळायला हवा. घरातील सदस्यांना नोकरी मिळायला हवी. याप्रमाणे सभेत चर्चा करण्यात आली असुन सदर प्रकल्प या [illegible] होवू नये असे सर्वानुमते ठरले.

करीता ठराव सर्वानुमते मंजुर.

सत्यप्रतिलीपी

सरपंच
ग्रा. पं. दुगधामणा
ता. जि [illegible]

सचिव
ग्रा. पं. दुगधामणा
ता. नि. नागपुर

23/45

निर्मल गांव !! तंटामुक्त गांव !! पर्यावरण संतुलित गांव !! स्वच्छतेकडून समृद्धीकडे !



ग्राम पंचायत रायपूर

पं.स. हिंगणा, जि. नागपूर



उमेश तु. आंबटकर
सरपंच

सिराज (बबलु) इ. शेटे
उपसरपंच

राजु धों. कोल्हे
ग्राम विकास अधिकारी

पत्ता : गुजरी चौक, रायपूर, हिंगणा. • E-mail : gpraipur17@gmail.com

REGIONAL OFFICE
Inward No. 1896
Date 11/7/23
M.P.C.B. BOARD, NAGPUR

ग्राम पंचायत रायपूर
आ.क्र. ३९८
दिनांक 10/7/2023
पं.स. हिंगणा

प्रति,

उपप्रादेशिक कार्यालय – १

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

५ व माळा उद्योग भवन सिव्हील लाईन नागपूर

विषय :- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल) च्या ८६२.०० हे मध्ये खाणीच्या लीज क्षेत्रात उत्पादन क्षमता २.० एम.टी.पी.ए. निर्धारित क्षमता ३.० एम.टी.पी.ए. सर्वीच क्षमता गौडखैरी भूमिगत कोळसा खान बाबत.

महोदय,

उपरोक्त विषयान्वये आपणास कळविण्यात येते कि, गौंडखैरी क्षेत्रात सुरु होणारी भूमिगत कोळसा खान हि ग्रा.पं.रायपुर क्षेत्रालगत येत असल्याने या सुरु होत असलेल्या कोळसा खाणीमुळे जमिनीतून काढलेल्या दगडी कोळसा जमिनीच्या पृष्टभागावर येणार असल्याने पर्यावरणास धोका निर्माण होऊ शकतो. यामुळे शेजारच्या शेतकर्यांना पिक नुकसानीची समस्या निर्माण होणे, नागरिकांना अनेक दुर्लभ आजार होण्याची शक्यता नाकारता येत नाही तसेच भूकंपाचे झटके येण्याची शक्यता नाकारता येत नाही. या अनुषंगाने सदर कोळसा खाणीत ग्रा.पं.रायपुरचा व नागरिकांचा विरोध आहे. असे ठराव क्र.०५/१ व दिनांक २८/०६/२०२३ नुसार ठरविण्यात आले.

करिता आपले माहितीस सविनय सादर.

ग्रामविकास अधिकारी
ग्राम पंचायत, रायपूर
पं.स.हिंगणा.

सरपंच
ग्राम पंचायत, रायपूर
पं.स.हिंगणा

सहपत्र :- ग्रा.पं.सभा ठराव प्रत.

प्रोसेडिंग बुक (कारवाई बुक)

ग्राम पंचायत - रायपुर, तहसील - हिंगणा, जिल्हा - नागपुर सन २०२३- २४

कार्यालय ग्राम पंचायत, रायपूर
जा.क्र.
दिनांक
पं. स. हिंगणा

सभेचा दिनांक	हजर सभासदाचे नाव	ठरावाचा मसुदा	थोडक्यात चर्चा	पारित किंवा नापास
२८/०६/२०२३	हजेरी रजिस्टर प्रमाणे	ठराव क्रमांक :-०५/१ मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड (एपीएमएल) च्या ८६२.०० हे मध्ये खाणीच्या लीज क्षेत्रात उत्पादन क्षमता २.० एम.टी.पी.ए. निर्धारित क्षमता ३.० एम.टी.पी.ए. सर्वोच क्षमता गौडखैरी भूमिगत खान बाबत चर्चा करण्याबाबत.	आज दि.२८/०६/२०२३ ला ग्रामपंचायत रायपूर ची मासिक सभा ठीक ११.३० वाजता ग्रामपंचायत कार्यालयात बोलावण्यात आली. व मा.श्री.उमेशजी आंबटकर सरपंच याचे अध्यक्षतेखाली खालील विषयावर चर्चा करण्यात आली. ठराव :- आज सभेत सदर विषयावर सविस्तर चर्चा करण्यात आली चर्चेत गौंडखैरी क्षेत्रात सुरु होणारी भूमिगत कोळसा खान हि ग्रा.पं.रायपुर क्षेत्रालगत येत असल्याने या सुरु होत असलेल्या कोळसा खाणीमुळे जमिनीतून काढलेल्या दगडी कोळसा जमिनीच्या पृष्ठभागावर येणार असल्याने पर्यावरणास धोका निर्माण होऊ शकतो. यामुळे शेजारच्या शेतकर्यांना पिक नुकसानीची समस्या निर्माण होणे, नागरिकांना अनेक दुर्लभ आजार होण्याची शक्यता नाकारता येत नाही तसेच भूकंपाचे झटके येण्याची शक्यता नाकारता येत नाही. वा अनुषंगाने सदर कोळसा खाणीत ग्रा.पं.रायपुरचा विरोध आहे असे आजच्या सभेत सर्वानुमते ठरविण्यात येते. सबब ठराव मंजूर.	पास

सरपंच
ग्राम पंचायत, रायपूर

ग्रामविकास अधिकारी

3415

23/44

VOOTKURI SUNANDA REDDY, B.A.LL.B
Environmentalist
President
Dharitri Paryavarana Parirakshana Samstha
H.No.6-7-414, Shivaji Nagar,
Nalgonda Dist.-508001, Telangana State
Cell: 9848179729, 8985929148.
Email: sunandareddyvootkuri123@gmail.com

Date: 11/07/2023.

To

The Environmental

Engineer

Sub Regional office MPCB

Nagpur 1 MPCB

Maharashtra. state.

Subject:

My Best wishes to the Management and Suggestions and Unconditional support for public hearing Dated 13/07/2023 of M/s. Adani Power Maharashtra Limited proposed mining of Gondkhari underground coal mine (kamtee coalfields) at Gondkhari village Kameshwar taluk Nagpur district Maharashtra state.

I, V. Sunanda Reddy, age of 66 years . one of the healthiest senior most Industries support environmentalist in India. I am not facing any health problems till today. I am the practical Environmentalist. My best wishes and support to the Management. I am the first environmentalist in India to support sustainable Industrial development.

Generally environmentalists and NGO's oppose Industrial development activities. But I am whole heartedly supporting the Industrial activity. In my opinion unemployment is the major pollution to society. In India approximately every year I Crore in youth are entering into unemployed category. The Centre and All State Govts are providing Jobs for 5 to 6 lakh only and remaining 95 lakhs youth are depending on Industrial Sector. At present 40 Crore youth of age group 18 to 35 years are waiting for better employment opportunities and there is an urgent need for Industrial development in the state.

Environmentalists and NGO's are blaming industries for degrading public health. Only 15% of Indian population lives in the surroundings of Industries activity areas. It is not correct to blame the industries alone for causing health hazards. Remaining 85% population is also facing so many health problems without industrial pollution effects. It is the time to address the need for industrial development along with protecting ecological balance. I am giving you few suggestions to maintain ecological balance and development of your Industry activity.

24/44

जिल्हा परिषद नागपूर

देवानंद दौलतराव कोहळे
सदस्य
जिल्हा परिषद नागपूर
(गोंडखैरी-सर्कल)
मो. 9595297905

पत्र क्र. : 1

दिनांक : 11/07/2023

प्रति,

महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रदेशिक कार्यालय/उप-प्रादेशिक कार्यालय-१
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर - ४४०००१

REGIONAL OFFICE
Inward No. 1397
Date. 11/7/23
BOARD, NAGPUR

विषय:- मे. अदानी पावर, गोंडखैरी, ता. कळमेश्वर, जि. नागपूर भूमिगत कोळसा खाणीबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने विनंती करण्यात येते कि, दिनांक १०.०७.२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला ता. कळमेश्वर, जि.नागपुर येथे जनसुनावणीचे आयोजन करण्यात आले आहे. सदर भूमिगत खाण ही ८६२ हेक्टर मध्ये होणार आहे व पुढील येणा-या १०० वर्षांचे एन.एम.आर.डी.ए.चे खाण क्षेत्रात विकासाचे नियोजन आहे.

माझे जिल्हा परिषद ,सर्कल गोंडखैरी अंतर्गत १४ गावे प्रत्येक बाधीत खाण क्षेत्रात येतात.त्यामध्ये ७ सिंचण तलाव येतात. निमजी रिझर्व फॉरेस्ट,वेअर हाऊसेस,छोटे लघु उद्योग दोन न्याशनल हायवे,मुख्यमंत्री योजनेचे रोड, तसेच जिल्हा परिषद चे ग्रामीन रस्ते आहेत.हा सर्व मेट्रो सिटीजनचा भाग असल्याने शासनाचे करोडो रूपये विकास कामावर खर्च केलेला आहे.या खाणीमुळे जल जिवन,पाणी,पशु-पक्षी यांचा व मोठया प्रमाणात -हास होईल.पर्यावरणात प्रदुषनाची मात्रा वाढेल. यामुळे भविष्यात मानवाला जिवन जगने असहय होईल. त्यामुळे निसर्गाचा समतोल साधता यावा.म्हणून या भूमिगत कोळसा खाणीला माझा व सर्व गावक-याचा विरोध आहे.

(श्री.देवानंद दौलतराव कोहळे)

25/44

ग्राम पंचायत दहेगाव

पंचायत समिती कळमेश्वर, जि. नागपूर

सरपंच	उपसरपंच	सचिव
श्री. विजय संतोषराव निंबाळकर	श्री. पुरुषोत्तम काशीरावजी चिखले	कु.मायावती देशपांडे

दि. १०/०७/२०२३

REGIONAL OFFICE Inward No. 1392 Date 11/7/23 BOARD, NAGPUR

ग्रा.पं.दहेगाव ता.जि.नागपूर

प्रति,

प्रदूषण नियंत्रण मंडळ
नागपूर

विषय :- मेसर्स अदानी पॉवर कोळसाखाण करिता मौजा दहेगाव ग्रामपंचायत ची नामंजुरी असल्याबाबत

महोदय,

उपरोक्त विषयाच्या अनुषंगाने आपल्या सेवेशी माहिती सादर करण्यात येते कि, मेसर्स अदानी पॉवरसाठी भूमिगत कोळसा खाण दहेगाव या गावाजवळ झाल्यास लोकांचे घराचे व शेतीचे मोठ्या प्रमाणात नुकसान होणार लोकांना यांच्या घराला तसेच शेतकऱ्यांचे शेतीचे खूप मोठ्या प्रमाणात नुकसान होणार आहे. करिता याबाबत गावातील लोकांना त्यांच्या घराला तळवे लागणार ज्यांची स्लपची घरे बनवलेली आहेत. आणि ध्वनिप्रदूषण व वायुप्रदूषण मोठ्या प्रमाणात होईल. तसेच पिण्याचे पाणी दुषित होईल व पाण्याची कमतरता होईल. आणि यामुळे सर्व घराचे नुकसान होईल. यापरिसरात बऱ्याच प्रमाणात वन्यप्राणी व झाडे असून याकरिता सर्व गावातील लोकांची तीव्र नाराजी आहे.,हि विनंती.

करिता माहितीस सादर.

सरपंच
ग्रा.पं.दहेगाव

सचिव
ग्रा.पं.दहेगाव

सरपंच / सचिव
ग्रामपंचायत दहेगाव

प्रोसिडिंग बुक (कारवाइ बुक)

ग्रामपंचायत :—दहेगाव तहसील :— कळमेश्वर जिल्हा :— नागपूर सन :— २०२३ — २४

सदर सभेचा दिनांक व तारीख	इतर सभासदांची नावे	ठरावाचा मसुदा	सूचक / अनुमोदक	सोडलेल्या चर्चा	मतदान			ठराव पास किंवा नापास	सूचनांचे मत	अधिका—यांची सही
					तरफेची संख्या व सही	विरोधकांची संख्या व सही	गैरहजेरीची संख्या व सही			
१	२	३	४	५	६	७	८	९	१०	११
२६/०६/२०२३	सरपंच श्री.विजय संतोषराव निंबाळकर व इतर ग्रामपंचायत सदस्य	विषय क्र. १० मेसर्स अदानी पॉवर कोळसाखाण करिता मौजा दहेगाव ग्रामपंचायत ची नामंजुरी असल्याबाबत.		आज दिनांक २६/०६/२०२३ ला ग्रामपंचायत दहेगाव येथे मासिक सभा मा. श्री.विजय संतोषराव निंबाळकर (सरपंच) यांच्या अध्यक्षतेखाली सकाळी ठीक ११.३० वाजता ग्रामपंचायत कार्यालय दहेगाव येथे उपस्थित सदस्या समोर सभा घेण्यात आली. खुलासा :- उपरोक्त विषयान्वये सविनय कळविण्यात येते की, मेसर्स अदानी पॉवरसाठी भूमिगत कोळसा खाण दहेगाव या गावाजवळ झाल्यास लोकांचे घराचे व शेतीचे मोठ्या प्रमाणात नुकसान होणार लोकांना यांच्या घराला तसेच शेतकऱ्यांचे शेतीचे खूप मोठ्या प्रमाणात नुकसान होणार आहे. करिता याबाबत गावातील लोकांना त्यांच्या घराला तळवे लागणार ज्यांची स्लपची घरे बनवलेली आहेत. तसेच ध्वनिप्रदूषण व वायुप्रदूषण मोठ्या प्रमाणात होईल. तसेच पिण्याचे पाणी दुषित होईल व पाण्याची कमतरता होईल. आणि यामुळे सर्व घराचे नुकसान होईल. यापरिसरात बऱ्याच प्रमाणात वन्यप्राणी व झाडे असून याकरिता सर्व गावातील लोकांची तीव्र नाराजी आहे. याबाबत सभेत चर्चा करण्यात आली. करिता ग्रामपंचायतची नामंजुरी आहे. करिता ठराव सर्वानुमते मंजूर.				ग्रा.पं. दहेगाव		

सरपंच ग्रा.पं.दहेगाव

सचिव ग्रा.पं.दहेगाव

3419

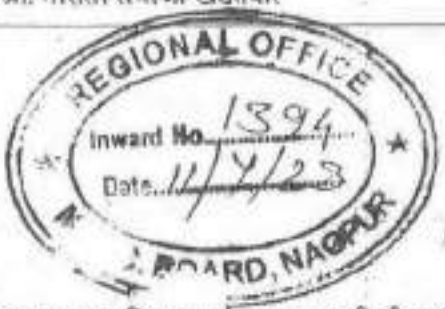
कार्यालय ग्रामपंचायत साहुली (आ.)

तह. कळमेश्वर, जि. नागपूर

सरपंच	उपसरपंच	सचिव
श्री. आनंदराव हरपुदास शेंडे	श्री. मारोती रामाजी खडतकर	कु. मायावती देशपांडे

दि. ११/०७/२०२३





प्रदूषण नियंत्रण मंडळ,

नागपूर

विषय :- मेसर्स अदानी पॉवर कोळसाखान करिता ग्रामपंचायत साहुली ची नामंजुरी असल्याबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने आपल्या सेवेशी माहिती सादर करण्यात येते की, मेसर्स अदानी पॉवरसाठी भूमिगत कोळसाखान साहुली या गावाजवळ झाल्यास लोकांच्या घराचे व शेताचे मोठ्या प्रमाणात नुकसान होणार आहे. करिता याबाबत गावातील लोकांना त्यांच्या घराला तळवे लागणार ज्यांची स्लाप ची घरे बनवलेली आहेत. तसेच ध्वनिप्रदूषण व वायुप्रदूषण मोठ्या प्रमाणात होईल. तसेच पिण्याचे पाणी दुषित होईल. सर्व घराचे नुकसान होईल. या परिसरात वन्यप्राणी व झाडे असून याकरिता सर्व गावातील लोकांची तीव्र नाराजी आहे.

करिता माहितीस सविनय सादर.



सरपंच
ग्रा.प.साहुली
त.ता.कळमेश्वर

प्रोसिडिंग बुक (कार्यवाही बुक)

ग्रामपंचायत -साहुली (आलेसुर) तहसील - कळमेश्वर जिल्हा – नागपूर सन २०२३-२४

सभेचा दिनांक व तारीख	सभेस उपस्थित असलेल्या सदस्यांची नावे	ठरावाचा मसुदा	सूचक / अनुमोदक	चर्चा	मतदान			उतारा पास किंवा नापास	सभेच्या वेळा	अधिकाऱ्यांच्या सह्या
					ठरावाच्या बाजूने संख्या व नावे	विरोधकांची संख्या व नावे	तटस्थांची संख्या व नावे			
१	२	३	४	५	६	७	८	९	१०	११
२८/०६/२०२३	श्री.आनंदराव शेंडे सरपंच तथा अध्यक्ष उपस्थित सदस्य	विषय क्र. १०/१ मेसर्स अदानी पॉवर कोळसाखान करीता मौजा साहुली ग्रामपंचायत ची नामंजुरी असल्याबाबत.		आज दिनांक - २८/०६/२०२३ ला ग्राम पंचायत साहुली (आलेसुर) येथे मासिकसभा मा. श्री. आनंदरावजी शेंडे (सरपंच) यांच्या अध्यक्षतेखाली सकाळी ११:३० वाजता सभा घेण्यात येऊन खालील विषयांवर चर्चा करण्यात आली. खुलासा :- उपरोक्त विषयान्वये कळविण्यात येते की, मेसर्स अदानी पॉवरलाठी भूमिगत कोळसाखान साहुली या गावाजवळ झाल्यास लोकांच्या घराचे व शेतीचे मोठ्या प्रमाणात नुकसान होणार लोकांना त्यांच्या घराला तसेच शेतकऱ्यांचे शेतीचे खूप मोठ्या प्रमाणात नुकसान होणार आहे. करिता याबाबत गावातील लोकांना तळवे लागणार ज्यांची स्लापची घरे बनवलेली आहेत. तसेच ध्वनिप्रदूषण व वायुप्रदूषण मोठ्या प्रमाणात होईल. तसेच पिण्याचे पाणी दुषित होईल व पाण्याची कमतरता होईल आणि यामुळे सर्व घरांचे नुकसान होईल. या परिसरात बऱ्याच प्रमाणात झाडे आणि वन्यप्राणी असून याकरिता सर्व गावातील लोकांची तीव्र नाराजी आहे. याबाबत सभेत चर्चा करण्यात आली. करिता ग्रामपंचायत ची नामंजुरी आहे. असा ठराव सभासदांनी एक मताने मंजूर केला.	------	-------	मंजूर	-----	----

3421

Re: Environmental Public Hearing Scheduled for 13th June for coal mine at Gondkhairi Nagpur

vidarbha environment <veag.nagpur@gmail.com>
Wed 12-07-2023 19:57
To:SRO Nagpur 1 <sronagpur1@mpcb.gov.in>;RO Nagpur <ronagpur@mpcb.gov.in>

Vidarbha Environmental Action Group
विदर्भ पर्यावरण कृतिसमिती
H.O.: G-4, Vinayak Apt., Lokmat Square, Dharampeth, Nagpur - 440010. E-mail: veag.nagpur@gmail.com
B.O.: Vidarbha Office - Dharmata Ashram, Bharti Mandir Road, Bhandara, Nagpur- 440 012 Ph: +91-712-2569355

VIDARBHA ENVIRONMENTAL ACTION GROUP, NAGPUR

To, 12/07/2023
The Sub Regional Officer, Nagpur 1,
Convener, Environment Public hearing
Maharashtra Pollution Control Board (MPCB)
5th Floor, Udyog Bhawan, Civil Lines, Nagpur - 440001

Subject: Your notice for Environmental Public hearing of proposed Gondkhari Coal Block of Adani Power Maharashtra Limited
Ref: Public Hearing scheduled on dtd. 13.07.2023, Time-11.00 A.M, Project Site at Project Site, Gondkahri, Dist-Nagpur.

Sir,

We hereby lodge our strong objection to the proposed mine.

As per information provided on your web site:

- The Gondkhari mining block is spread over Mine lease area of 862.00 Ha with production capacity of Coal is 3 Million Tons per year.
- Total Mineable Reserves is 52.496 million tonnes and Life of the mine for Coal is 26 Years.
- Total water requirement is 496 Kilo litres per day.
- Manpower requirement is 863 persons.
- Of The allocated block is a commercial coal block for sale of coal.

The environmental clearance must be denied in view of following grounds:

1. The Union Ministry of Power's Central Electricity Authority (CEA) has updated projections on India's energy mix for the power sector in 2030. India generated 73% of its power from coal in 2022-23. The CEA expects this to go down to 55% by 2030. A greater share in the electricity mix will be held by renewable sources, whose generation is expected to rise to 31% in 2030 from 12% at present.
2. As per Paris Agreement of 2015 India has committed to meet 50 percent of its energy requirements from renewable energy by 2030 in order to achieve global warming reduction.
3. India will achieve its target of net zero by 2070.
4. This clearly means that Coal based Thermal Power Plants will ultimately be closed down.
5. There are several water bodies in the vicinity namely Ambajhari, Bhivkund Dam, Futala Lake, Alesur Local Lake – within proposed mining area, Mordham Dam & Reservoir –Suraburdi Lake – Adjacent , Vena Dam, Jhilpi Talav.
6. The water bodies are main source of water for irrigation and drinking. Ambajhari Ordnance factory and Hingna MIDC are supplied water from Vena Dam.
7. There is 87.351 hectares of prime forest and there are many wild animals in this forest area namely tiger, leopard, chital, sloth bear, wild dog, nilgai etc. who also come to the water bodies regularly.
8. There are thousands are families living in surrounding villages near the project site. The villagers are dependent on water bodies that are situated in the vicinity of the project. The water in the streams and lakes is bound to dry up due to underground mining. If the project is granted Environmental Clearance the water bodies which are the life line not only for villagers but also for the wildlife will be destroyed forever.
9. The agriculture in surrounding villages will be destroyed due to pollution caused by coal mining as the coal will be transported by road. The ore burden will also destroy fertile agricultural land.
1. The proposed project will give employment to only 863 persons whereas thousands of farmers will lose their livelihood.

2. If mining is allowed the workers' health will be harmed from exposure to coal through the breathing of coal and silica dusts. Continued exposure can damage the lungs, liver, and kidneys. Exposure to coal mine dust causes various pulmonary diseases, including coal workers' pneumoconiosis (CWP) and chronic obstructive pulmonary disease (COPD). Coal mine workers will be exposed to crystalline silica dust, which causes silicosis, COPD, and other diseases. These lung diseases can bring about impairment, disability and premature death.

3. Coal contains toxic chemicals such as mercury, arsenic, barium, cadmium, nickel and lead, apart from radioactive minerals. Mining will cause significant pollution of water, sediments, and soils thereby causing health hazards for thousands of people living in the region.

4. Studies on pollution from coal mines have revealed elevated levels of potentially toxic elements in surface waters and bottom sediments which pose a risk to the human health via the household and drinking water supply.

5. The proposed mine is in Nagpur metro region which is already polluted due to Coal based power plants and coal mines. The pollution carrying capacity of the region is already exhausted.

6. The tremors, which will be caused by heavy machinery and explosives, will damage houses in nearby villages.

7. Thousands of people will be forced to flee due to buildings collapsing, ground subsidence, mine fires or other accidents. The draft EIA has ignored this vital issue and no R&R policy is formulated.

8. The draft EIA report is relying on 2011 census when Nagpur and Kalmeshwar cities were not highly populated. In fact these cities have grown many fold and the proposed mine will cover many settlements which are actually over ground.

9. The project proponent has not obtained NOC from Nagpur Metro Region Development authority.

In view of above facts, we strongly oppose the proposed coal mine and request you to forward our objection to the Environmental Appraisal committee and save Nagpur Metro Region.

Thanking You.
For Vidarbha Environmental Action Group

Sudhir Paliwal
Convener

On Wed, 12 Jul 2023 at 17:11, vidarbha environment <veag.nagpur@gmail.com> wrote:

> Sir,
>
> We understand that Environmental Public Hearing is scheduled for 13th June for coal mine at Gondkhairi Nagpur.
>
> The details of the same are not available as MPCB web site is not working.
>
> We want to participate and raise objections.
>
> You are requested to provide all details like public notice, EIA report, time and venue, summary , mine plant, online webex pass code etc immediately.
>
> Please note that if it is not provided we shall seek appropriate legal remedy.
>
> Regards,
> For Vidarbha Environmental Action Group
>
> Sudhir Paliwal
>
> Convener

28/64

निर्मल गाव ।। तंटामुक्त गाव ।। पर्यावरण संतुलित गाव ।। स्वच्छतेकडून समृद्धीकडे



-: कार्यालय :-

ग्राम पंचायत नागलवाडी



पंचायत समिती, हिंगणा, ता. हिंगणा जि. नागपूर.

सौ. हिराताई ग. सहारे — सरपंच

श्री. जितेन्द्र के चवरे — उपसरपंच

श्री. सी सी मुंगल — सदस्य

जावक क्र. .....

दिनांक 12/7/2013



प्रती,

उप प्रादेशीक अधिकारी
महाराष्ट्र प्रदूषण नियंत्रण मंडळ
प्रादेशिक कार्यालय / उपप्रादेशिक कार्यालय-1
5 वा माळा उद्योग भवन सिव्हील लाईन नागपूर



विषय :- पर्यावरण विषयक जाहीर लोकसुनावणी बाबत आक्षेप नोंदविणे बाबत

संदर्भ :- आपले दैनिक वृत्तपत्राची जाहिरात .

महोदय ,

महोदय, वरील संदर्भीय विषयाचे अनुषंगाने सविनय आक्षेप नोंदविण्यात येते कि आपली दैनिक वृत्तपत्रातजाहीर प्रसिध्दी सूचनानुसार वने व पर्यावरण मंत्रालय भारत सरकर यांची अधिसूचना दिनांक 01/12/09 अन्वये मेसर्स अदानी पॉवर महाराष्ट्र राज्य लिमिटेड नागपूर यांच्या गोंडखैरी कोळसा खान (कामठी कोळसाक्षेत्र) गाव गोंडखैरी ता.कळमेश्वर जि.नागपूर यांनी महाराष्ट्र प्रदूषण नियंत्रण मंडळास पर्यावरण विषयक मॅगनीजची उत्पादन क्षमता 3 मिलीयम प्रस्तावित आहे सदर खदानीचे क्षेत्र 862 हेक्टर आहे . सदरील प्रकल्प पर्यावरण आणि [illegible] होऊन आरोग्यास हानी होण्याचे संभवते ग्रा.प. नागलवाडीचा सदर प्रकल्पास विरोध आहे करिता आक्षेप नोंदविण्यात येत आहे करिता सविनय माहितीस सादर

करिता माहितस सादर .

सरपंच
ग्राम पंचायत नागलवाडी
पं.स.हिंगणा,जि.नागपूर

सहपत्र :- 1) मासिक सभा ठरावाची सत्यप्रत

झाडे लावा....! झाडे जगवा....!

प्रोसेडिंग बुक (कारवाई बुक)

ग्राम पंचायत :- नागलवाडी प.स.:- हिंगणा तहसील :- हिंगणा जिल्हा :- नागपुर सन :- 2023-24

सभेचा नंबर व तारीख	हजर सभासदां चे नाव	ठरावाचा मसुदा	सूचक/ अनुमोदक	थोडक्यात चर्चा	मतदान			ठराव पास/ नापास	अधिकाऱ्याची सही
					तर्फेची संख्या व सही	विरोधकाची संख्या व सही	तटस्थाची संख्या व सही		
22/6/2023	सौ हिराबाई सहारे व हजर मासिक सभा सदस्य	विषय ठराव क्र. 5/1 अन्वये		आज दिनांक 22/6/2023 ला सकाळी ठीक 11.00 वाजता मासिक सभा सुरु झाली असता अध्यक्षस्थानी सौ. हिराबाई सहारे (सरपंच) होत्या खालील विषयावर चर्चा करण्यात आली . विषय :- पर्यावरण विषयक जाहीर लोकसुनावणी बाबत आक्षेप नोंदविणेबाबत . खुलासा :- आजच्या सभेत ठराव क्र.5/1 अन्वये वरील विषयावर सविस्तर चर्चा केल्यानंतर उप प्रादेशिक अधिकारी म.प्र.नि.मंडळ नागपूर तथा समन्वय पर्यावरण विषयक जनसुनावणी यांचे दैनिक वृत्तपत्रात पर्यावरण विषयक जाहीर लोक सुनावणीचा सूचना प्रसिद्धी प्राप्त नमूद आहे की वने व पर्यावरण मंत्रालय भारत सरकार यांची अधिसूचना दि.01/12/2009 अन्वये पेंच्स अडाणी पावर महाराष्ट्र राज्य लिमिटेड नागपूर यांच्या गोंडखैरी कोळसा खाण (कामठी कोळसा क्षेत्र) मौजा-गोंडखैरी ता.कळमेश्वर जिल्हा नागपूर या खाणिजची उत्पादन क्षमता 3 मिलीयन टन प्रतीवर्ष प्रस्तावित आहे व खदानीचे क्षेत्र 862 हेक्टर आहे सदर प्रस्तावित प्रकल्प करणेकरिता दुषित वातावरण निर्माण होऊन आजुबाजुस होणे निर्माण होणेची क्षमता निर्माण होऊ शकते त्यामुळे सदर प्रकल्प करण्यास ग्रा.प. नागलवाडीचा विरोध आहे करिता आक्षेप संबंधित विभागाकडे सादर करावा असे आजच्या सभेत ठरवून ठराव सर्वानुमते मंजूर ठराव .				ठराव पास	

सरपंच
ग्राम पंचायत नागलवाडी
पं.स.हिंगणा,जि.नागपूर

सचिव
ग्रामपंचायत नागलवाडी,
ता. हिंगणा, जि. नागपूर.

3425

सत्यप्रतिलिपी

30/44

जिल्हा परिषद नागपूर

सौ.भारती अनिल पाटील
माजी सभापती
अर्थ व शिक्षण,क्रिडा समिती,
जिल्हा परिषद नागपूर.

"निधी पॅलेस" प्लॉट नं.1, पहिला माळा,
दत्तवाडी,अमरावती रोड,नागपूर-440023
दुरध्वनी क्र. (कार्या.) - 0712-2564810
निवास - 9373106612
मोबाईल नं. - 9970447271
ई-मेल - zpchairmanedufin@gmail.com

पत्र क्र.जिपना/~~सभापती/शिक्षण~~

दिनांक 27/07/2023

REGIONAL OFFICE
Inward No 12 49
Date 31/7/23
M.P.C. BOARD, NAGPUR

प्रति,

महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशिक कार्यालय / उप-प्रादेशिक कार्यालय-१
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर - ४४०००१

विषय:- मैसर्स अदानी पॉवर, गोंडखैरी, ता. कळमेश्वर, जि.नागपूर भूमिगत कोळसा खाणीबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १०.०७.२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर, जिल्हा नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे,

सदर भूमिगत खाण ही ८३२ हेक्टर मधे होणार असून सदर खानीतील क्षेत्र हे मेट्रोरिजन मध्ये येत असल्यामुळे पुढील येणाऱ्या १०० वर्षाचे एन.एम.आर.डी.ए.चे नियोजन आहे. खाणीच्या क्षेत्रात येणा जलाशय असून या जलाशयाचे पाणी अमरावती रोडवरील सर्व गावात व खाणीच्या क्षेत्रात येणाऱ्या सर्व गावात पिण्यासाठी वापरले जाते. तसेच या क्षेत्रात ऑईलचा पॅसेजही असून केंद्राच्या सरंक्षण विभागाशी संबंधीत आहे व या ऑईलच्या पॅसेजच्या वरच्या भागातून या जलाशयाचे पाणी वाहण्यात येते व खाणीच्या क्षेत्रातील सर्व शेत जिरायती असून दोन पिके घेतली जातात.

तसेच या खाणीकरीता सोळा गावाचे अभिलेख अधिग्रहीत केल्या जाईल तरीच त्यामुळे गावांचे व घरांचे पुनर्वसन करण्यात येईल त्यामुळे लोकांना याचा त्रास सहन करावा लागणार आहे.

करिता या भूमिगत कोळसा खाणीला आमचा विरोध आहे.

(सौ. भारती अनिल पाटील)
माजी सभापती, शिक्षण व अर्थ समिती
तथा जि.प. सदस्य
सोनेगाव (निपाणी) सर्कल, ता.जि. नागपूर

जिल्हा परिषद नागपूर

सौ.भारती अनिल पाटील
सभापती
अर्थ व शिक्षण,क्रिडा समिती,
जिल्हा परिषद नागपूर.

"निधी पॅलेस" फ्लॉट नं.1, पहिला माळा,
दसवाडी,अमरावती रोड,नागपूर-440033.
दुरध्वनी क्र. (कार्या.) - 0712-2564819
निवास - 9373106612
मोबाईल नं. - 9970447271
ई-मेल - zpchairmanedufan@gmail.com

पत्र क्र.जिपना/सभापती/स्विस/ दिनांक

REGIONAL OFFICE
Inward No. 1249
Date. 3/7/23
BOARD, NAGPUR

प्रति,
महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशिक कार्यालय / उप-प्रादेशिक कार्यालय-१
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स,
नागपूर - ४४०००१

विषय:- मैसर्स अदानी पॉवर, गोंडखैरी, ता. कळमेश्वर, जि. नागपूर भूमिगत कोळसा खाणीबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १०.०७.२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर, जिल्हा नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे.

सदर भूमिगत खाण ही ८३२ हेक्टर मधे होणार असून सदर खानीतील क्षेत्र हे मेट्रोरिजन मध्ये येत असल्यामुळे पुढील येणाऱ्या १०० वर्षाचे एन.एम.आर.डी.ए.चे नियोजन आहे. खाणीच्या क्षेत्रात येणा जलाशय असून या जलाशयाचे पाणी अमरावती रोडवरील सर्व गावात व खाणीच्या क्षेत्रात येणाऱ्या सर्व गावात पिण्यासाठी वापरले जाते. तसेच या क्षेत्रात ऑर्डनस्न फॅक्टरी असून केंद्राच्या सरंक्षण विभागाशी संबंधीत आहे व या ऑर्डनस्न फॅक्टरीमध्ये सुध्दा या जलाशयाचे पाणी वापरण्यात येते व खाणीच्या क्षेत्रातील सर्व भाग निमशहरी असून दाट वस्तीचा भाग आहे.

तसेच या खाणीकरीता मोठ्या संख्येने जमीन अधिग्रहीत केल्या जाईल तसेच त्यामुळे गावांचे व घरांचे पुनंवसन करण्यात येईल त्यामुळे लोकांना याचा त्रास सहन करावा लागणार आहे.

करिता या भूमिगत कोळसा खाणीला आमचा विरोध आहे.

(सौ. भारती अनिल पाटील)
माजी सभापती, शिक्षण व अर्थ समिती
तथा जि.प. सदस्य
सोनेगाव (निपाणी) सर्कल, ता.जि. नागपूर

3428

कार्यालय ग्रामपंचायत सुराबर्डी

पंचायत समिती नागपूर जिल्हा परिषद नागपूर

31/44

जा.क्र

दिनांक:- १०६/२०२३

ग्राम पंचायत सुराबर्डी
जावक क्र. 146
दिनांक 27/06/2023
पं. स. नागपूर

REGIONAL OFFICE
Inward No. 1261
Date 3/7/23
M. P. C. BOARD, NAGPUR

प्रति,

मा.उप-प्रादेशिक अधिकारी,
महाराष्ट्र प्रदुषण नियंत्रण मंडळ,
उप-प्रादेशिक कार्यालय-१,५ वा माळा,
उद्योग भवन सिव्हील लाईन नागपूर.

विषय:- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खान (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर, यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत आक्षेप नोंदविण्याबाबत.

संदर्भ:-१) जा.क्र.मप्रनि/उप्राकार्या-१/६०२/२३ उप-प्रादेशिक कार्यालय-१, ५ वा माळा उद्योग भवन, सिव्हील लाईन नागपूर दिनांक:-०९/०६/२०२३.

२) ग्रामपंचायत सुराबर्डी मासिक सभा दि.२०/०६/२०२३ ठराव क्र.१४/२ नुसार.

उपरोक्त विषयानुसार मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खान, (कामठी कोळसा क्षेत्र), गाव-गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर, यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत संदर्भ क्र-२ नुसार ग्रा.पं सुराबर्डी ता.जि नागपूर येथील मासिक सभा दि.२०/०६/२०२३ ठराव क्र.१४/२ नुसार या परिसरात भूमिगत कोळसा खान करण्यात येवु नये याप्रकाचा प्रस्ताव मंजुर करण्यात आलेला आहे.

करिता सदर प्रस्ताव आपल्या कार्यवाहीस सविनय सादर.

सहपत्र:- मासिक सभा ठरावाची सत्यप्रत.

सरपंच
ग्राम. पंचायत सुराबर्डी
पं.स. नागपूर ता.जि नागपूर

SR-I
RECEIVED
03-07-2023

प्रोसिडींग बुक (कारवाई बुक)

ग्रामपंचायत सुरबर्डी तहसिल:—नागपूर जिल्हा:—नागपूर

सभेचा दिनांक	हजर सभासदांची नावे	ठरावांचा मसुदा	सुचक/अनुमोदक	थोडक्यात चर्चा	मतदान			ठराव पास किंवा नापास	सचिवाचे मत
					तर्फेची संख्या व सही	विरोधकांची संख्या व सही	तटस्थांची संख्या व सही		
१	२	३	४	५	६	७	८	९	१०
दिनांक:— २०/०६/२३	श्री ईश्वरजी गणवीर सरपंच श्री मुकेशजी महाकाळकर उपसरपंच श्री विनोद सोनवाने सदस्य सौ कविता आंबटकर सदस्या सौ दिपाली गुरनुले सदस्या सौ कल्पना राउत सदस्या सौ सिमा येलेकार सदस्या श्री सुभाष तायडे सदस्य	विषय १४/२:— मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड, नागपूर यांच्या गोंडखैरी भुमिगत कोळसा खान,(कामठी कोळसा क्षेत्र) गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर. यांच्या पर्यावरण विषयक जाहिर लोकसुनावणी बाबत चर्चा करणे.		आज दिनांक २०/०६/२०२३ ला नोटीस अन्वये ग्रामपंचायत सुरबर्डी ची सर्व साधारण मासिक सभा श्री ईश्वरजी गणविर सरपंच यांच्या अध्यक्षतेखाली ठिक सकाळी १२.०० वाजता खालील विषयावर घेण्यात आली. ठराव क्र. १४/२:— आजच्या सभेत विषय चर्चेला घेतला असता सदर विषयानुसार ग्रामपंचायत सुरबर्डी मासिक सभेत महाराष्ट्र प्रदुषण नियंत्रण मंडळ यांचे पत्र क.जा.क.मप्रनि/उप्राकाना—०१/६०२/२३ उप—प्रादेशिक, कार्यालय—१, ५ वा माळा उद्योग भवन सिव्हील लाईन नागपूर दिनांक:—०९/०६/२०२३, नोटीस नुसार चर्चा करण्यात आली चर्चे अंती सभेत उपस्थित असलेल्या ग्रा.पं सदस्य व त्यांना ग्रामपंचायत क्षेत्रातील नागरिकांना केलेल्या तक्रारीनुसार खालीलप्रमाणे या खदानी विषयी खालील समस्या निर्माण होउ शकतात कारण या अगोदर ज्याभागात कोळसा खदान किंवा इतर खदानी झाल्यास त्या परिसरात जन सामान्याचे जीवन अत्यंत दुखत करण झालेले आहे. त्यामुळे विषयानुसार खदान या भागात करण्यात येउ नये असे आजच्या सभेचे स्पष्ट मत आहे. या खदानी मुळे निर्माण होणा—या समस्या:— १)वायु प्रदुषण:—वायु प्रदुषित झाल्यामुळे लोकांचे आरोग्य धोक्यात येउन निरनिराळ्या रोगांना लोक बळी पडतात. २) पाण्याची गुणवत्ता:— भुजलावरील पाण्याची पातळी कमी होउन				पास	

ग्राम पंचायत सुरबर्डी

भूजलातील पाणी नाहीसे होते त्यामुळे लोकांना दुष्काळी परीस्थितीचा सामना करावा लागतो. पाण्यात विविध घटक मिसळत असल्यामुळे पाण्याची गुणवत्ता खराब होउन लोकांना निरनिराळे रोग होतात.

३)नैसर्गिक साधन संपत्ती नाहीसे होते:–खदानीमुळे हवा प्रदुषित झाल्यामुळे सर्व प्रकारची नैसर्गिक संपत्ती वृक्ष, भुजलावरील पशु पक्षी यांना सुध्दा हानी पोहचते त्यामुळे नैसर्गिक साधन संपत्ती नष्ट होउन पर्यावरण हानी होते.

४) ग्रामपंचायत सुराबर्डी अंतर्गत अपारंपारीक अभियान प्रशिक्षण केंद्र येत असुन तेथे जवानांना प्रशिक्षण देण्यात येत असते. त्यामुळे त्यांचे आरोग्य धोक्यात येइल तसेच सुराबर्डी येथे लघु पाटबंधारे विभाग अंतर्गत तलाव तयार करण्यात आले आहे. तेथुन सुराबर्डी–लाव्हा संयुक्त पाणी पुरवठा योजना चालु असुन अंदाजे ३०,०००/– तिस हजार लोकांना पाणी पुरवठा केल्या जात असुन भविष्यात खदानीमुळे पाणी लुप्त होण्याची शक्यता नाकारता येत नाही. तसेच सुराबर्डी येथे आंतराष्ट्रीय गोंढवांना संग्रालय तयार होत असुन त्याला या खदानीमुळे नुकसान होणे नाकारता येत नाही.

करीता प्रकल्प या भागात करण्यात येवु नये असे सर्वानुमते ठरले. करीता ठराव सर्वानुमते मंजुर.

सत्यप्रतिलीपी

ग्रामपंचायत सुराबर्डी

3430

32/44

स्वच्छ गांव निर्मल गांव सुंदर गांव



गट ग्राम पंचायत वडधामना

पंचायत समिती हिंगणा, जि.पं. नागपूर.



सौ. शशीकला ना. ईवनाते
सरपंच

श्री. [illegible]जी ना. पाल
उपसरपंच

ग्रामपंचायत वडधामना ता. हिंगणा जि. नागपूर

जावक क्र.GS/२९२९ दिनांक 03/06/2023

मा.उप-प्रादेशिक अधिकारी
म.प्र.नि.मंडळ नागपूर-१ ,

विषय:- मेसर्स अदानी पॉवर महाराष्ट्र लिमिटेड नागपूर यांच्या मौडखैरी भूमिगत कोळसा खाण,(कामठी कोळसा क्षेत्र) मौजा मौडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत.

संदर्भ:- आपले कार्यालयीन पत्र.क्र:-जा.क.म.प्र.नि/उद्योगजना १/६०२/२३ दिनांक: ०५/०३/२०२३ अन्वये

महोदय,

आपणास वरील विषयाचे अनुशंगाने कळविण्यात येते की, ग्रामपंचायत वडधामणा मासिकसभा दिनांक:-२६/०६/२०२३ ठरावक्रमांक:- १/१० नुसार असे ठरविले की, त्यानुसार सभेत सर्वेसदर ठरावी करण्यात आली यावेकी सदर प्रकल्पा बाबत ग्रा.पं.वडधामणा ते खालील प्रमाणे आहे आहे

१) सदर प्रकल्पामुळे प्रदुषण मोठ्या प्रमाणात वाढणार असल्यामुळे सदर प्रकल्पास आहे व आहे आहे

२) [illegible]

३) [illegible]

४) प्रकल्पामुळे [illegible] क्षेत्र बाधीत होईल व त्यामुळे क्षेत्र बाधीत होऊन शाळी ओढ आहे व शाळेला [illegible] नुकसान होणार [illegible] शाळी ओढ नाही

[illegible] सदर प्रकल्प ग्रामसभेत [illegible] सदर प्रकल्पावर ग्रा.पं. आक्षेप आहे करीता आपले स्तरीवर [illegible]

सहपत्र:-ग्रा.पं.ठरावप्रत

शशीकला
सरपंच
ग्राम पंचायत वडधामणा
पं.स.हिंगणा,जि.प.नागपूर

ग्रामविस्तार अधिकारी
ग्राम पंचायत वडधामणा
पं.स.हिंगणा,जि.प.नागपूर

ग्राम पंचायत :- वडधामणा तहसिल :- हिंगणा जिल्हा :- नागपूर सन:२०२३-२४

सभेचा दिनांक व तारीख	हजर असणा सदस्यांची नावे	ठरावाचा मसुदा	सूचक अनुमोदक	थोडक्यात चर्चा	मतदान होकारार्थी संख्या / नकारार्थी संख्या	पारित पारित नसलेला ठराव	शासन दप्तरी नोंद	आदेशाचे कार्यान्वयन झाले / झाले नाही
मासिक सभा दिनांक: २६/०६/२०२३	हजेरी रजिस्टर प्रमाणे उपस्थित	ठराव क्र:- ५/१० मेसर्स अदानी पॉवर महाराष्ट्र लिमीटेड नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण.(कामती कोळसा क्षेत्र) गाव गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत मा. उपप्रादेशिक अधिकारी म.प्र.नि.मंडळ नागपूर-१		आज दिनांक २६/०६/२०२३ सकाळी ११.०० वाजता ग्रामपंचायत कार्यालय वडधामणा येथे माहे जुन २०२३ मासिकसभा बोलावण्यात आली व कोरमपुर्ती झाल्यावर मा.सौ.वंशिकला नारायणराव इखनाते (सरपंच) यांचे अध्यक्षते खाली खालील विषयावर मासिकसभा सुरुवात करण्यात आली. विषय:- मेसर्स अदानी पॉवर महाराष्ट्र लिमीटेड नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खाण.(कामती कोळसा क्षेत्र) गाव गोंडखैरी, तालुका कळमेश्वर जिल्हा नागपूर यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत. मा.उपप्रादेशिक अधिकारी म.प्र.नि.मंडळ नागपूर-१ निर्णय :- आज सभेत विषयाचे अनुशंगाने चर्चा करण्यात. सदर पत्राचे सविस्तर वाचन करुन चर्चा करण्यात आली व पत्रासोबत सादर केलेले रिपोर्ट सभेत तेवण्यात आले व त्यानुसार सभेत सविस्तर चर्चा करण्यात आली यापैकी सदर प्रकल्पा बाबत ग्रा.पं.वडधामणा चे अटी व शर्ती १) सदर प्रकल्पामुळे प्रदुषण मोठया प्रमाणात वाढणार असल्यामुळे सदर प्रकल्पास अटी व शर्ती आहे २) स्थानिक नागरीकांना सदर प्रकल्पात नोकरी देण्यात यावी तसे रोजगार देण्यात यावा ३) प्रकल्पामुळे पुर्नवसन होणार आहे किंवा असे या बाबात स्पष्टता नाही. ४) प्रकल्पामुळे विस्तीर्ण क्षेत्र बाधीत होईल वरेणते क्षेत्र बाधीत होईल याची नोंद नाही व स्थानिक लोकांना मुलभुत सेवा मिळणार कि नाही याची नोंद नाही. करीता सदर प्रकल्प ग्रामपंचायत वडधामणा मध्ये सदर प्रकल्पास अटी व शर्तीवर आहे.	पारित		

शाश्विकला
सरपंच
ग्राम पंचायत वडधामणा करीता सदर ठराव सरपंचमहते तसाच मंजूर

ग्रामविस्तार अधिकारी
ग्राम पंचायत वडधामणा

पं.स.हिंगणा,जि.प.नागपूर

3432

3433

33/4

कार्यालय

ग्रामपंचायत-सोनेगाव (निपाणी)

पंचायत समिती नागपूर ता.नागपूर जि.नागपूर

सौ.तेजस्विनी एम.धुर्वे	श्री.कृष्णा एच.सरीन	श्री.योगेंद्र रघुनाथ गायकवा
सरपंच	उपसरपंच	ग्रामविकास अधिकारी

ग्रा.पं.सोनेगाव (निपाणी) ता.जि.नागपूर
आ.क्र. 62
दि. .....

दिनांक:- 26/06/2023

REGIONAL OFFICE
Inward No. 1325
Date 4/7/23
M.P.C. BOARD, NAGPUR

प्रति,

मा.उप-प्रादेशिक अधिकारी,
महाराष्ट्र प्रदूषण नियंत्रण मंडळ,
उप-प्रादेशिक कार्यालय-1,5 वा माळा उद्योग भवन,
सिव्हील लाईन नागपूर.

विषय:-मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खान,(कामठीकोळसा क्षेत्र),गाव-गोंडखैरी,तालुका कळमेश्वर जिल्हा नागपूर,यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत आक्षेप नोंदविण्याबाबत.

संदर्भ:-1) जा.क्र.मप्रनि/उप्राकाना-1/602/23 उप-प्रादेशिक उप-प्रादेशिक कार्यालय-1,5 वा माळा उद्योग भवन,सिव्हील लाईन नागपूर दिनांक.09/06/2023.

2) ग्रामपंचायत सोनेगाव (निपाणी) तहकूब मासिक सभा दिनांक.23/06/2023 ठराव क्र.7 नुसार.

SRO-I
FW
27/06/2023

उपरोक्त विषयानुसार मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपूर यांच्या गोंडखैरी भूमिगत कोळसा खान,(कामठीकोळसा क्षेत्र),गाव-गोंडखैरी,तालुका कळमेश्वर जिल्हा नागपूर,यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत संदर्भ क्र.2 नुसार ग्रा.पं सोनेगाव (निपाणी) ता.जि नागपूर येथील तहकूब मासिक सभा दिनांक.23/06/2023 ठराव क्र.7 नुसार या परिसरात भूमिगत कोळसा खान करण्यात येऊ नये अशाप्रकारचा प्रस्ताव मंजूर करण्यात आलेला आहे,

करिता सदर प्रस्ताव आपल्या कार्यवाही सादर.

ग्रामविकास अधिकारी
ग्रामपंचायत सोनेगाव,निपाणी
प.स.नागपूर

सरपंच
ग्रामपंचायत सोनेगाव (नि

सहपत्र :- तहकुब मासिक सभा ठराव प्रत सलग्न.

प्रोसिंडीग बुक (कारवाई बुक)

ग्रामपंचायत :- सोनेगाव निपाणी तहसिल :- नागपुर जिल्हा :- नागपुर सन :२०२३-२०२४

मासिक सभा

नंबर सभेचा दिनांक	हजर सभासदांची नावे	ठरावाचा मसुदा	सूचक/अनुमोदक	थोडक्यात चर्चा	मतदान			ठराव पास किंवा नापास	सर्वांचे मत	अधिकारी
					तर्फेची संख्या व सही	विरोधकांची संख्या व सही	तटस्थांची संख्या व सही			
दि.२३/०६/२०२३	मा.सौ. तेजस्विनी मो.धुर्वे सरपंच व हजर सभासद			आज दिनांक-२२/०६/२०२३ ची तहकुब मासिक सभा दि.२३/०६/२०२३ सकाळी ११:०० वाजता ग्रामपंचायत कार्यालयात घेन्यात आली असता सभेच्या अध्यक्ष स्थानी मा.सौ.तेजस्विनी मो.धुर्वे सरपंच हया होत्या सभेत खालील विशयावर सविस्तर चर्चा करन्यात आली.						
		विषय क्रं ७ मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपूर यांच्या गॉडखैरी भूमिगत कोळसा खान, (कामठीकोळसा क्षेत्र),गाव-गॉडखैरी,तालुका कळमेश्वर जिल्हा नागपूर,यांच्या पर्यावरण विषयक जाहीर लोकसुनावणी बाबत चर्चा करणे		खुलासा :- आजच्या सभेत विषय चर्चेला घेतला असता सदर विषयानुसार ग्रामपंचायत सोनेगाव (निपाणी) मासिक सभेत महाराष्ट्र प्रदूषण नियंत्रण मंडळ यांचे पत्र क्र. जा.क्र.मप्रनि/उद्याकाना-1/602/23 उप-प्रादेशिक उप-प्रादेशिक,कार्यालय-1 , 5 वा माळा उद्योग भवन सिव्हील लाईन नागपूर दिनांक.09/06/2023. नोटीस नुसार चर्चा करण्यात आली चर्चे अंती सभेत उपस्थित असलेल्या ग्रा.पं. सदस्य व त्यांना [illegible] खोलानुसार मा.खदानी विषयी खालील समस्या निर्माण होत [illegible] खदानी मुळे निर्माण होण्याचा संभवतः- 1) हवा प्रदूषित होते , हवा प्रदूषित झाल्यामुळे लोकांची आरोग्य धोक्यात येऊन [illegible]	0 सत्यप्रतिलीपी			पास		

ग्रामपंचायत सोनेगाव (नि.) ता. जि. नागपूर

				2) पाण्याचे गुणवत्ता:-भूजलातील पाण्याची पातळी कमी होऊन भूजलातील पाणी नाहीसे होते त्यामुळे लोकांना दुष्काळी परिस्थितीचा सामना करावा लागतो ग्रामपंचायत विविध पातळ विसकटत असल्यामुळे पाण्याची गुणवत्ता खराब पेऊन लोकांना निरनिराळे रोग होतात 3) नैसर्गिक साधन संपती नाहीसे होते:- खाणकामामुळे हवा पाणी प्रदूषित झालयामुळे सभी प्रकारची नैसर्गिक संपत्ती वृक्ष , भूजलातील प्राणी पक्षी यांचे मृत्यूमुखी पडतात त्यामुळे नैसर्गिक साधन संपती नष्ट होऊन पर्यावरणात मोठे बदल 4) ग्रामपंचायत सोनेगाव, निपाणी अंतर्गत असलेल्या कोळसा डेपो, अंबाझरी वेस्ट इंडिया, फॅक्टरी, वेस्ट वेस्ट आणि वेस्ट मध्ये येणाऱ्या डिझेल लोडिंगच्या ठिकाणी डस्ट (धूळ) उत्पन्न होते तसेच वेगवेगळ्या प्रकारचे केमिकल असे अनेक प्रकारचे केमिकल युक्त कारखान्यांची लागणाऱ्या विविध वे घाट बनवत असतात त्यामुळे वातावरण खराब झाले हवा पाणी प्रदूषित होऊन त्यामुळे मानवी जीवन धोक्यात होण्याची दाट शक्यता नाकारता येत नाही. अशाप्रकारे मेसर्स अदानी पॉवर महाराष्ट्रलिमिटेड, नागपूर खदानीमुळे या ग्रामपंचायत क्षेत्रातील लोकांचे नुकसान होणार असल्यामुळे हा प्रकल्प या भागात करण्यात येऊ नये प्रस्ताव मंजूर					

ग्रामविकास अधिकारी
ग्रामपंचायत सोनेगाव,निपाणी
प.स.नागपूर

सरपंच
ग्रामपंचायत सोनेगाव (निपाणी)

34/-



स्वच्छ गांव ! निर्मल गांव ! सुंदर गांव !

कार्यालय ग्रामपंचायत - पेठ (कालडोंगरी)

पंचायत समिती नागपूर, जि. प. नागपूर.



सौ. प्रतिभा मनोहर भोयर
सरपंच, मो. 9359975440

सौ. मनिषा रावलसिंग कोवे
उपसरपंच, मो. 8805887197

कु. सारिका बकाल
सचिव, मो. 9890330524

सदस्यगण

कु. मालीनी विठोबा भोयर
मो. 9823747270

श्री. तुषार मोरेश्वर डवरे
मो. 9923829702

सौ. मीना मोहन लोहकरे
मो. 8007504697

श्री. राम भाऊरावजी गोतमारे
मो. 9823880152

श्री. विक्रांत देवानंद गडपा
मो. 9156133997

सौ. बाली परमेश्वर मारवा
मो. 7030504446

REGIONAL OFFICE
Inward No. 1262
Date. 5/7/23
M.P.C. BOARD, NAGPUR

जावक क्र.....

दिनांक

प्रति,

महाराष्ट्र प्रदुषन नियंत्रण मंडळ,
प्रादेशिक कार्यालय / उप-प्रादेशिक कार्यालय - 1
5 वा माळा उदयोग भवन, सिव्हील लाईन्स,
नगपुर 440001

विषय :- मैसर्स अप्राची पॉवर, गौडखैरी, ता. कळमेश्वर जि. नागपुर भुमिगत कोळसा खानी बाबत ग्रा.प. कार्यालय अक्षेप असल्याबाबत.

महादेय,

वरील विषयाच्या अनुशंगाणे आपणास कळविण्यात येते कि, ग्रा.प.पेठ काळडोंगरी हद्दीतील कोळसा खानीला आक्षेप नोंदवीत आहे ग्रा.प. पेठ काळडोंगरीतील मुख्य व्यवसाय हा शेतीवरच आहे येथील लोक शेतीवरच उदनिर्वाह करतात व खान झाल्यास त्याना खालील प्रमाणे नुकसान होईल.

1) गौडखैरी या कोळसा खानीमुळे पाण्याची पातळी खोल जाईल, शेतीला पुरेसे पाणी मिळणार नाही
2) प्रदुशनामुळे उत्पन्न होणार नाही.
3) पेठ या गावालगतच वेणा जलाशय तलाव आहे त्याचे पाणी सुद्धा दुशित होईल
4) हेच पाणी पिण्याकरीता वाडी येथे जाते ते पाणी पिण्याजोगे राहणार नाही
5) दुषित पाण्यामुळे आरोग्य धोक्यात येईल.
6) पेठ या गावालगतच लॉगीस्टीक पार्क या नावाचे गोडाउन असुन येथे मोठ्या



स्वच्छ गांव ! निर्मल गांव ! सुंदर गांव !

कार्यालय ग्रामपंचायत - पेठ (कालडोंगरी)

पंचायत समिती नागपूर, जि. प. नागपूर.



सौ. प्रतिभा मनोहर भोयर
सरपंच, मो. 9359975440

सौ. मनिषा रावलसिंग कोवे
उपसरपंच, मो. 8805687197

कु. सारिका बकाल
सचिव, मो. 9890330524

सदस्यगण

कु. मालीनी विठोबा भोयर
मो. 9823747270

श्री. तुषार मोरेश्वर ढवरे
मो. 9923829702

सौ. मीना मोहन लोहकरे
मो. 8007504697

श्री. राम भाऊराव गोतमारे
मो. 9823880152

सौ. राखी प्रमोद लोही
मो. 9373349733

श्री. विक्रांत देवानंद गडपाय
मो. 9156133997

सौ. बाली परमेश्वर मारवाड
मो. 7030504446

जावक क्र.....

दिनां...

प्रमाणात मजुर कामाला जातात. या कोळसा खाणीमुळे जोडधंदा बंद झाल्यास मजुरी बंद होउन त्या मजुरावर उपासमारीची वेळ येईल.

आणी या परिस्थीतीत कशी शेती होईल व या गावातील लोक आपला उर्दनिवाह कसा करेल ?

करीता या सर्व कारनामुळे या खानीला आक्षेप नोंदविण्यात येत आहे.

P.M.Bhoyar

सचिव / सरपंच
ग्रामपंचायत पेठ (कालडोंगरी)
पं.स. नागपूर

प्रोसेडिंग बुक (कारवाई बुक)

ग्रामपंचायत पेठ काळडोंगरी				तहसिल नागपुर			जिल्हा नागपुर				
					मतदान						
अ.सभेचा दिनांक	हजर सभासदांची नांव	ठरावाचा मसुदा	सुचक अनुमोदक	थोडक्यात चर्चा	तर्फेची संख्या व सही	विरोधकांची संख्या व सही	तटस्थांची संख्या व सही	ठराव पास/नापास	सचिवाचे मत	अधिकाऱ्याची सही
1	2	3	4		6	7	8	9	10	11
		ठराव क 4 मैसर्स अदानी पॉवर गौडखैरी ता कळमेश्वर ता. नागपुर भुमिगत कोळसा खाणी बाबत ग्रा.प. कार्यालय आक्षेप असल्याबाबत		आज दि. 23/06/2023 ठराव क्र. 4 ला मा. सरपंचा यांच्या अध्यक्षतेखाली ग्रामसभेचे आयोजन करण्यात आले व सभेतील विषय अध्यक्षांच्या परवानगीने सभे समोर ठेवले असता पेठ काळडोंगरी मैसर्स अदानी पॉवर ग्रा.प.पेठ काळडोंगरी हद्दीतील कोळसा खानीला आक्षेप नोंदवीत आहे ग्रा.प. पेठ काळडोंगरीतील मुख्य व्यवसाय हा शेतीवरच आहे येथील लोक शेतीवरच उदनिवाह करतात व खान झाल्यास त्याना खालील प्रमाणे नुकसान होईल. 1) खानीमुळे पाण्याची पातळी खोल जाईल, शेतीला पुरेसे पाणी मिळणार नाही 2) प्रदुशनामुळे उत्पन्न होणार नाही. 3) गावालगतच तलाव आहे त्याचे पाणी सुद्धा दुशित होईल 4) हेच पाणी पिण्याकरीता वाडी येथे जाते ते पाणी पिण्याजोगे राहणार नाही 5) दुशीत पाण्यामुळे आरोग्य धोक्यात येईल आणी या परिस्थीतीत कशी शेती होईल व या गावातील लोक आपला उदनिवाह कसा करेल. करीता या सर्व कारनामुळे या खानीला आक्षेप नोंदविण्यात येत आहे. करीता ठराव सर्वानुमते मंजुर				पास		

P.M. Bhoyar
सचिव/सरपंच
ग्रा.प. पेठ (काळडोंगरी)

35/44

पंचायत समिती हिंगणा

उमेशसिंह रमेशसिंह राजपूत
उपसभापती

मो. : 9766373687, 70200(
Email :- umesh321@yahoo.c

पत्र क्रमांक : 75/2023 दिनांक : 11/07/20

प्रति,

मा.महाराष्ट्र प्रदुषण नियंत्रक मंडळ
प्रादेशिक कार्यालय/उप-प्रादेशिक कार्यालय
५ वा माळा,उद्योग भवन,सिव्हील लाईन्स
नागपूर -४४०००१

विषय :- मेसर्स अदानी पावर,गोंडखैरी,ता.कळमेश्वर जि.नागपूर भुमिगत कोळसा खानिबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १३/०७/२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर जि.नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे.

सदर भुमीगत खान ही ८३२ हे.आर.मध्ये होणार असुन सदर खानिचे क्षेत्र हे मेट्रोरिजन मध्ये समाविष्ट असुन रहिवासी क्षेत्रा अंतर्गत अंतर्भुत आहे. सदर खाणीच्या क्षेत्रात येणा जलाशय असुन या जलाशयाचे पाणी वडधामणा,नागलवाडी तसेच निलडोह,डिगडोह व वानाडोंगरी परिसरात पाणी पुरवठा करण्याच्या दृष्टीने योजना मंजुर झालेली आहे. या परिसरामध्ये तीन लाखांच्या जवळपास लोकसंख्या असुन लोकवस्तीचे स्वरूप प्राप्त झाले आहे. या परिसरात या व्यतिरिक्त पाण्याचे कोणतेही स्त्रोत उपलब्ध नसल्यामुळे बोरवेल च्या माध्यमातुन पाणी घेतल्या जाते. मात्र बोरवेल करत असतांना ५०० ते ६०० फुटपर्यंत बोरवेल केल्यावरच पाणी उपलब्ध होते.जर हया भागात कोळसा खाण झाल्यास हया भागातील नागरीकांना पाण्यापासुन वंचीत राहावे लागणार आहे. हया भागाला लागुन हिंगणा M.I.D.C स्थापीत असुन मोठे उद्योग क्षेत्र कार्यरत आहे. या लगत क्षेत्रात ORDNANCE FACTORY असुन केंद्राच्या सरंक्षण विभागाशी संबंधीत आहे. तसेच या परिसरात मेट्रो रेल्वे सुध्दा कार्यरत आहे. या भागातील रहिवाश्यांची लोकसंख्या लक्षात घेता खाणीच्या प्रोजेक्टमुळे भविष्यात येथील नागरीकांना होणा-या प्रदुषणामुळे त्यांच्या जिवेतेला धोका निर्माण होणार आहे. तरी या परिसरात कोळसा खाणीला परवानगी देण्यात येउ नये. या खाणीला परिसरात राहणा-या नागरीकांचा मोठया प्रमाणात विरोध असुन कोळसा खाणीला परवानगी दिल्यास जनतेसमवेल आंदोलन केल्या जाईल.

करीता आपणास माहितीस सादर.

कार्यालय : पंचायत समिती हिंगणा, ता. हिंगणा, जि. नागपूर.
निवास : "आशिर्वाद", प्रिया विद्या विहार इंग्लिश स्कुल के पास, दुर्गानगर, हिंगणा रोड, नागपूर-४४००३५.

36/44

जिल्हा परिषद नागपुर

संजय रामकृष्णाजी जगताप
जिल्हा परिषद सदस्य
निलडोह – वडधामना सर्कल
सदस्य अर्थ समिती
महिला व बालकल्याण समिती

कार्यालय :
झोन चौक, हिंगणा रोड,
निलडोह, नागपूर
मो.नं. 9373104628

पत्र क्र. :

दिनांक 11/7/2023

प्रति,

मा. महाराष्ट्र प्रदुषण नियंत्रक मंडळ
प्रादेशिक कार्यालय / उप – प्रादेशिक कार्यालय
५ वा माळा, उद्योग भवन, सिव्हील लाईन्स
नागपुर – ४४०००१

विषय :- मेसर्स अदानी पावर, गोंडखैरी, ता. कळमेश्वर जि. नागपूर भुमिगत कोळसा खानिबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १३/०७/२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर जि. नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे.

सदर भुमिगत खान ही ८३२ हे.आर. मध्ये होणार असुन सदर खानिचे क्षेत्र हे मेट्रोरिजन मध्ये समाविष्ट असुन रहीवासी क्षेत्रा अंतर्गत अंतर्भुत आहे. सदर खाणीच्या क्षेत्रात बेणा जलाशय असुन या जलाशयाचे पाणी वडधामणा, नागलवाडी तसेच निलडोह, डिगडोह व वानाडोंगरी परिसरात पाणी पुरवठा करण्याच्या दृष्टीने योजना मंजुर झालेली आहे. या परिसरामध्ये तीन लाखांच्या जवळपास लोकसंख्या असुन लोकवस्तीचे स्वरूप प्राप्त झाले आहे. या परीसरात या व्यतिरीक्त पाण्याचे कोणतेही स्रोत उपलब्ध नसल्यामुळे तोरवेल च्या माध्यमातुन पाणी उपलब्ध होते. मात्र बोरवेल करत असताना ५०० ते ६०० फुटपर्यंत बोरवेल केल्या वर पाणी लागते. हा भाग कोळसा प्रवण झाल्यास ह्या भागातील नागरीकांना पाण्यापासुन वंचीत राहावे लागणार आहे. या भागाला लागुन हिंगणा M.I.D.C स्थापीत असुन मोठे उद्योग क्षेत्र कार्यरत आहे. यालगत क्षेत्रात ORDNANCE FACTORY असुन केंद्राच्या संरक्षण विभागाशी संबंधीत आहे. तसेच या परीसरात मेट्रो रेल्वे सुद्धा कार्यरत आहे. या भागातील रहीवाश्यांची लोकसंख्या लक्षात घेता खाणीच्या ब्लास्टींगमुळे भविष्यात येथील नागरीकांना होणाऱ्या त्रासामुळे त्यांच्या जिवितेला धोका निर्माण होणार आहे. तरी या परीसरात कोळसा खाणीला परवानगी देण्यात येऊ नये. या खाणीला परीसरात राहणाऱ्या नागरीकांचा मोठ्या प्रमाणात विरोध असुन कोळसा खाणीला परवानगी दिल्यास जनतेसमवेत आंदोलन केल्या जाईल.

करीता आपणास माहीतीस सादर.

संजय रामकृष्णा जगताप
सदस्य जिल्हा परिषद नागपूर
निलडोह-वडधामना सर्कल

3441

37/4

जिल्हा परिषद नागपुर

सौ. रश्मीताई धनराजजी कोटगुले
सदस्या जिल्हा परिषद, नागपूर

कार्यालय :
प्लॉट नं. ७५, लोकमान्यनगर,
हिंगणा रोड, नागपूर - ४४००१६.
मो. ९८२२८२१५८५

संदर्भ क्रं. :

दिनांक : 11/07/2023

प्रति,

मा.महाराष्ट्र प्रदुषण नियंत्रक मंडळ
प्रादेशिक कार्यालय/उप-प्रादेशिक कार्यालय
५ वा माळा,उद्योग भवन,सिव्हील लाईन्स
नागपूर -४४०००१

विषय :- मेसर्स अदानी पावर (मोहरबारी) ता.कळमेश्वर जि.नागपूर मुक्रिणत कोळसा खाणिबाबत.

महोदय,

उपरोक्त विषयाच्या अनुषंगाने दिनांक १३/०७/२०२३ रोजी ११.०० वाजता कारली तलावाच्या बाजुला तहसील कळमेश्वर जि.नागपूर येथे जनसुनावणीचे आयोजन करण्यात आले आहे.

सदर भुमीगत खान ही ८३२ हे.आर.मध्ये होणार असुन सदर खानिचे क्षेत्र हे गेट्रोरिनन मध्ये समाविष्ट असुन रहिवासी क्षेत्र अंतर्गत अंतर्भुत आहे. सदर खाणीच्या क्षेत्रात वेणा जलाशय असुन या जलाशयाचे पाणी वडधामणा,नागलवाडी तसेच नितनोह,डिगडोह व वानाडोंगरी परिसरात पाणी पुरवठा करण्याच्या दृष्टीने योजना मंजुर झालेली आहे. या परिसरामध्ये तीन लाखांच्या जवळपास लोकसंख्या असुन लोकवस्तीचे स्वरूप प्राप्त झाले आहे. या परिसरात या व्यतिरिक्त पाण्याचे कोणतेही स्त्रोत उपलब्ध नसल्यामुळे बोरवेल च्या माध्यमातुन पाणी घेतल्या जाते. मात्र बोरवेल करत असतांना ५०० ते ६०० फुटपर्यंत बोरवेल केल्यावरच पाणी उपलब्ध होते.जर हया भागात कोळसा खाण झाल्यास हया भागातील नागरीकांना पाण्यापासुन वंचीत राहावे लागणार आहे. हया भागाला लागुन हिंगणा M.I.D.C स्थापीत असुन मोठे उद्योग क्षेत्र कार्यरत आहे. या लगत क्षेत्रात ORDNANCE FACTORY असुन केंद्राच्या सरंक्षण विभागाशी संबंधीत आहे. तसेच या परिसरात मेट्रो रेल्वे सुध्दा कार्यरत आहे. या भागातील रहिवाश्यांची लोकसंख्या लक्षात घेता खाणीच्या प्रोजेक्टमुळे भविष्यात येथील नागरीकांना होणा-या प्रदुषणामुळे त्यांच्या जिवेतेला धोका निर्माण होणार आहे. तरी या परिसरात कोळसा खाणीला परवानगी देण्यात येउ नये. या खाणीला परिसरात राहणा-या नागरीकांचा मोठ्या प्रमाणात विरोध असुन कोळसा खाणीला परवानगी दिल्यास जनतेसमवेत आंदोलन केल्या जाईल.

करीता आपणास माहितीस सादर.

सौ. रश्मी धनराज कोटगुले
सदस्या जि.प. नागपुर

3442

38/44

जागपुर जिल्हा (ग्रामिण) काँग्रेस कमेटी

पत्ता:- मु. पो. ता. रायपुर हिंगणा
मो. 9422108570 9834708754

बाबा आष्टनकर
माजी सभापती मेट्रो
जि. प. नागपुर तथा उपाध्यक्ष
ना. जि. या काँग्रेस कमेटि

REGIONAL OFFICE
Inward No. 1405
Dt. 12/9/23
G. BOARD NAGPUR

प्रति,

मा. जिल्हाधिकारी साहेब,

नागपूर जिल्हा, नागपूर

विषय :- हिंगणा तालुका, नागपूर तालुका व कळमेश्वर तालुक्यासहीत २४ गाव, या समावेश करुन गोंडखैरी येथे "कोळसा खाण " निर्माण करण्याचे संपुर्ण काम मे. अदानी उद्योग समुह ला देण्यात आले आहे, ती कोळसा खाण रद्द करण्या बाबत.

महोदय,

वरील तालुक्यासहीत सदर गावे मेट्रो रीजन (N.M.R.D.A.) चे अधिपत्या खाली येत असून येथे अर्थव योजने अंतर्गम मोठ्या प्रमाणात निधी खर्च करुन विकास कामे सुरु आहेत, तसेच वडधामना, नानलवाडी, या गावा लगत ऑर्डनेस फॅक्ट्री कार्यरत आहे, गोंडखैरी या गावातलगत व्याहाडपेंठ जलाशय आहे, धामणा लिंभा या गावालगत एक विमानाचे बफर झोन आहे.

याशिवाय शेती व्यवसाय करणारे शेतक-यांच्या शेत जमीनी लाखो हेक्टर असून शासकिय जमिनीसुद्धा मोठ्या प्रमाणात आहे, तसेच सदर २४ गावांची लोकसंख्या किमान १ लक्ष असून २४ गावांत रहिवाशी क्षेत्र आहे, संपूर्ण क्षेत्राचे तालुका हिंगणा एस.आर.पी.एफ. व कळमेश्वर एम.आय.डी.सी कार्यरत आहे.

सदर कोळसा खाणी करीता ८८२ हेक्टर क्षेत्र प्रस्तावीत असून सदरील कोळसा खाण भूमीगत की खूली या बाबीचा अद्याप पर्यंत खुलासा झालेला नाही, सदर कोळसा खाणीतून कार्यान्वीत होण्या पश्चात्त खूल्या जातील त्यामुळे खाणीतून निघणारे धूळ, तसेच कोळशाची ने-आण करणारे ट्रक यामुळे परिसरातील जैव विविधता धोक्यात येऊन, हवेच्या प्रदुषणात वाढ होऊन, हवेच्या कोळशाचे सूक्ष्म कण, रहिवाशी नागरिकांचे आरोग्य विषयक प्रश्न निर्माण होतील, तसेच पाण्याच्या प्रदुषणामुळे सदर कोळशाची अतिसूक्ष्म कण, परीसर, शेतातील वातावरणात एकत्रीत होऊन मोठ मोठे आजार पसरविण्यास मदत करेल.

SR & Jmt

Aam Aadmi Party

Party Registration no. "56/145/2012/PPS-I"

Office Address : 8, Chinar, Green Park, Opp IDBI Bank, Tagore Road, Civil Lines, Nagpur – 440 001 Ph : 9545077222

STATE: Maharashtra.aamaadmiparty.org | Facebook.com/AAPMaharashtra | Twitter.com/AAPMaharashtra

39/44

दिनांक : १३/०७/२०२३

प्रती,

मा. उपप्रादेशिक अधिकारी, नागपूर I,

निमंत्रक, पर्यावरण जनसुनावणी

महाराष्ट्र प्रदूषण नियंत्रण मंडळ (MPCB)

5 वा मजला, उद्योग भवन, सिव्हिल लाइन्स, नागपूर - 440001

विषय: अदानीच्या प्रस्तावित गोंडखैरी कोल ब्लॉकच्या पर्यावरणीय जनसुनावणीसाठी प्रस्तावित खाणीवर आमचा तीव्र आक्षेप नोंदविण्याबाबत.

संदर्भ: सार्वजनिक सुनावणी दि. 13.07.2023, वेळ-11.00 A.M, प्रकल्प स्थळावर प्रकल्प, गोंडखैरी, जिल्हा-नागपूर.

महोदय,

आम्ही याद्वारे प्रस्तावित खाणीवर आमचा तीव्र आक्षेप नोंदवत आहोत.

तुमच्या वेबसाईटवर दिलेल्या माहितीनुसार:

- गोंडखरी खाण ब्लॉक 862.00 हेक्टर खाण लीज क्षेत्रामध्ये पसरलेला आहे आणि कोळशाची उत्पादन क्षमता प्रति वर्ष 3 दशलक्ष टन आहे.
- एकूण खाणयोग्य साठा 52.496 दशलक्ष टन आहे आणि कोळशासाठी खाणीचे आयुष्य 26 वर्षे आहे.
- एकूण पाण्याची गरज दररोज 496 किलो लिटर आहे.
- मनुष्यबळाची आवश्यकता 863 व्यक्ती आहे.
- वाटप केलेल्या ब्लॉकपैकी कोळशाच्या विक्रीसाठी व्यावसायिक कोळसा ब्लॉक आहे.

खालील कारणांमुळे पर्यावरण मंजुरी नाकारली पाहिजे:

१. केंद्रीय ऊर्जा मंत्रालयाच्या केंद्रीय विद्युत प्राधिकरणाने (CEA) 2030 मध्ये ऊर्जा क्षेत्रासाठी भारताच्या ऊर्जा मिश्रणावरील अंदाज अद्यतनित केले आहेत. 2022-23 मध्ये भारताने 73% वीज कोळशापासून निर्माण केली आहे. CEA ची अपेक्षा आहे की हे 2030 पर्यंत 55% पर्यंत खाली जाईल. वीज मिश्रणात अधिक वाटा अक्षय स्त्रोतांचा असेल, ज्यांचे उत्पादन सध्याच्या 12% वरून 2030 मध्ये 31% पर्यंत वाढण्याची अपेक्षा आहे.

२. 2015 च्या पॅरिस करारानुसार, जागतिक तापमानवाढ कमी करण्यासाठी भारताने 2030 पर्यंत 50 टक्के ऊर्जा आवश्यकता अक्षय उर्जेपासून पूर्ण करण्यासाठी वचनबद्ध केले आहे.

13/7/23

Aadmi Party
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३. भारत 2070 पर्यंत निव्वळ शून्याचे लक्ष्य गाठेल.

४. याचा स्पष्ट अर्थ असा की कोळशावर आधारित थर्मल पॉवर प्लांट्स शेवटी बंद होतील.

५. या परिसरात अंबाझरी, भिवकुंड धरण, फुटाळा तलाव, आलेसुर स्थानिक तलाव - प्रस्तावित खाण क्षेत्रात, मोरघाम धरण आणि जलाशय - सुराबुर्डी तलाव - लगत, वेणा धरण, झिलपी तलाव असे अनेक जलसाठे आहेत.

६. जलकुंभ हे सिंचन आणि पिण्यासाठी पाण्याचे मुख्य स्त्रोत आहेत. अंबाझरी ऑर्डिनन्स फॅक्टरी आणि हिंगणा एमआयडीसीला वेणा धरणातून पाणीपुरवठा केला जातो.

७. येथे 87.351 हेक्टर प्राइम फॉरेस्ट असून या वनक्षेत्रात वाघ, बिबट्या, चितळ, आळशी अस्वल, जंगली कुत्रा, नीलगाय इत्यादी अनेक वन्य प्राणी आहेत जे नियमितपणे पाणवठ्यावर येतात.

८. प्रकल्पस्थळाजवळील आजूबाजूच्या गावात हजारो कुटुंबे राहतात. प्रकल्पाच्या परिसरात वसलेल्या जलकुंभांवर ग्रामस्थ अवलंबून आहेत. भूमिगत खोदकामामुळे नाले आणि तलावातील पाणी कोरडे होणे साहजिक आहे. या प्रकल्पाला पर्यावरणीय मंजुरी मिळाल्यास केवळ गावकऱ्यांसाठीच नव्हे तर वन्यजीवांसाठीही जीवनवाहिनी असलेल्या पाणवठे कायमचे नष्ट होतील.

९. कोळसा खाणकामामुळे होणाऱ्या प्रदूषणामुळे आजूबाजूच्या गावकऱ्यांची शेती नष्ट होईल कारण कोळसा रस्त्याने वाहून नेला जाईल. खनिज ओढ्यामुळे सुपीक शेती जमीनही नष्ट होईल.

१०. प्रस्तावित प्रकल्पामुळे केवळ 863 जणांना रोजगार मिळेल तर हजारो शेतकऱ्यांची रोजीरोटी गमवावी लागेल.

११. खाणकामास परवानगी दिल्यास कोळसा आणि सिलिका धूलिकणांच्या श्वासोच्छवासाद्वारे कोळशाच्या संपर्कात येण्यापासून कामगारांच्या आरोग्यास हानी पोहोचेल. सतत संपर्कात राहिल्याने फुप्फुस, यकृत आणि मूत्रपिंडांना नुकसान होऊ शकते. कोळसा खाणीतील धुळीच्या संपर्कामुळे कोळसा कामगारांचे न्यूमोकोनिओसिस (CWP) आणि क्रॉनिक ऑब्स्ट्रक्टिव्ह पल्मोनरी डिसीज (COPD) यासह विविध फुप्फुसाचे आजार होतात. कोळसा खाणीतील कामगारांना स्फटिकासारखे सिलिका धुळीचा सामना करावा लागतो, ज्यामुळे सिलिकोसिस, COPD आणि इतर रोग होतात. या फुप्फुसाच्या आजारांमुळे अशक्तपणा, अपंगत्व आणि अकाली मृत्यू होऊ शकतो.

१२. कोळशात किरणोत्सर्गी खनिजांव्यतिरिक्त पारा, आर्सेनिक, बेरियम, कॅडमियम, निकेल आणि शिसे यांसारखी विषारी रसायने असतात. खाणकामामुळे पाणी, गाळ आणि मातीचे लक्षणीय प्रदूषण होईल ज्यामुळे या प्रदेशात राहणाऱ्या हजारो लोकांच्या आरोग्याला धोका निर्माण होईल.

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१३. कोळशाच्या खाणींमधून होणाऱ्या प्रदूषणावरील अभ्यासाने पृष्ठभागावरील पाणी आणि तळाशी असलेल्या गाळांमध्ये संभाव्य विषारी घटकांची पातळी वाढल्याचे समोर आले आहे जे घरगुती आणि पिण्याच्या पाण्याच्या पुरवठ्याद्वारे मानवी आरोग्यास धोका निर्माण करतात.

१४. प्रस्तावित खाण नागपूर मेट्रो प्रदेशात आहे जी कोळशावर आधारित ऊर्जा प्रकल्प आणि कोळसा खाणींमुळे आधीच प्रदूषित आहे. या प्रदेशाची प्रदूषण वाहून नेण्याची क्षमता आधीच संपली आहे.

१५. जड यंत्रसामग्री आणि स्फोटकांमुळे होणारे हादरे जवळपासच्या गावांमधील घरांचे नुकसान करतील.

१६. इमारती कोसळणे, जमिनीवर पडणे, खाणींना आग लागणे किंवा इतर अपघातांमुळे हजारो लोकांना पळून जावे लागेल. मसुदा EIA ने या महत्वाच्या मुद्द्याकडे दुर्लक्ष केले आहे आणि कोणतेही R&R धोरण तयार केलेले नाही.

१७. मसुदा EIA अहवाल 2011 च्या जनगणनेवर अवलंबून आहे जेव्हा नागपूर आणि कळमेश्वर शहरे जास्त लोकसंख्येची नव्हती. खरेतर ही शहरे अनेक पटीने वाढली आहेत आणि प्रस्तावित खाणीमुळे जमिनीवर असलेल्या अनेक वसाहतींचा समावेश होईल.

१८. प्रकल्प प्रस्तावकाने नागपूर मेट्रो रिजन डेव्हलपमेंट प्राधिकरणाकडून एनओसी घेतलेली नाही.

वरील वस्तुस्थिती लक्षात घेता, आम्ही प्रस्तावित कोळशा खाणीला कडाडून विरोध करतो आणि आमचा आक्षेप पर्यावरण मूल्यमापन समितीकडे पाठवावा आणि नागपूर मेट्रो क्षेत्र वाचवावे ही विनंती.

धन्यवाद!

आपला स्नेही

संयोजक / सचिव
आम आदमी पार्टी

कार्यालय

40/44

ग्रामपंचायत खैरी पन्नासे

ता. हिंगणा , जि. नागपुर

श्री.चंद्रशेखर कृष्णरावजी गिसे	श्री. राहुल सुधाकर पन्नासे	श्री.सुहासिनी कोल्हे
सरपंच	उपसरपंच	सचिव

विनंती अर्ज

प्रती, महाराष्ट्र प्रदुषण नियंत्रण मंडळ
उप प्रादेशिक कार्यालय नागपुर -

विषय :- खदान विषयी प्रस्ताव प्राप्त ग्रां. पं. खैरी
मराठीमध्ये करणेबाबत

ग्रां. प. व. का गावकरी तसेच 93/67
या कारणी येथे खदान क्षेत्रीय वस्ती
जास्तीत जास्त विरोधी करतो की,
ग्रां. पं. ला मराठीमध्ये प्रस्ताव देण्यात
यावा जेणेकरुन सुशासनी योजना
यावी. अन्यथा सुशासनी होईल.
धन्यवा.

दि. 13/7/2023
सरपंच खैरी (पन्नासे)

41/44

Date: 13-07-2023

MPCB Regional office/Sub Regional office
5th Floor, Udyog Bhavan, Civil Lines,
Nagpur – 440001

Hon. Court Office of the Tahasildar
Kalmeshwar, Nagpur

Sub: Environmental Public Hearing under Hon. Collector Nagpur at Kh. No. 9/5 Near Kurli on 13/07/2023

Respected sir,

I here with want express my opinion for Undergrcund Coal mines for your kind perusal

1. Underground mining has the potential for tunnel collapses and land subsidence. It involves large-scale movements of waste rock and vegetation, similar to open pit mining. Additionally, like most traditional forms of mining, underground mining can release toxic compounds into the air and water.

2. Underground mining allows coal companies to dig for coal deeper into the ground. The problem is that huge amounts of earth and rock are brought up from the bowels of the earth. These mining wastes can become toxic when they are exposed to air and water.

3. The environmental impact includes loss of forest cover, habitat and biodiversity of an area, soil erosion, groundwater contamination and permanent destruction of hilly areas.

4. A mine collapse could occur due to a number of factors, including the use of explosives, timbering failure, induced seismicity, and explosions from gas or dust. There are a variety of fire sources located in underground mining

5. Underground mining extracting coal resources through the wells, usually leads to land subsidence, water resources destruction, soil erosion, air pollution and biodiversity decrease.

6. The disadvantages include destruction of land, surface subsidence, abandoned shafts, extensive surface spoil heaps, mine explosions, collapses and flooding. "Excessive mining close to infrastructure projects loosens the foundation.

For the reason you are requested to cancel the said 'Gonkhairi underground coal Mine' (Kimpthi Coal Area) which is awarded to M/s Adani Power Maharashtra Limited, Nagpur

Yours faithfully

( )
Arun Uttamrao Mayeetai chaure
LS, Fo M-9423762518 – 9423106170

Received
13/7/23

42/4

दिनांक : 13/07/2023

प्रति,

माननीय वरिष्ठ प्रादेशिक अधिकारी,
महाराष्ट्र राज्य पोल्युशन कंट्रोल बोर्ड,
सिव्हिल लाईन्स, नागपूर

आक्षेपक / आवेदक : विनय भूपेंद्रनाथ नागपुरे, राहणार प्लॉट नंबर 206/12,
सिविल लाइन्स, जीपीओ चौक, नागपुर - 440001.
मोबाईल नंबर 9422808983.

संदर्भ : वरिष्ठ प्रादेशिक अधिकारी, महाराष्ट्र राज्य पोल्युशन कंट्रोल बोर्ड, सिव्हिल लाईन्स नागपूर मेसर्स अदानी पावर महाराष्ट्र लिमिटेडचे गोंडखैरी अंडरग्राउंड कोल माईन्स करिता जन सुनावणी दिनांक 13/06/2023.

माननीय महोदय,

मी विनय भूपेंद्रनाथ नागपुरे माझ्या नावे शेत सर्वे नंबर 16,17,18 मोजा खापरी, तालुका कळमेश्वर, माझे शेत गोंडखैरी धापेवाडा सावनेर या राष्ट्रीय महामार्गावर असून चा शेतमालाक आहे.

मेसर्स अदानी पावर लिमिटेड चे अंडरग्राउंड कोल माईंस करिता कारली गाव कळमेश्वर तालुका येथे करणार आहे. या कोल माईंस च्या उद्योग प्रकल्पाने माझे वरील शेत सर्वे कोणत्या तऱ्हेने बाधित होत आहे काय ? बाधित होत असल्यास कशा प्रकारे बाधित होत आहे ? या उद्योग प्रकल्पा चे संपूर्ण बाधित व संपादित होणाऱ्या जागेचा रंगीत नकाशा संपूर्ण माहितीसह मला पुरविण्यात यावा. पुरविण्यात येणाऱ्या माहिती करिता मी शासकीय दराप्रमाणे येणारा खर्च देण्यास तयार आहे

या मेसर्स अदानी कोल माईन्स उद्योग प्रकल्पाला माझे तीव्र हरकत आहे. या कोल माईन्स उद्योगामुळे जमिनीतील पाण्याची पातळी खूपच जमिनीच्या स्तराच्या खोलवर जाणार आहे असे समजते. हेच कारणावर येथे उद्योग राहणार नाही

करीत हे पत्र कारली गाव तालुका कळमेश्वर इथे जन सुनावणी ला देण्यात येत आहे.

आपला

विनय भूपेंद्रनाथ नागपुरे
आक्षेपक

43

B. K. AGRAWAL
CHARTERED ACCOUNTANT

51, New Colony,
Byramji Town,
NAGPUR – 440 001
Ph.O :2595653 R :2595959
Mob +91 93251 11932

Nagpur
12th July, 2023

To,
Regional Officer,
Maharashtra Pollution Control Board,
Udyog Bhawan, 5th Floor, Civil Lines,
Nagpur – 440 001.

Subject : Objection for conducting Public Hearing slated on 13.07.2023 for Gondkhari Underground Coal Mine (KAMPTEE COAL FIELD) of Production Capacity 3.0 MTPA in the Mine Lease Area of 862.0 Hectare of M/s Adani Power Maharashtra Ltd.

Sir,

With reference to the subject cited, we would like to inform you that location identified for the Gondkhari Underground Coal Mine is a developed wellbeing, religious, residential, commercial, sports and agricultural area having very high values.

Surabardi Meadows and club is one of them which spread over 30 hectares of land and having 10,000 square meter civil construction. It is complete resort with full fledge club house, swimming pool, Jim, sport area and big open lawns, 94 Rooms for destination events etc. is available here and is in full pledged operation. Apart from this 40 independent farms / houses of one acre land and farm house of 150 sqr mtr in each for wellbeing activities with well-developed landscaping and gardens is part of this property. The wellbeing, religious, corporate wedding, social and family events are regularly organized here.

And further work in progress is on 15 hectors of land for development of wellbeing centres and farmhouses and gated community and the incline of the coal mine project is coming on the land adjacent to this project.

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The Surabardi Meadows and Club is well known major destination for various events and structures and property is coming within mining lease area. Approximately 80 Hect. of Land at Surabardi, 45 Hect. of land at mauja Karli and 25 Hect. of land at mauja Durg Dhamna, total 150 Hect. of Land belonging to group is coming under proposed mining area. There is no reference or mentioned of these infrastructures and activities anywhere in the submitted Draft EIA/EMP report of the Gondkhari Underground Coal Mine.

The incline site of the proposed mine is adjacent to the Surabardi Meadows and club, the coal will be transported through locomotive or conveyors from working face to surface from here only. Stacking of coal and loading into vehicle will cause huge fugitive emissions, resulting the environment i.e. air, water, land etc and the entire area will be polluted and the property will loss its sanctity. Inspite of this Surabardi Meadows and Club and entire Surabardi village and Suraburdi lake and adjoining area alongwith entire mining area are not covered in the subsidence report. The subsidence report is made for forest land only.

The UOTC (Unconventional Operation Training Centre) of Maharashtra Police, the Shudhanshu Maharaj Ashram (A big Temple of lord Shiva, Parvati and Ganeshji called Kailash Parvat) and Bhavani Mata Mandir in the adjoining areas are existing within mining area which is also not covered in Draft EIA/EMP. The UOTC Centre is just on the adjoining land of proposed **Incline site.**

Surabardi minor irrigation tank of approx. 86 Hect. is lifeline for adjoining villages for drinking water and irrigation agricultural operation and drinking water for animals and for all the villagers surrounding to lake. Recently a deep well project is constructed for supply of drinking water to the nearby villages. The present water reservoir is not sufficient for existing uses and the short of water in summer time. It is proposed in EIA/EMP report that water will be drawn for the mining operation from Surabardi lake, it will not only diminish the said water source and with the time it will lose inviolability but also deprive the villagers of using this water which is already in short supply in the regular season and the situation is worst in summer.

Contd.. 3 ..

In the core zone and buffer zone of proposed mining area, Heritage, Reserve Forests, Archaeological places, Museums, Memorials, Tourist places, Temples, Zoo, Gardens, Biodiversity, Lake, Dam, Reservoir, Wildlife and Safari Park and the dancing fountain a national level project on Futala Lake are existing. The ground vibrations caused due to blasting operation and may damage all aforementioned structures and water level all the water bodies.

In view of the same, you are requested to instruct the Project Proponent to Redo Environment Impact Assessment covering all the major topographical features, major construction and other polluting sources and stop the Public Hearing slated on 13th July 2023 for obtaining Environment Clearance for Gondkhari Underground Coal Mine (KAMPTEE COAL FIELD) of Production Capacity 3.0 MTPA in the Mine Lease Area of 862.0 Hectare of M/s Adani Power Maharashtra Ltd.

Thanks and Regards,

(B. K. Agrawal),

C C :

1. Director, Ministry of Environment, Forest and Climate Change, Jor Bagh, Lodhi Colony, New Delhi,
2. Member Secretary, Environment Department, Govt of Maharashtra, New ADM Building 15 floor, Madam Karma Marg, Mantralay, Mumbai-32.
3. Director, Ministry of Environment, Forest and Climate Change Office Nagpur, Maharashtra.
4. District Collector Office, Civil line Nagpur, Maharashtra.

Nagpur
Dt. 12-07-2023

From :
Chetan Babria,
Chandak House,
Kh. No. 134, Mauja Suraburdi,
Suraburdi,
Nagpur (Rural),
Nagpur – 440 025.

To,
Regional Officer,
Maharashtra Pollution Control Board,
Udyog Bhawan, 5th Floor, Civil Line, Nagpur.
440001

Subject :- Objection for conducting Public Hearing Gondkhari Underground Coal Mine (KAMPTEE COAL FIELD) of Production Capacity 2.0 MTPA in the Mine Lease Area of 862.0 Hectare of M/s Adani Power Maharatra Ltd.

Referenec :- EIA Notification 2006 14th September.

Dear Sir,

With reference to the subject cited, I would like to draw your kind attention that proposed Gondkhari underground Coal Mine (KAMPTEE COAL FIELD) of Production Capacity 2.0 MTPA in the Mine Lease Area of 862.0 Hectare of M/s Adani Power Maharatra Ltd will cause following adverse impact on Environment and demography of the area:-

Proposed Gondkhari underground Coal Mining Project of capacity of 2.00 MTPA is located in mine lease area of 862 ha located at villages - Nanda (Risthi), Kalambi, Alesur, Gondkhari, Karali; Tehsil - Kalmeshwar, Nagpur Gramin, Hingana; District - Nagpur, Maharashtra . The identified project location is Eco sensitive area as in the core zone and buffer zone of the project reserve forest, archaeological places, museums, memorials tourist places, Temples, Zoo, gardens, biodiversity, Lake, Dam, reservoir, wildlife and safari Park are existing within the study area of proposed mining.

In the submitted draft EIA/EMP report the project area is declared Non-eco-sensitive zone. However as per Additional ToR Condition No (xix) an approval from PCCF of forest department of the state shall obtained and submit that the proposed area is not Eco-sensitive zone, but said approval has not been obtained from PCCF office. The said condition is not complied.

As per grated ToR condition A Study area shall be the core zone and 15km area of the buffer zone in case of ecologically sensitive areas, but only 10 KM study area is considered in submitted draft EIA report .

The Surbardi Lake, Karli Lake and Alesur Lake is present within the mine lease area and the surface water requirement of the project will be fulfilled from these water body. The exploitation of water for mining purpose will diminish the said water source. The nearby villages are fully dependent in these lakes for their water requirement i.e. drinking and irrigation purpose.

The minimum depth of working of mine declared 169.5 m and maximum depth of working 394.30 m. The mine seepage water will be dewatered continuously from uninterrupted mining and surface water and ground water depletion will occur.

The water requirement of the proposed mine will be 496 KLD (436 KLD from mine seepage and 60 KLD from borewells). Due to mining water from water bodies on surface and below ground aquifers, tends to seep through strata and percolate in mine. These will cause water depletion in all surface water body existing nearby by of the proposed project. The mining operation will affect the Surabardi Reservoir, Vena Dam, Ambajhari Lake, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam & Reservoir, Highland's Water Park etc and these will extinct with the time.

In the core zone and buffer zone, Bazargaon Reserve Forest, Madhogarh Reserve Forest, Gorewada Jungle Safari, Ambajhari Biodiversity are existing. Fauna found in these forest will migrate due to blasting, vehicle movement and other biotic and abiotic interference occur due to mining. Ambajhari Biodiversity is in distance of 6-7 KM from the said project site. The Leopard is sighted here which is listed as vulnerable on the International Union for Conservation of Nature (ICUN) Red list but same is not mentioned in the Draft EIA Report.

Ground vibrations are caused by blasting operations, subsidence due to mining operations, deployment of mobile equipment, rock bursts and rock bumps. Blasting also generates air vibration waves. Vibration may cause structural damages. There is **serious threat to the famous Archaeological Important place Junapani Stone Circles** Fetri which is situated in the distance of 7 KM of the project. The famous tourist places Satpuda Botanical Garden, Dr. Babasaheb Ambedkar Museum & Memorial, Kasturchand Park, Mahurzari Megalithic Stone Circles, Maharaj Bagh Zoo and Dancing Musical Fountain at Futala Lake etc which are situated within the core and buffer zone of the area.

In addition to above Vitthal Rukmini Temple, Surabardi Shiva Temple, Adasa Ganesh Temple, are situated in project area these are famous spiritual places where project affected villagers are doing worship which may be damaged due to ground vibrations caused by blasting operations.

Further it will have significant effect on UOTC Centre of Maharashtra Police, which is situated just on the adjoining hilllok adjoining to proposed **incline.**

The surface air quality will be impacted significantly due to mining activity and coal transportation through vehicle. The surface and ground water depletion will occur due the dewatering of mine seepage water. Resulting all above archaeological place and tourist places will lose their sanctity gradually.

As stated in draft EIA report that no Rehabilitation and resettlement is required as the proposed mining is underground but some of the houses in various villages and major structures i.e. Sudhanshu Maharaj Ashram and Kailash Parvat there, Jamia Islamia School, the Water Reserver Tank, the various buildings at UOTC Campus, various structure of Surabardi Meadows, Club, various Farmhouses at Surabardi, Dublin Castle, Ayaan farm, Sarda's Farm etc adjacent to mining lease area are not cover in Draft EIA Report. The environment pollution caused due to mining operation will significantly impact in these structures.

As per Additional ToR Condition No (vi) Forest Clearance of total 87.351 Ha shall be obtained for diversion of non-forestry activity, but Forest Clearance has not been obtained by the Project Proponent.

As per Standard ToR condition No. (xxxi) mining lease has not been done and also NOC from flood and irrigation department has not been obtained.

In view of the above please stop the Public Hearing slated on 13th July 2023 for obtaining Environment Clearance for Gondkhari Underground Coal Mine (KAMPTEE COAL FIELD) of Production Capacity 2.0 MTPA in the Mine Lease Area of 862.0 Hectare of M/s Adani Power Maharashtra Ltd and may please instruct to redo EIA covering all the major topographical features, major construction, major industries/mines and other polluting sources, which shall also indicate the migratory corridors of fauna, where endangered fauna and plants of medicinal and economic importance are found in the area.

Thanks and Regards

(Chetan Babria)

CC:-

1. Director, Ministry of Environment, Forest and Climate Change, Jor bagh, Lodhi Colony, New Delhi,
2. Member Secetary, Environment Department, Govt of Maharashtra, New ADM Building 15 floor, Madam Karma marg, Mantralay, Mumbai-32.
3. Director, Ministry of Environment, Forest and Climate Change Office Nagpur, Maharashtra.
4. District Collector, Civil line Nagpur, Maharashtra.

T.C.

Ax. I

Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(Coal Mining)
***

Minutes of AGENDA FOR 5th MEETING OF THE EXPERT APPRAISAL COMMITTEE (COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 21st to 22nd DECEMBER, 2023 THROUGH VIRTUAL MODE. meeting Coal Mining held from 21/12/2023 to 22/12/2023

Date: 07/01/2024

MoM ID:	EC/MOM/EAC/532249/12/2023
Agenda ID:	EC/AGENDA/EAC/532249/12/2023
Meeting Venue:	N/A
Meeting Mode:	Virtual
Date & Time:	

21/12/2023	10:30 AM	05:30 PM
22/12/2023	10:30 AM	05:30 PM

1. Opening remarks

At the outset, the Chairman welcomed the Expert members & other participants and requested to start the proceeding as per the agenda adopted for this meeting. Note - Due to Editor issue, Final Approved Minutes of the EAC is enclosed herewith in PDF as a ANNEXURE]. Please refer this document and Treat as approved Minutes of the EAC [Coal Sector]

2. Confirmation of the minutes of previous meeting

Confirmation of the Minutes of 4th Meeting of the EAC (Coal): The minutes of the 4th Meeting of the EAC (Coal) held during 7th (Afternoon) & 8th December 2023 has been confirmed by the Chairman.

3. Details of proposals considered by the committee

T.C.

Day 1 -21/12/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Expansion of production from 2.80 to 3.92 MTPA of Amelia (North) Coal Mine by **Jaiprakash Power Ventures Limited** located at **SINGRAULI,MADHYA PRADESH**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity**

xii. *Mining of coal shall be carried out only by surface miners for the project (as proposed) and silo loading till railway siding through in-pit conveyor should be installed to avoid road. No road transportation shall be conducted.*

xiii. *PP to upload the monitoring data of 4 nos of continuous ambient air quality with server of CPCB and SPCB. The real time data so generated shall be uploaded on company website. In addition, data should also be displayed digitally at entry and exit gate of mine lease area for public display.*

xiv. *PP should Install Wind breaker/shield arrangement along the railway siding for reducing the dust propagation in upwind direction.*

xv. *PP shall display the CAAQMS data at entry and exit gate of mine office and shall be share with the SPCB/CPCB.*

xvi. *PP should install fixed Fog cannons within the ML area and movable fog cannons to be deployed for the Mines, haul road, CHP area and other required area.*

xvii. *PP shall strictly implement the recommendation of Riverine/Riparian Ecosystem conservation & Management Plan.*

xviii. *PP shall install fixed fog cannon (mist sprayer) all along the haul road till CHP, Railway siding and OB Dump area and accordingly sufficient number of fog cannons (not less than 10 nos.) with 40 mts jet length shall be installed within 6 months. It should be ensured that air pollution level confirm to the standards prescribed by the MOEFCC/CPCB.*

xix. *PP to develop an ECO park with separate area of 5 ha for medicinal and herbal species within two years.*

xx. *Progressive backfilling of mine and progressive reclamation by conducting tree plantation of OB dump shall be done.*

xxi. *Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEFCC.*

Agenda No. 5.6

Gondkhari Underground Coal Mine of production capacity 2.0/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) – Reconsideration for Environmental Clearance reg.

[Online proposal No. IA/MH/CMIN/444481/2023; File no. J-11015/46/2022-IA. II. (M)]

5.6.1 The proposal is for Environmental Clearance for Gondkhari Underground Coal Mine of production capacity 2.0/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani

Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).

5.6.2 Committee during the EAC observed the followings:

i. Earlier, the proposal was considered in the 1st EAC meeting dated 17.10.2023 wherein the committee had deferred the proposal for submitting the information. The PP has submitted the reply on Parivesh portal vide letter dated 30.11.2023 as mentioned below:

S. No.	Observation of EAC	Reply by PP
1.	PP to submit the Drone videos & Photographs of the Forest area (lying within the ML area) including Lake/Reservoir/Dam and the other sensitive zone.	Detailed drone survey has been carried out covering the complete project area i.e. 862 ha including Forest Area and all the water bodies like Surabardi Lake, Alesur Lake and Surface topography and other area in and around the ML area. Drone images has been enclosed.
2.	Status of Forest Clearance for 87.351 ha of forest land involved in the ML area of 862 ha	The Forest diversion proposal no. FP/MH/MIN/QRY/408247/2022 has been forwarded by Under Secretary (Revenue and Forest Department) Govt. of Maharashtra to the Secretary, MoEF&CC, GOI vide letter no. FLD-3423/CR-310/F-10 dated 21.11.2023. At present, as per the latest update as on date 14.12.2023 the proposal under consideration at IGF MoEF&CC HQ, after FAC meeting for stage-I approval.
3.	PP shall submit Letter of Intent from concerned State Government as per Ministry's OM dated 7 th October, 2014.	Kindly refer letter no. MNG-1222/C.R.235/Ind-9 (A) dated 20.09.2023 of Joint Secretary, Govt. of Maharashtra wherein the government has granted in-principle approval to enter into a lease agreement subject to fulfilment of prior requisite conditions which include Environmental Clearance, Forest Clearance, etc.
4.	PP shall submit the approved Mine Plan chart for 3 MTPA peak capacity with calendar plan.	Mine plan has been prepared for 2.0 MTPA capacity, mining operation will also carry out at 2.0 MTPA capacity only and similarly EIA has been prepared for 2.0 MTPA. However, as per MOC office memorandum vide letter no. F.No.34011/28/2019-CPAM appendix No-I, page no.-11 of 39 dated 29/05/2020. MOC mandate to show the 150% of rated capacity on the cover page of the mine plan shows i.e, peak capacity will be 3 MTPA as per MOC mandatory provisions. MoC guideline has been enclosed.

		Similarly, Mine plan approval letter granted by MoC for rated capacity of 2.0 MTPA and peak capacity of 3.0 MTPA. – EC has been applied for the proposed capacity of 2 MTPA Since mining will be restricted to 2.0 MTPA, calendar plan for coal production with a targeted capacity of 2.0 MTPA.
5.	Details of Pre-mine land use and post mine land use plan keeping the area occupied by Dam/Lake/Reservoir to be same with all protection measures.	Total mining lease area is 862 ha out of which 13.89 ha. area is occupied by Water bodies like lake, reservoir, etc. as per the pre mining land use pattern. The water bodies will remain undisturbed during operation is as no working is being done below the water bodies and end of life of mine. However, we APML has proposed various mitigation measures for rejuvenation of the water bodies and a budget of Rs. 3.64 Crores has been earmarked; detailed land use plan has been enclosed.
6.	PP shall submit the Geo-tagged location of the lake/reservoir/Dam namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake w.r.t. the ML area.	Geotagged locations of the Water bodies namely Ambazari, Bhivkund Dam, Futala Lake, Alesur Local Lake, Mordham Dam and Reservoir, Suraburdi Lake, Vena Dam, Jilpi Lake, along with photographs are separately attached herewith in respect to the mine lease area.
7.	As suggested by EAC, PP shall submit lake rejuvenation plan with detailed plan with adequate budgetary allocation.	As desired by EAC, detailed Lake rejuvenation plan has been prepared and revised by NABET accredited and CGWA approved expert, Mr. Nawal Kishore Prasad, the measures suggested are as follows Biological Measures: 1. Greenbelt development & Catchment Treatment Plan. 2.Annual maintenance cost of respective water reservoir including collection of garbage and other trash around periphery of reservoir. 3. Complete diversion of domestic waste and sewage entering into the lake. 4. Removal of the organic-rich sediment through biological treatment. 5. Removal of weeds.

		Estimated Cost for Biological Measures has been enclosed.
8.	PP shall submit details of new water harvesting facilities (ponds) with protection of Dam/Lake/Reservoir lying within the ML area & in Buffer zone.	As per the detailed study conducted by the expert, there are total 18 numbers of check dams constructed in and around mine lease area by State Government. However, there is need for rainwater harvesting in the villages where water supply is made with ground water through bore wells. Rainwater harvesting facilities survey was carried out in the surrounding 9 villages (Kalambi, Surabardi, Alesur, Khapri, Sahuli, Khadgaon, Waddhamana, Gondkhairi, and Ketapar), out of which 3 villages (Kalambi, Surabardi, Alesur) are having Government Tap water supply from surface water and rest 6 Villages (Khapri, Sahuli Khadgaon, Waddhamana, Gondkhairi, and Ketapar) are dependent on ground water through bore wells. Accordingly, it is essential to supplement ground water resource through rainwater harvesting. The Rainwater Harvesting scheme has been done by using State Schedule of Rate 2022-23 (PWD) Govt. of Maharashtra. Detailed rainwater harvesting plan along with protection of Dam/Lake/Reservoir lying within the ML area (Core Zone) & in Buffer zone given in page 19-22 of Detailed Lake rejuvenation plan (Annexure-VII) and budgetary provision of same is Rs. 36,34,264 (Thirty-Six Lakhs Thirty-Four thousand Two Hundred and Sixty-Four only). Cost Estimate for Rain-Water Harvesting Unit Village is given below Table: Cost Estimate for Rain-Water Harvesting Unit has been enclosed.
9.	PP shall submit proper layout surface plan for construction of infrastructure on the Mine lease without affecting forest land.	This is an underground coal mining project having ML area is 862 Ha out of which only 18 ha. (non-forest) area will be utilized for infrastructure facilities. Further, we affirmed that, Forest area will not be disturbed for construction of infrastructure facilities and mining operation.

		Layout surface plan showing proposed infrastructure area without affecting forest land has been enclosed.
10.	PP shall re-asses option analysis to reduce the distance being covered for the transportation of coal through road and with mid-term plan of railway siding by rail transportation	APML has approached Indian Railways regarding the feasibility of pit head railway siding, same was under the consideration for techno- economical viability. • The major constraint for the construction of railway siding is not viable at this juncture as all the allocated cluster of mines around the Gondkhari project have not been consolidated. Moreover, the nearest Kalmeshwar railway siding approx 19.0 kms from the project side is well connected through existing roads, which will be used for the transportation of coal by APML. • As the Coal mining will be done for a small quantity of 2.0 MTPA, which is tentatively 6,060 TPD during peak production which will be achieved in the 4 th year of operation. Life of mine is only 30 years (including construction period). • It is proposed to utilize 40-45 tonnes dumpers for transportation of coal to the nearest railway siding, i.e. Kalmeshwar which is at a distance of 19.00 kms (road distance) from the mining lease boundary. • Existing facilities, Kalmeshwar Bypass road (SH-248) will be used for transportation of the coal. Traffic survey has been carried out and the existing road has adequate carrying capacity for handling the additional load of 12 dumpers/hr. (i.e 45 T). Mineral transportation will be done in a manner to ensure that local community will not be disturbed. (Detailed Coal Transportation through Road Cum Rail Mode study report attached herewith). Following measures are further proposed to strengthen the road: 1. Existing road will be maintained periodically as an when required.

		2. Adequate and planned road network will be set up within the project site for smooth movement of the goods vehicles. 3. Greenbelt will be developed/strengthened along both sites of road. A budget of Rs.2.50 Cr has been earmarked for strengthening of existing road. A detailed study for "Coal Transportation through Road Cum Rail Mode" by M/s Acuity Infrastructure Management Services LLP has been carried out and the study concluded the option of construction of a railway siding and railway line connecting to the main line at Kalmeshwar is not techno economically viable for the project due the following reasons: I. The total cost of production including the cost of construction of the railway siding and the railway connectivity through the block will be much more than the average sale price of the present grade of coal to be produced from the mine. II. Construction of a railway siding and a railway line passing through the coal block will not only sterilize substantial amount of coal reserves but also involve huge expenditure for acquiring of land, R & R and other related costs making it economically unviable. Hence once overall allocation of coal block is completed than railway and to go for holistic approval for railway siding near to block. III. The capacity of the mine is 2.0 MTPA i.e., about 6060 TPD which will cater to the needs of the nearby industrial users and will not be enough to be transported through rail regularly.
11.	PP shall submit compliance of ToR specific conditions (xiii), (xvii) and (xix) with detail analysis and report with certificate from PCCF regarding	Mining technology/methodology of Longwall (Retreating) Underground Mining have been adopted for Gondkhari Coal Block In the adopted longwall-mining with caving as method of

	absence of Schedule-I specifies as per WPA 1972 and 2022. Further, the comparison of existing mining practices of Underground mine across the world mainly in terms of extraction of higher coal efficiency and in terms of consumption of lesser fuels.	extraction does cutting of coal in slices in designated area referred to as a panel (of solid coal). As the panel is mined, complete caving of the overlying rock strata occurs into the mined-out area behind the working mine face. The roof of the panel is supported by hydraulically powered; self-advancing roof supports attached to the mining machine. As the mining machine advances into the solid coal panel, the roof supports also advance keeping overburden from collapsing into the exposed face of the coal. At the same time, the roof left unsupported is allowed to break and cave immediately behind the support line with each face advance supporting the strata above in the roof. The depth of working varies from 169m to +394m. Subsidence prediction studies is done by IIT, Kharagpur and has reported no subsidence over the over surface due to underground mining. The transportation of coal is proposed by series of conveyors and men transportation is proposed by chair lift car & mine cruisers arrangements. The material is proposed to be transported by Track haulage system. Associated environmental benefits. 1. Since it is an underground mining method, the disturbance in surface area of granted mining lease is to the minimum level as 18 Hectares of land is required for surface infra, whereas the remaining land will be unaffected by underground mining. 2. The proposed mining method produces coal via. cutting not by blasting, hence ground vibration and its effect on surface & nearby structure is to the minimum effect. 3. The proposed mining method uses mining equipment powered by electricity; hence environmental impact due to use of energy is again to the minimum effect. 4.Less air pollution & carbon footprint. 5. No disturbance of the forest land, flora & fauna. 6. Lesser waste generation

		In view of the eco-friendly method mining adopted as well as measures proposed to be adopted, there will be a saving of about 1,38,875 Tonnes of CO2 equivalent. Thus, it can be concluded that Gondkhari Coal Block is adopting measures to avoid contributing to climate change to the extent possible when compared to similar conventional coal mines (opencast and conventional underground mines running on fossil fuels). Detailed study for Environmental Benefits of Mining Technology Adopted for Gondkhari Coal Mine from Climate Change Perspective is summarized below and enclosed as Annexure- X. Cumulative savings in GHG emission due to UG mining technology has been enclosed. All the equipment installed for operation of Gondkhari mine will be operated through electricity. Hence, no specific diesel consumption is expected for mining operation thus resulting into saving of diesel & thus saving GHG emission form diesel. It is expected to save diesel of about 1.6 million liters per annum for peak production of 2 MTPA. However, diesel consumption is required only for transportation of coal from mine lease to nearest railway siding. To reduce the same it has been proposed to replace the diesel operated with LNG fuel power-based trucks in phased wise manner for Coal transportation from pit to railway siding. Year wise target for reduction in the specific diesel consumption is furnished below: From the 3rd year reduction in diesel consumption by 10% of present diesel consumption (1.1 lit/ton of coal). From the 5 th year reduction in diesel consumption by 30% of present diesel consumption (1.1 lit/ton of coal). From the 7th year reduction in diesel consumption by 50% of present diesel consumption (1.1 lit/ton of coal).

		The detailed list of faunal species in core and buffer zone submitted at DCF, Nagpur Circle, Nagpur vide letter no. APML/GDK/2023/020 dated. 10.11.2023 (Acknowledged copy of letter along with list of fauna within the study area and wildlife management plan enclosed as Annexure-XI) and certificate from PCCF awaited. Wildlife conservation plan for total 10 Schedule-I (Indian peafowl, Bengal Monitor Lizard, Shikra, Common Mongoose, Indian Cobra, Common Rat Snake, Russell's Viper, Indian Jackal, Jungle Cat, Sambar deer) species has been prepared along with the total Rs.10.0 Lakhs capital and Rs. 2.0 Lakhs recurring cost.
12.	PP shall submit the signed copy of Corporate Environment Policy from its Board of Directors.	- The signed copy of Corporate Environment Policy from its Board of Directors has been enclosed.
13.	PP shall analyse the possible adverse impacts on forest corridors and forest areas and their mitigation measures by fencing all along the forest area, due to transportation activity	Existing Kalmeshwar four-lane Bypass road (SH-248) will be utilized for transportation of the coal. The Project Proponent (PP) will not diverted or created new transportation road nearby the forest land. However, we will be proposed following mitigative measures 1.Project Proponent will be raising the awareness among local villagers, mine personnel and truck drivers about the importance of the local ecosystem and promote the social forestry drive. 2.Greenbelt development along with the road side area. 3. Dust suppression alongside the road. This is an underground mining project. The surface mining related activities is confined only in 18 Ha, which is non-forest area. Revenue Forests (Total forest area 87.351 Ha.) Land subsisted in patches within the ML area. M/s. APML herewith committed that no revenue forest within ML area will be disturbed due to mining operation as well as transportation activities. Further, to note that, Reserve Forest within study area is as under:

		1.Bazargaon RF – 5.1 (W) 2.Madhogarh RF – 9.7 km (W) 3. Open Mixed Jungle – Gorewada 6.3 (ENE) There will not be any adverse impact on forest within study area as the incremental concentrations are well within the stipulated standards. Further, fencing can fragment wildlife habitats and disrupt natural migration patterns of local fauna, which can have negative effects on local flora and fauna within the ML area. Fences can prevent the movement of local fauna, being forest are present in patches 87.351 Ha. in Mine area.
14.	PP shall submit the location of Ambazari Ordinance Factory w.r.t. ML area and mitigation measures considering the sensitivity of this location.	The distance of Ambazari Ordinance Factory is approx. 3 Km towards East direction. Hence, insignificant impact is envisaged due to the proposed underground mining activities. There will not be any ground vibrations due to blasting as Long Wall operations method will be implemented. Map showing distance and direction from ML area, which has been geo-rectified.
15.	PP shall document the exact number of persons/families under socio economic survey living within the ML area and living within the Buffer zone of the ML area	As per socio-economic survey the details of person and families in the Mine Lease (ML) area and the Buffer zone was studied and summarized as under: *The recent field survey documented the absence of local inhabitants within the ML area. Despite the lack of residential presence, the area within the ML boundary is mainly used for agricultural purposes as well as grazing domestic animals. Furthermore, the southern part of the mine lease area is near to highway and has various shops and Godowns/warehouses hinting at a multifaceted utilization of the space besides residential purposes. Persons/Families living within ML area has been enclosed.
16.	PP shall submit mitigation plan for nearby villages w.r.t. higher observed value of pollutants in the Gondkhari area.	The average value of PM10 at Gondkhari is 74.5 microgram/m3. However, the maximum value above 80 microgram/m3 was reported only at 5 days within baseline monitoring period because of

		following reasons: Reasons for Higher Values of pollutants in Gondkhari area is Gondkhari Village area located near NH-6 (Amravati – Nagpur National Highway). Heavy traffic movement were observed along this highway. Construction activities were also observed in this area. A detailed revised traffic assessment study report including the Aeromod Dispersion Modeling is enclosed as Annexure – XIV.
17.	PP shall submit the adequate monitoring data as prescribed condition no. 11 of TOR regarding additional monitoring station after grant of ToR (i.e. additional locations of Sahuli & Drugdhamna).	As per the proposed ToR, APML has conducted baseline monitoring for ambient air quality at 10 locations during the Pre-Monsoon Season 2022. The AAQ location was selected based on the wind rose diagram of Pre-Monsoon Season2021 as shown in next slide as figure -1. Thereby M/s. APML granted ToR letter vide File No. IA-J-11015/46/2022-IA.II(M); on dated 13th Feb, 2023 from MoEFCC, New Delhi. As per ToR Condition No. 4(XI)- Windrose pattern in the area should be reviewed and accordingly location of AAQM shall be planned by the collection of air quality data. 12 Nos. of monitoring location for collecting the baseline data should cover overall the 10 km buffer zone i.e., dispersed in 10 km buffer area. Thus, in line with the ToR condition, baseline monitoring was continued for additional two AAQ locations during premonsoon season from 1st March 2023 – 31st March 2023. One location i.e., Sahuli was selected as the nearest location in the crosswind direction at 1.72 km/ENE. Another location i.e., Drugdhamna was selected in downwind at 2.27 km/E with respect to the site-specific wind rose diagram as shown in next slide as Figure -2
18.	PP shall submit the revised EMP cost after considering all above issues (if any) along with the cost of mitigation measures pertaining to Air and water.	Revised EMP budget for along with the cost of mitigation measures pertaining to Air and water is given as follows * *Green belt development budget including the agro forestry (Orange Cultivation).

		**Total Cost of Water Management - Rs. 4, 15, 00, 000/- Biological Cost of Biological Plan= Rs. 5, 53, 500 for five-year Engineering Cost of Fencing = Rs. 1, 50, 33, 419 Cost of De-silting= Rs. 2, 07, 93, 000 The Total Cost of Rejuvenation of Reservoirs = Rs. 3, 63, 79, 919 (Rs. Three crores sixty three thousand seventy nine thousand nine hundred nineteen only)
19.	PP shall also submit the activity-wise budget addressing the all the issues highlighted during the Public hearing along with recurring cost.	Activity wise budget addressing all issues highlighted during Public Hearing (PH) and social need based assessment are identified. A budgetary provision of Rs. 650 Lakhs towards Capital expenditure an Rs 58 Lakhs will be spent towards Recurring cost are provided towards EMP for Socio economic Development. The detailed EMP for Socio economic development in terms of activities, physical target and timeline based on PH proceedings. The detailed EMP for Social Economic development are provided in below slides.
20.	PP shall submit the plan for Green belt development on 33% area of the total ML area either within/outside the ML area.	This is an underground mining project having lease area is 862 ha. out of which only 18 ha. (non-forest) area will be utilized for infrastructure facilities and mining operation. The company has surface right for only 18 Ha of land. The details of greenbelt are as under: Green Belt/ Plantation Programme The agro forestry plan over 86.0 ha area along with budgetary provision of Rs.11.485/- crores are as under: Plantation related program under Corporate Environment Responsibility (CER) in nearby villages Budget: Rs. 0.39 Crore. The detailed programme is given in next slides.
21.	PP shall submit the elaborated water balance sheet covering the complete utilization of water.	PP shall submit the elaborated water balance sheet covering the complete utilization of water. Reply: The elaborated water balance sheet covers the complete utilization of water of 492 KLD upto initial 3 years.
22.	PP shall submit the dedicated plan for drinking water to near village through pipeline system.	APML has surveyed through an Expert for the Proposed Drinking water facilities at nearby villages the proposals are as follows: - As per the

		survey was carried out in the surrounding 9 villages (Kalambi, Surabardi, Alesur, Khapri, Sahuli, Khadgaon, Waddhamana, Gondkhairi, and Ketapar), out of which 3 villages (Kalambi, Surabardi, Alesur) are having Government Tap water supply from surface water and 6 Villages are those where there is no supply of water by Government agencies. In all this Villages planning for drinking water through pipeline system will be done. The total cost for pipeline system is Rs. 17,78,400 and detailed of the proposed pipeline system is given in lake rejuvenation (Annexure-VII) study page no 24.

ii. PP has submitted the application for the Forest clearance for diversion of involved forest land of 87.351 ha vide proposal no. FP/MH/MIN/QRY/408247/2022 dated 06th January 2023.

iii. PP has obtained the Terms of Reference (ToR) vide letter no. IA-J-11015/46/2022-IA. II(M) dated 13.02.2023.

iv. 862 ha has been allocated by Ministry of Coal (MoC), under Coal Mines (Special Provisions) Act' 2015 on 18.11.2021.

v. Mining Plan (Including Progressive Mine Closure Plan) had been approved by Ministry of Coal, Government of India on 22.12.2022 for allotted block area of 862 ha.

vi. Life of mine is 30 years. (Including construction)

vii. There are no National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project.

viii. Public Hearing was conducted on 13.07.2023 for 2 MTPA/3.0 MTPA (Normative/Peak) capacity for Ml area of 862 ha.

ix. PP has submitted the revised EMP cost for Social Economic Development as mentioned below in the tabular form:

S. No.	Particulars	Physical Status	Dec 2023 - Dec 2024	Dec 2024 - Dec 2025	Dec 2025 - Dec 2033	Amount to be spent for head (in Rs. (Lac))	Recurring Cost (in Rs. (Lac))

1	**Medical Facilities (OPD and Pathology centre)**	**Location: villages Gondkhari and Kalambi. Physical work:** Establishment of Ambulance Room and Health Centre, Free Medical camps and Medicine Distribute by hiring a MBBS doctor to treat patients in nearby 7 villages, Arrange Water borne diseases camp and Cancer detection camps.	60	60	-do- (year wise)	475	**28**
2	**Education Facilities at nearby villages**	**Location: Village - at ZP Primary School (old) gond Gondkhari and Surabardi Village.** **Physical Work:** Donation of computers, books, furniture to village schools, Construction of E-Class Room at Govt. School and Waiting Shed for Z.P. Primary School, Construction of 16 Toilets (06 Nos. for boys & 10 Nos. for Girls).	22	22	-do- (year wise)	160	**160**
3	**Skill Development and Women Empowerme ntfacilities**	**Location: Village- Gondkhairi, Surabardi, Kalambi ,Ketapar, Sahuli,Drugdhamna and Alesur.** **Physical Work:** Contribute to Direct Implementation in partnership with ITI and MSME, Involvement of women's in Mason training and breaking stereotypes, 7 Self Help Groups in eight villages and 155 women	15	15	-do- (year wise)	100	**08**

		engage in the SHGs.					
4	**Agricultur alFacilities**	**Location: villages Gondkhari and Kalambi. Physical Work:** Donation ofseeds, saplings, block plantation in village area, Plantation in school, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities,	15	15	-do- (year wise)	104	**06**
5	**Infrastructur eFacilities**	**Location: Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work:** Strengthening/maintenance of village roads, Rain Water Harvesting at Community Area, Provision of Plantation and streetlights in Community Area, Provision Training for recycle SWM and Sale of recyclable waste to scrap merchants.	30	15	-do- (yea rwis e)	165	**10**

6.	**Agroforestry Development**	**Village wise Agro-Forestryarea proposed (in Ha) Tehsil-Kalmeshwar** Nanda (Rithi) - 4.50 Ha. Kalambi - 3.50 Ha. Gondkhairi - 10.00 Ha. Karali - 46.00 Ha. Surabardi - 9.00 Ha. Waddhamna - 7.00 Ha. Total area: 86 Ha. (including 6 Ha. within MLarea)	125	125	-do- (year wise)	946	-
		Capital Expenditure =	**267**	**252**	**----**	**1950**	**58**

x. PP has submitted the estimated cost for pipeline system for water supply system as mentioned below:

S. No	**Village Name**	**Unit Rate per meter**	**Total Average length of piperequired in meters**	**Cost required (Rs.)**
1	Khapri	494	650	32,110
2	Sahuli	494	620	3,06,280
3	Khadgaon	494	752	3,71,488
4	Waddhamana	494	2106	10,40,364
5	Gondkhairi	494	2448	12,09,312
6	Ketapar	494	604	3,16,160
Sub Total				**35,64,704**
Maintenance and replacement cost				**4,35,296**
Total				**40,00,000**

5.6.4 *The EAC after deliberations observed that the instant proposal is a greenfield underground coal mine project wherein surface land involves Agriculture and forest features, in ML area of 87.351 ha. The Committee discussed the possibilities of railway siding for the transportation of coal, however PP assured to implement it with consultation of railway department which is in process of developing integrated railway siding system with other mines. The Committee opined and PP needs to transport the coal to the nearest railway siding either through dedicated railway siding or integrated facility within three years from the date of issuance of EC. The Committee noted that PP has submitted an additional information vide letter dated 23.12.2023 for increasing the CER budget upto Rs. 19.50 Crores from Rs. 6.5 core and EMP cost upto 58 Lakhs.*

Further, Committee emphasized on the protection of reservoir falls within/outside the ML area, handling of domestic wastewater/sewage through STP after consulting with state Government. All types of sewage discharges in water bodies to be tapped before entering into the lake/water bodies, and the same shall be part of lake rejuvenation plan. PP was advised to construct additional 6 ponds within the buffer zone of the project area within two years. The Committee also asked PP to increase the budget upto 13.0 cr for social activities, which has to be implemented within the six years from the commencement of mining operations. During discussion of project, the Committee emphasized for protection and improvement of the quality of forest area in collaboration with Forest Department along with strengthening of the plantation within/outside the ML area.

Based on the above discussions held in the EAC meeting, the EAC ***recommended*** *the Environmental Clearance for Gondkhari Underground Coal Mine of production capacity 2.0/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) with the following specific conditions under the provisions of EIA Notification, 2006 and its amendments:*

Specific condition: -

(i) The grant of EC is subject to submission of the Stage-I Forest Clearance for 87.351 ha of forest land involved in the ML area of 862 ha.

(ii) PP to obtain the CTO for 2.0/3.0 MTPA (Normative/Peak) capacity after grant of EC.

(iii) PP shall obtain No Objection Certificate from Central Ground Water Authority for extraction of ground water within six months and submitted to IRO, MoEF&CC.

(iv) PP should implement the recommendation of lake rejuvenation plan including sewage management, delisting, plantation with appropriate budgetary provisions.

(v) PP should not affect the Forest area during the construction of infrastructure on the Mine lease.

(vi) PP shall implement the activities-wise proposed budget for Public Hearing Budget (as mentioned in EIA-EMP report) and Capital cost of Rs. 58 Lakh (as EMP cost mentioned in the above para no. 5.6.3 (ix)) in time bound manner as per 5.6.3 of minutes. The details of annual expenditure incurred shall be part of report to be submitted to IRO, MoEF&CC. PP needs to include the audited figures against the expenditure and activities to be monitored by through dedicated monitoring mechanism. The maintenance of all activities shall be covered through recurring cost of Public Hearing, and continued as a part of CSR budget.

(vii) PP shall develop 6 nos. of rain water harvesting pond (not less than 100 m, width will be 10 m and the depth will be 3 m) as proposed by PP near the villages of stated area in consultation with Gram Panchayat within 1 year. Also, Indicator aquatic species shall be planted in this water bodies to see the environmental quality. PP shall explore to own water bodies/pond currently present in project area, maintain and regularly monitor the quality for its long term protection.

(viii) PP shall transport the coal by trucks of fleet size 35-40 tons and no village road shall be used for transportation of coal.

(ix) PP should implement the village-wise water distribution pipeline system with their adequate budget as mentioned at above para no. 5.6.3 (x) of the Minutes.

T.C.

सत्यमेव जयते

File No.: IA-J-11011/46/2022-IA. II(M)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **02/02/2024**

To,

Shri Shanto Mukherjee
ADANI POWER MAHARASHTRA LIMITED
Adani Power Maharashtra Limited Adani Corporate House Shantigram, Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad , AHMADABAD, GUJARAT, , 382421
gondkhari@adani.com

Subject: Gondkhari Underground Coal Mine of production capacity 2.0/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) – Environmental Clearance regarding

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/MH/CMIN/444481/2023 dated 21/09/2023 for grant of prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC23A0102MH5769281N
(ii) File No.	IA-J-11011/46/2022-IA. II(M)
(iii) Clearance Type	Mining EC Under 5 Ha
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Coal Mining
(vii) Name of Project	Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 MTPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023
(ix) Location of Project (District, State)	NAGPUR, MAHARASHTRA
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	No

3. The proposal is for Environmental Clearance for Gondkhari Underground Coal Mine of production capacity 2.0/3.0

T.C.

MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra).

4. Terms of Reference granted on 13th February 2023 vide file no. IA-J-11015/46/2022-IA. II(M) by Ministry. Public hearing for project of 2 MTPA/3.0 MTPA (Normative/Peak) capacity in an area of 862 ha was conducted on 13/07/2023 at Kh. No. 9/5, Near Karli Lake, Tal-Kalmeshwar, Dist.-Nagpur, Maharashtra under the Chairmanship of Subhash Choudhary (Additional District Magistrate). Major issues raised in the public hearing include infrastructure creation for drinking water, education, sanitation, skill development etc.Project activity is covered under Schedule 1(a), Category A of the EIA Notification and as amended thereof.

5. Project proposal was submitted to the Ministry on 21.09.2023. Considered by the EAC in its 1st meeting held on 17.10.2023 and committee deferred the proposal for additional information sought by the EAC. Project Proponent submitted the information on PARIVESH on 30.11.2023 and accordingly proposal was considered in the 5th EAC meeting during 21-22 December, 2023.

6. The project area is covered under Survey of India Topo Sheet No 55K/16 (New-F44M16) and is bounded by the geographical coordinates ranging from 210 07' 57" N to 210 10' 56" N and longitudes 780 54" 45" E to 780 56" 26" E.

7. Coal linkage of the project is Proposed for commercial coal mining auction process for use of various sale of coal. Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of Environment Clearance.

8. Please mention any National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project - Not applicable

9. Wildlife conservation plan for schedule – I species has been submitted – Wildlife conservation plan for total 10 Schedule-I (Indian peafowl, Bengal Monitor Lizard, Shikra, Common Mongoose, Indian Cobra, Common Rat Snake, Russell's Viper, Indian Jackal, Jungle Cat, Sambar deer) species has been prepared along with the total Rs.10.0 Lakhs capital and Rs. 2.0 Lakhs recurring cost.

10. The ground water level has been reported to be varying between 4.5 mbgl to 9.5 mbgl during pre-monsoon and between 1.5 to 5.2 mbgl during post-monsoon.Total water requirement for the project is 492 KLD (452 KLD from mine seepage and 40 KLD from borewell.NOC for the approval of the Central Ground Water Authority for 492 KLD has been granted on 01/09/2023 vide letter no. CGWA/NOC/MIN/ORIG/2023/19155.

11. Total mining lease area as per block allotment is 862.00 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved Ministry of Coal, Government of India on 22.12.2022. 87.351 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980 for diversion of 87.351 ha of forest land for non-forestry purposes has been submitted dated 06.01.2023.

12. Total geological reserve reported in the mine lease area is 98.717 MT, geological reserve 98.503 MT, with 52.596 MT mineable reserve. Out of total mineable reserve of 52.596 MT, 42.946 MT are available for extraction. Percent of extraction is 43.5990%.4 seams with thickness ranging from 0.93 m to 5 m are workable. Grade of coal is G8 while gradient is 90 to 220. Method of mining operations envisages by Underground Mining: Longwall retreating method with caving by deploying DERDS and Road Headers for tunneling.Life of mine is 30 years. Transportation of coal has been proposed by series of conveyors in mine pit head, from surface to siding by Conveyer/Trucks and at sidings by Haulage trucks.

13. No court cases, violation cases are pending against the project of the PP. There is No R&R of the PAPs involved as it is an Underground Mine. Total cost of the project is Rs. 130300 lakhs. Cost of production is Rs 2800/- per tonne., CSR cost is Rs. 5/- per tonne, R&R cost if applicable. Direct and Indirect employment to 863 Persons will be provided from the project.

14. Environment baseline data was generated in the season from March 2022 to May 2022 (Pre-Monsoon Season) at 10 locations and along with additional AAQ monitoring conducted at 2 different locations during pre-monsoon season from

1st March 2023 – 31st March 2023.

15. EAC in its 1st meeting held on 17.10.2023 deliberated the project proposal and it was observed that several water bodies exist within mine lease such as Streams/Nallah and also in vicinity of ML area named as Surabardi Dam &reservoir, Karle lake, Alesur lake and Wena Dam & Reservoir. However, due to lack of drone video/photographs of lake/reservoir, which is one of Tor conditions, the Committee could not capture real ground reality.After detailed deliberation, EAC deferred the project proposal and sought some additional information. Project Proponent furnished the response on the Parivesh portal. Proposal was then considered in the 5th EAC meeting held on 21.12.2023.

16. EAC in its 5th meeting held during 21-22 December, 2023 deliberated upon the ADS reply furnished by the PP and discussed in detailed about transportation of coal, budgetary provision in EMP for public hearing issues etc. The Committee noted that PP has increased the budgetary provision in EMP for public hearing issues upto Rs. 19.50 Crores from Rs. 6.5 core (**Ref Annexure 2**). Further, Committee also emphasized on the protection of reservoir falls within/outside the ML area alongwith proposed budgetary provision, handling of domestic wastewater/sewage through STP after consulting with state Government. EAC, after deliberating on the instant proposal at a length and getting proper justification, recommended the grant of Environmental Clearance for Gondkhari Underground Coal Mine of production capacity 2.0/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha of M/s Adani Power Maharashtra Limited (APML) located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) with the following specific conditions under the provisions of EIA Notification, 2006 and its amendments:

17.The MoEF&CC has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and based on the recommendations of the EAC hereby accords Environmental Clearance for the instant proposal to M/s Adani Power Maharashtra Limited (APML) for Gondkhari Underground Coal Mine of production capacity 2.0/3.0 MTPA (Normative/Peak) in the mine lease area of 862.00 Ha located at Village Gondkhari, Tehsil Kalmeshwar, District Nagpur (Maharashtra) subject to compliance of the Specific and Standard EC conditions as given in **Annexure (1)**

18. The proponent shall obtain all necessary clearances/approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

19. The Environmental Clearance 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.

20. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

21.Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

22. The coal company/project proponent shall be liable to pay the compensation against the illegal mining, if any, and as raised by the respective State Governments at any point of time, in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No.114/2014 in the matter of 'Common Cause Vs Union of India & others.

23. The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining, if any, is paid by the project proponent through their respective Department of Mining & Geology, in strict compliance of the judgment of Hon'ble Supreme Court. This environmental clearance shall not be operational till such time the project proponent complies with the above said judgment of Hon'ble Supreme Court, as applicable, and other statutory requirements.

24. General Instructions:

(i) The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment

clearance and the details of MoEF&CC website where it is displayed.

(ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn must display the same for 30 days from the date of receipt.

(iii) The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.

(iv) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

(v) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

(vi) The Regional Office of this MoEF&CCshall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports

23.This issue with an approval of the Competent Authority.

Copy To

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Department of environment, Government of Maharashtra-15th Floor, New Admin Bldg, Madam Cama Road, Mantralaya, Mumbai-32 (Maharashtra)
3. The Deputy Director General of Forests (C), Integrated Regional Office Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur- 440001, Ministry of Environment, Forest and Climate Change,
4. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
5. The Chairman, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4th Floors, Sion, Matunga Scheme Road No 8, Opp. Cine Planet Cinema, Near Sion circle, Sion (E) Mumbai-2.
6. The Member Secretary, Central Ground Water Authority (CGWA),18/11Jamnagar House, Man Singh Road, New Delhi-11001.
7. The Regional Director, Central Ground Water Board, Central Region, N.S. Building, Civil Lines, Nagpur 440001 Maharashtra
8. District Collector, Nagpur, Government of Maharashtra
9. PARIVESH Portal

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Specific Condition:

S. No	EC Conditions
1.1	*Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also,*

S. No	EC Conditions
	Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The Recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented. The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.
1.2	*PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis. Any non- compliance or infringement should be reported to the concerned authority.*
1.3	*PP to install solar lights along the road used for transportation of minerals to avoid the accidents at night and also seek its maintenance. PP is asked to also identify the rural areas for installation of solar light with its maintenance within the study area of 10 km radius buffer zone within one year..*
1.4	*The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/night hours.*
1.5	*PP must explore innovative technology to recover methane from gases extracted from underground mine while venting.*
1.6	*PP to install 1 continuous ambient air quality monitoring stations at suitable locations preferably village side with consultation of SPCB. The real time data so generated shall be uploaded on company website and linked it with website of CPCB &SPCB. In addition, data should also be displayed digitally at entry and exit gate of mine lease area for public display.*
1.7	*PP to maintain the transportation road properly to minimize the dust emission. PP to also develop pucca/concrete roads by seeking consent from the panchayat with widening of roads especially roads inter linking the villages within the study area of 10 km radius buffer zone.*
1.8	*PP to monitor the water quality of the ground water and surface water body located within the core zone and 5 km radius from the periphery of the mine boundary as per procedure laid down by CPCB.*
1.9	*PP shall follow the recommendation of subsidence study and monitor the degree of subsidence regularly and shall be submitted to IRO, MoEF&CC.*
1.10	*PP shall implement Effluent Treatment Plant for wastewater generated from workshop and Sewage Treatment Plan for its colony. No untreated water shall be discharged from mine boundaries to ponds/nallah/river.*
1.11	*PP to accomplish the recruitment of a full-fledged qualified manpower with Environmental Engineer/Environment Science degree background in Environment Management Cell etc within six*

S. No	EC Conditions
	months and same shall be reported to IRO, MoEF&CC.
1.12	*PP shall transport the coal by trucks of fleet size 35-40 tons and no village road shall be used for transportation of coal. PP shall transport the coal by trucks of fleet size 35-40 tons and no village road shall be used for transportation of coal. Further, specific diesel consumption shall be reduced in a phased manner i.e from the 3rd year reduction in diesel consumption by 10% of present diesel consumption (1.1 lit/ton of coal), from the 5 th year reduction in diesel consumption by 30% of present diesel consumption (1.1 lit/ton of coal) and from the 7th year reduction in diesel consumption by 50% of present diesel consumption (1.1 lit/ton of coal).*
1.13	*PP to plant additional 100,000 plants with three tier plantation along the transportation route, if not completed, and identified areas with consent to the gram panchayat within two year and plant for remaining within 2 years for their proper growth in additional already committed to plant to plantation in 11.0 ha project area.*
1.14	*PP shall maintain atleast10 mtrs width tree plantation of broad leaves and wind break/green-shield of about 10 mts height along the boundary of coal storage yard.*
1.15	*PP should implement the village-wise water distribution pipeline system with their adequate budget as mentioned at above para no. 5.6.3 (x) of the Minutes.*
1.16	*PP should not affect the Forest area during the construction of infrastructure on the Mine lease.*
1.17	*PP shall develop 6 nos. of rain water harvesting pond (not less than 100 m, width will be 10 m and the depth will be 3 m) as proposed by PP near the villages of stated area in consultation with Gram Panchayat within 1 year. Also, Indicator aquatic species shall be planted in this water bodies to see the environmental quality. PP shall explore to own water bodies/pond currently present in project area, maintain and regularly monitor the quality for its long term protection.*
1.18	*PP shall implement the activities-wise proposed budget for Public Hearing Budget (as recommended by the EAC, mentioned in Annexure 2) & EMP Capital cost of Rs. 34.32 Cr in time bound manner . The details of annual expenditure incurred shall be part of report to be submitted to IRO, MoEF&CC. PP needs to include the audited figures against the expenditure and activities to be monitored by through dedicated monitoring mechanism. The maintenance of all activities shall be covered through recurring cost of Public Hearing, and continued as a part of CSR budget.*
1.19	*PP to obtain the CTO for 2.0/3.0 MTPA (Normative/Peak) capacity after grant of EC.*
1.20	*PP should implement the recommendation of lake rejuvenation plan including sewage management, delisting, plantation with appropriate budgetary provisions.*
1.21	*PP shall obtain No Objection Certificate from Central Ground Water Authority for extraction of ground water within six months and submitted to IRO, MoEF&CC.*
1.22	*The grant of EC is subject to submission of the Stage-I Forest Clearance for 87.351 ha of forest land involved in the ML area of 862 ha.*
1.23	*Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.*

S. No	EC Conditions
1.24	*PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.*

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The Environmental clearance shall be subject to orders of Hon'ble Supreme Court of India, Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project
1.2	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
1.3	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.4	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. TThe implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule-I species in the study area).
1.5	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
1.6	The project proponent shall obtain the necessary permission from the Central Ground Water Authority
1.7	Solid/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.
1.8	Permission of power supply to be taken from the concerned authority for meeting power demand of the project site.
1.9	The maximum production or peak production at any given time shall not exceed the limit as prescribed in the EC.
1.10	Validity of EC is as per life of the mine mentioned in EC letter or 30 years as per EIA Notification, 2006 and its amendments therein

2. Air Quality Monitoring And Mitigation Measure

S. No	EC Conditions
2.1	Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO2 and NOx. Location of the

S. No	EC Conditions
	stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Online ambient air quality monitoring station/stations may also be installed in addition to the regular air monitoring stations as per the requirement and/or in consultation with the SPCB
2.2	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
2.3	Transportation of coal, to the extent if permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water sprinkling/rain gun/ Fog cannon /mist sprinkling etc., shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal transport roads, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
2.4	Major approach roads shall be black topped and properly maintained.
2.5	PP to install solar lights along the road used for transportation of coal to avoid the accidents at night and also seek its maintenance.
2.6	The transportation of coal shall be carried out as per the provisions and route proposed in the approved mining plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.
2.7	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
2.8	Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
2.9	Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.
2.10	Adequate number of Fog canon (mist sprayer) shall be installed to reduce the impact of air pollution at dust generating sources with time bound action plan.
2.11	PP should Install Wind breaker/shield arrangement along the railway siding for reducing the dust propagation in upwind direction.
2.12	Post environmental closure third party monitoring by reputed instituted in air quality, water, land & soil etc shall be carried out and analysed with EMP measures at regular interval. A suitable

S. No	EC Conditions
	recommendation in this regard, shall be furnished to IRO, MoEF&CC for compliance. The data used for analysis shall be obtained from continuos AQMS, site specific water regime. Also third party shall analyses the implementation of river diversion, meeting to the requirement of project report.

3. Water Quality Monitoring And Mitigation Measures

S. No	EC Conditions
3.1	The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board.
3.2	The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-lA.11 (M) dated 27th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
3.3	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
3.4	Monitoring of water quality upstream and downstream of river including pons, lakes, tanks shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
3.5	Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
3.6	The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side, stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.
3.7	Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff
3.8	The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly
3.9	Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986

S. No	EC Conditions
	and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
3.10	Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
3.11	The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.
3.12	The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A revarian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.
3.13	Domestic water shall be providing to the residents/villages which are coming under the zone of influence of the project due to ground water extraction by installing a RO plant with proper supply line and Taps within 2 years
3.14	No obselete technologies for sewage treatment shall be implemented. Construction of Sewage Treatment Plant with latest technology should be completed within 2 years and treated water shall be reused for plantation. CTE and CTO of STP shall be obtained as per the norms.

4. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
4.1	Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
4.2	The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

5. Mining Plan

S. No	EC Conditions
5.1	5- Star Rating is mandatory to obtaine certification as per guidelines of Mininstry of Coal

S. No	EC Conditions
5.2	Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
5.3	No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
5.4	Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
5.5	Underground work place environmental conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS standards.
5.6	No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980 and also adhering to The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 read with provisions of Indian Forest Act, 1927.
5.7	Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.
5.8	Tranportation by Railway Siding shall be developed to avoid transportation by Road

6. Land Recalmation

S. No	EC Conditions
6.1	Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
6.2	Post-mining land be rendered usable for agricultural/forestry purposes and shall be handed over to the respective State Government, as specified in the Guidelines for Preparation of Mine Closure Plan, issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
6.3	Regular monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriate effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.
6.4	Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.

S. No	EC Conditions
6.5	A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.
6.6	Thorough inspection of the mine lease area for any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.
6.7	Native tree species shall be selected and planted over areas affected by subsidence.
6.8	The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

7. Public Hearing And Human Health Issues

S. No	EC Conditions
7.1	Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.
7.2	The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
7.3	Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
7.4	Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
7.5	Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
7.6	Implementation of the time bound action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the time bound action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
7.7	The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.
7.8	PP to conduct need based assessment survey of the area to for in order to decide the activities to be

S. No	EC Conditions
	carried under the CSR and to provide detail of the activity carried out with adequate budgetary provision and time bound action plan.
7.9	PP should conduct epidemiology study to (analysis of the distribution, patterns and determinants of health and disease conditions in defined populations).
7.10	Permanent Health care facilities of Hospital should be established within 5 km of project boundary for the local people.
7.11	PP must ensure an emergency action plan during pandemic in order to provide assistance to the nearby villages located within the 10 km radius buffer zone (If required)
7.12	PP is asked to also identify the rural areas for installation of solar light with its maintenance within the study area of 10 km radius buffer zone with time bound action plan
7.13	PP to take measure for installation of Renewable Energy sources in nearby area falling within 10 km radius

8. Corporate Environment Responsibility

S. No	EC Conditions
8.1	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.
8.2	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
8.3	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
8.4	Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
8.5	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis. Any non- compliance or infringement should be reported to the concerned authority

9. Miscellaneous

S. No	EC Conditions
9.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
9.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
9.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
9.4	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
9.5	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
9.6	The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
9.7	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
9.8	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
9.9	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
9.10	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
9.11	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
9.12	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
9.13	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
9.14	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention

S. No	EC Conditions
	& Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
9.15	The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.
9.16	Compensation of the land acquired for the project shall be settled as per the R&R Policy. Adequate facility of drinking water, plantation and other social amenities should be provided to established R&R villages.
9.17	Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.
9.18	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/night hours

Additional EC Conditions

10.1 "Wildlife conservation plan for the presence of all schedule-I to be implemented with budgetary provision as approved by the Chief Wildlife Warden"

10.2 Project Proponent shall implement the rejuvenation plan with budgetary provision as submitted for protection of reservoirs present in the mine lease area"

Annexure 2

Lake rejuvenation plan with detailed plan with adequate budgetary allocation

Biological Measures:

1. Greenbelt development & Catchment Treatment Plan,
2. Annual maintenance cost of respective water reservoir including collection of garbage and other trash around periphery of reservoir.
3. Complete diversion of domestic waste and sewage entering into the lake.
4. Removal of the organic-rich sediment through biological treatment.
5. Removal of weeds.

Table 1

Sr. No.	Reservoir	Perimeter (m)	No. of Unskilled person required	Per day charge as per SSR 2022-23 (PWD) Govt. of Maharashtra (Rs.)	No. of Days (5 x 12 x 5)	Total Cost Estimate (Rs)
1.	**Karle**	1694	**1**	**615**	300	1,84,500
2.	**Suraburdi**	2910	2	615	300	3,69,000
Total						**553500**

Engineering Measures: In this Desilting and Fencing are suggested the details are as follows:

De-silting of respective reservoirs has been estimated based on the area occupied between pre-monsoon and post-monsoon period as area of de-silting. The depth of de-silting has been considered as 1m on average. The cost estimate for silt removal has been done as per specification by using State Schedule of Rate 2022-23 (PWD)

Govt. of Maharashtra pg no. 153 SSR item No. 21.01, sr no. 720. Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, includes removal of the excavated material up to a distance of 50 m, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. Cost has been calculated in consultation with water resource Department.

Table 2

Cost Estimate for De-silting

Sr. No.	Reservoir	Area of Silt cover (sq.m.)	Depth (m)	Volume of soil excavate d (m^3)	Rate of excavatio n per m^3	Total cost of silt removal (Rs.)
1.	Karle	53000	1	53,000	239	1,26,67,000
2.	Suraburdi	34000	1	3,4000	239	81,26,000
Total						2,07,93,000

Fencing around the reservoirs:- Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm, 8 gauge thick and fixed 75 mm above ground level on vertical M.S. Angles of 40 x 40 x 6 mm size, including excavating pits for foundation and embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M. c/c with iron bar 16 mm dia as hold fast including welding link with angle frame at 30 cm c/c with nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both side at every corner or bend embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting

Table 3

Cost Estimation for Fencing

Sr.No.	**Reservoir**	**Length (m)**	**Rate@ MT(m)**	**Cost (Rs.)**
1.	Karle	1549	2539	39,32,911
2.	Suraburdi	4372	2539	1,11,00,508
	Total			**1, 50, 33, 419**

Table 4

Summarized Cost estimation for Rejuvenation of Lake/Reservoir

Sr no.	**Type of Rejuvenation**		**Estimated Cost in Rupees**
1	Biological		5, 53, 500
2	Engineering	De-silting	2, 07, 93, 000
		Fencing	1, 50, 33, 419
Total			**3, 63, 79, 919**

Rainwater harvesting plan

Detailed rainwater harvesting plan along with protection of Dam/Lake/Reservoir lying within the ML area (Core Zone) & in Buffer zone given in page 19-22 of Detailed Lake rejuvenation plan (**Annexure-VII of ADS reply**) and budgetary provision of same is **Rs. 36,34,264 (Thirty-Six Lakhs Thirty-Four Thousand Two Hundred and Sixty Four only).**

Table 5
Cost Estimate for Rain-Water Harvesting Unit Village is given below:

Table: Cost Estimate for Rain-Water Harvesting Unit Village	
Type of Work	**Costing in Rupees**
RWH- Recharge Pit (SSR Item no. 48.47, sr no. 1663. Pg no. 317).	91,300
Boring/drilling (SSR Item no. 48.48, sr no. 1664. Pg no. 317).	41,600
Supplying assembling- (SSR Item no. 48.49, sr no. 1665. Pg no. 318).	49,400
Gravel Packing- (SSR Item no. 48.54, sr no. 1670. Pg no. 318).	1,494
Cost Estimate for Single Village	1,83,794
Cost Estimate for 6 Villages (Rs. 480194 x 6)	11,02,764
Maintenance of 18 Nos. Check dam	18,00,00,00
Labor Charges (33%)	3,63,912
Total Cost Estimate for RWH in 6 Villages	**Rs. 36, 34, 264**

Table 6

Estimated cost for pipeline system for water supply system as mentioned below:

S. No	Village Name	Unit Rate per meter	Total Average length of pipe required in meters	Cost required (Rs.)
1	Khapri	494	650	32,110
2	Sahuli	494	620	3,06,280
3	Khadgaon	494	752	3,71,488
4	Waddhamana	494	2106	10,40,364
5	Gondkhairi	494	2448	12,09,312
6	Ketapar	494	604	3,16,160
Sub Total				**35,64,704**
Maintenance and replacement cost				**4,35,296**
Total				**40,00,000**

Table 7

Revised activity-wise budget addressing the issues highlighted during the Public hearing along with recurring cost

Table: EMP cost for Social Economic Development							
S. No.	**Particulars**	**Physical Status**	**Dec 2023 - Dec 2024**	**Dec 2024 - Dec 2025**	**Dec 2025 - Dec 2033**	**Amount to be spent for head (in Rs. (Lac))**	**Recurring Cost (in Rs. (Lac))**
1	**Medical Facilities (OPD and Pathology centre)**	**Location: villages Gondkhari and Kalambi. Physical work:** Establishment of Ambulance Room and Health Centre, Free Medical camps and Medicine Distribute by hiring a MBBS doctor to treatpatients in nearby 7 villages, Arrange Water borne diseases camp and Cancer detection camps.	60	60	-do- (year wise)	475	**28**
2	**Education Facilities at nearby villages**	**Location: Village - at ZP Primary School (old) gond Gondkhari and Surabardi Village.** **Physical Work:** Donation of computers, books, furniture to village schools, Construction of E-Class Room at Govt. School and Waiting Shed for Z.P. Primary School, Construction of 16 Toilets (06 Nos. for boys & 10	22	22	-do- (year wise)	160	**160**

		Nos. for Girls).					
3	**Skill Development and Women Empowerme ntfacilities**	**Location: Village- Gondkhairi, Surabardi, Kalambi ,Ketapar, Sahuli,Drugdhamna and Alesur.** **Physical Work:** Contribute to Direct Implementation in partnership with ITI and MSME, Involvement of women's in Mason training and breaking stereotypes, 7 Self Help Groups in eight villages and 155 women engage in the SHGs.	15	15	-do- (year wise)	100	**08**
4	**Agricultur alFacilities**	**Location: villages Gondkhari and Kalambi.** **Physical Work:** Donation ofseeds, saplings, block plantation in village area, Plantation in school, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities,	15	15	-do- (year wise)	104	**06**

5	**Infrastructur eFacilities**	**Location: Gondkhairi, Surabardi, Kalambi, Ketapar, Sahuli, Drugdhamna and Alesur. Physical Work:** Strengthening/maintenance of village roads, Rain Water Harvesting at Community Area, Provision of Plantation and streetlights in Community Area, Provision Training for recycle SWM and Sale of recyclable waste to scrap merchants.	30	15	-do-(yearwise)	165	**10**
6.	**Agroforestry Development**	**Village wise Agro-Forestryarea proposed (in Ha) Tehsil-Kalmeshwar** Nanda (Rithi) - 4.50 Ha. Kalambi - 3.50 Ha. Gondkhairi - 10.00 Ha. Karali - 46.00 Ha. Surabardi - 9.00 Ha. Waddhamna - 7.00 Ha. Total area: 86 Ha. (including 6 Ha. within MLarea)	125	125	-do-(year wise)	946	-
		Capital Expenditure =	**267**	**252**	**----**	**1950**	**58**

Summary of revised EMP Cost (Rs. In Cr.)

PROPOSAL NO: IA/MH/CMIN/444481/2023 File No.- IA-J-11011/46/2022-IA.II(M)			
Sr. No.	**Particulars**	**Proposed EMP Cost (Rs. In Cr.)**	
		Capital Cost	**Recurring Cost**
1	Waste Water Management, Sedimentation Tank including Wheel Washing System	0.75	0.5
2	Water spraying costs in underground and surface	0.25	0.2
3	Air Quality Management, (Dry fog Dust suppression system)	1.6	0.3

4	Implementation of Solar Light	0.2	0.1
5	Solid Waste Management	0.45	0.02
6	Environment Monitoring and Management (including Installation of CAQMS)	2.0	0.25
7	Restoration of Landuse for Infrastructure (Dismantling of structure)	5.20	0.02
Additional Studies			
8	Soil Conservation Plan and Pond (Water Bodies) Rejuvenation and Conservation Activities	4.37	0.10
9	Maintenance of Existing Road Facilities as per requirement	-	2.50
10.	Budget for addressing public hearing concerns	19.50	0.76
Total		**34.32**	**4.75**

PARIVESH
KYA
DSS
e-Compliance
e-Payments
e-Processing
CPC GREEN
Nature Protects if She is Protected

T.C.

सत्यमेव जयते

Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(Coal Mining)
***

Minutes of AGENDA FOR 15th MEETING OF EXPERT APPRAISAL COMMIT TEE (COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 18th – 19th SEPTEMBER 2024, THROUGH ONLINE MODE. meeting Coal Mining held from 18/09/2024 to 19/09/2024 **Date:** 30/09/2024

MoM ID: EC/MOM/EAC/940497/9/2024

Agenda ID: EC/AGENDA/EAC/940497/9/2024

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

18/09/2024	10:30 AM	05:30 PM
19/09/2024	10:30 AM	05:30 PM

1. Opening remarks

At the outset, the Chairman welcomed the Expert members & other participants and requested to start the proceeding as per the agenda listed for this meeting. The list of Members who participated in the meeting is at Annexure – VI. The Standard/Generic ToR conditions shall be system generated through the PARIVESH Portal.

2. Confirmation of the minutes of previous meeting

Confirmation of the Minutes of the 14th Meeting of the EAC (Coal): The minutes of the 14th Meeting of the EAC (Coal) held during 5 – 7th August 2024 have been confirmed by the EAC.

3. Details of proposals considered by the committee

T.C.

Day 1 -18/09/2024

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Expansion of Coal Washery Plant from 0.96 MTPA to 5.2 MTPA in two phases (Phase I :- 0.96 to 1.8 MTPA and Phase II :- 1.8 MTPA to 5.2 MTPA) located at Village-Bajarmuda and Dholnara, Tehsil- Tamnar, District- Raigarh, Chhattisgarh by M/s Sarda Energy and Minerals Limited by **SARDA ENERGY AND MINERALS LIMITED** located at **RAIGARH,CHHATTISGARH**

Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/CG/CMIN/473768/2024	J-11015/37/2004-IA-II(M)	22/07/2024	Coal washeries (2(a))

3.1.2. Project Salient Features

15.2: Environment Clearance (EC) for expansion in Coal Washery from 0.96 MTPA to 5.2 MTPA in an area 10.12 Ha **by M/s Sarda Energy and Minerals Limited** located at Villages: Dholnara, Mudagaon; District: Raigarh; State: Chhattisgarh – **Reconsideration for grant of expansion in EC based on ADS reply – reg.**

[Online Proposal No. IA/CG/CMIN/473768/2024 File No. J-11015/37/2004-IA-II(M)] [Consultant: GRC India Pvt Ltd; NABET/EIA/21-24/SA 0211 valid till 11/11/2024]

15.2.1: M/s. Sarda Energy and Minerals Limited has made an online application vide proposal No-IA/CG/CMIN/473768/2024, dated 22.05.2024 along with copy of EIA/EMP Report, certified compliance report and Common Application Form (CAF) for seeking Environment Clearance (EC) under the provisions of EIA Notification, 2006 for the project. The proposed project activity is listed at schedule no. 2(a), Coal Washeries under Category "A" of the EIA Notification, 2006 & amendment thereof and as the capacity is more than 2.5 MTPA, is being appraised at Central Level.

The project was granted ToR for expansion of production capacity from 0.96 MTPA to 5.2 MTPA in two phases (Phase I: - 0.96 to 1.8 MTPA and Phase II: - 1.8 MTPA to 5.2 MTPA) vide letter no. J-11015/37/2004-IA-II (M) dated 25.07.2023. The TOR is valid till 24.07.2027.

Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

15.2.2: Environmental site settings:

The project area is covered under Survey of India Toposheet No. 64N8 and is bounded by geographical co-ordinates ranging from latitude 22°09'56.43"N to 22°10'10.01"N and longitude 83°28'09.92"E to 83°10'27.46"E.

Project does not fall in the Critically Polluted Area (CPA)/ Severely Polluted Area (SPA), as per CEPI Assessment, 2018. This aspect has also been verified and confirmed through DSS.

Forest Area: PP submitted that the project does not involves any forest land. This aspect has also been verified and confirmed through DSS.

Protected Area: PP submitted that the project is not located within 10 km of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. and there is no violation of WLP act. This aspect has also been verified and confirmed through DSS.

7 Schedule-I species viz Elephas maximus (Elephant), Mellivora capensis (Honey badger), Melursus ursinus (Sloth bear), Panthera pardus (Panther), Striped hyaena (Hyena), Python molurus (Python), Pavo cristatus (Indian peafowl) has been sighted in the study area. Wildlife conservation plan has been prepared and approved by PCCF, Chhattisgarh.

Project Area: PP submitted that the existing plant is over 10.12 Ha of land and for the expansion project no additional land is required. Thus, total land required will remain same i.e. 10.12 Ha after expansion which has been provided to the proponent through vesting order.

15.2.3: Details of the ToR are furnished below:

Date of Application	Details	Date of Accord	ToR Validity
10.07.2023	J-11015/37/2004-IA-II (M)	25.07.2023	24.07.2027

15.2.4: Details of existing EC and its implementation status

The existing 0.96 MTPA Coal Washery obtained EC from SEIAA, Chhattisgarh vide letter no. 309/SEIAA-CG/EC/Coal Wahsery/RGH/10 dated 23.08.2010. CTE was obtained from CECB on 30.10.2010. Renewal of CTO was obtained from CECB on 10.07.2024 and same is valid till 31.05.2026. Production details of the same are as follows:

Year	Actual Coal Production in MTPA	Approved Production Capacity in MTPA as per EC	Excess Production
2023-24	0.95	0.96	Nil

15.2.5: Certified Compliance Report: The Status of compliance of earlier EC was obtained from Regional Office, Raipur vide letter no. 18-D-25/2010 (Env)-46, dated 09.05.2024 in the name of M/s. Sarda Energy and Minerals Limited. The Action taken report regarding the partially complied/non-complied condition was submitted to Regional officer MoEF&CC, Raipur vide letter no. SEML/ENV/CWI2024-25/5758 dated 20.05.2024. MoEF&CC (RO), Raipur evaluated the same and has issued letter vide File No. 18-D-25/2010 (Env) /121 dated 10.08.2024. The details of the observations made by IRO in the report dated 10.08.2024 along with its re-assessment as furnished by the PP is given as below: -

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
1.	**Condition XVII** The proponent informed that details of safety measures including plant layout in the plan coal stock yard have already been submitted to CECB/SEIAA/or Regional Office of MoEF&CC. However, no document/evidence of such details have been received in this Sub-Office. **PP shall submit Details of safety measures including approved plant layout in the plan coal stock yard.**	Safety measures plan along with approved Location Plan t layout is submitted.	Safety measures plan along with plant location layout has been received in this office. On perusal of the safety measures plan it has been observed that the said plan mentions the various safety measures during construction phase, during operation phase and maintenance phase and the personnel responsible for ensuring the safety.
2.	**Condition XVIII**	Comprehensive Plantation p	Comprehensive plantation pla

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
	The proponent has not developed a green belt of 33% of total area of project area. Therefore, the proponent is instructed to submit the comprehensive plan for plantation over an area of 3.34 ha. **PP shall submit Comprehensive plan for plantation over an area of 3.34 ha**	lan with year-wise breakup and earmarked funds allocated for plantation is enclosed. In this monsoon season we shall plant different plant species of 2000 nos all along the boundary.	n including eleven plant species to be planted during 2024-25 and the plantation map with funds earmarked (Rs 20 lakhs) has been received in the office.
3.	**Condition XX** The proponent informed that total expenditure incurred for implementation of EMP measure has been Rs.453.0 lakhs. However, no documents/ evidences of implementation of recommendations of EIA/EMP and socioeconomic development activities in the surrounding villages. Further the proponent informed that the code of practice for coal washery issued by Central Pollution Control Board. **PP shall submit documents/ evidences of implementation of recommendations of EIA/EMP and socio-economic development activities in the surrounding villages.**	All environmental measures with budget incurred as committed in EIA/EMP report has been taken up since the commencement of operation of coal washery. Details Enclosed Socio developmental activities carried in the surrounding villages with year-wise budget incurred along with the photographs is enclosed.	Environment protection measures and safeguards recommended in the EIA/EMP report, CSR activities carried with pictures and funds earmarked have been received in the office.
4.	**Condition XXI** The proponent has constructed rainwater harvesting over 26900 m^2 area in the premise. However, no documents/evidence that detailed scheme for rainwater harvesting was prepared in consultation with CGWA/ SGWB and same submitted to CECB/SEIAA/ or Re	Four Rainwater harvesting structures have been constructed in consultation and as per the guidelines of CGWA/CGWB. Photographs of Rain water harvesting structures enclosed.	Rainwater harvesting structures with measurements, coefficient of runoffs and quantity of rainwater has been received in the office.

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
	gional Office of MoEF&CC. The proponent informed that no ground water has been used. **PP shall submit documents/evidence that detailed scheme for rainwater harvesting was prepared in consultation with CGWA/SGWB.**		
5.	**Condition XXXVII** The proponent informed that coal washery was installed in October, 2010 and commissioned in May 2011 adjacent to our Karwahi open cast coal mine. Due to the unavailability of ROM coal, coal washery was temporarily discontinued from 31/03/2015 to 13/2/2021and restarted on 14/2/2022. However, no relevant documents have been received in this Sub-Office. **PP shall submit all CTOs obtained from CECB and the validity of environmental clearance dated 23/08/2010**	Final approval of the project and date of commencement of land development work and commissioning of the coal washery has already been submitted to Regional Office Bhopal. A copy of the same is enclosed. Financial closure shall be intimated to SEIAA and Regional Office of Raipur. All CTE, CTO's & Valid EC copies are enclosed.	a.) EC No.309/SEIAA-CG/EC/ Coal Washery/RGH 10/ dated 23/8/2010 was obtained from SEIAA, Chattisgarh. b.) CTE dated 30/10/2011 was obtained from CECB. c.) (c) CTO dated 24/5/2011 was obtained from CECB and same was valid up to 23/5/2012. d.) Renewal of CTO dated 19/7/2012 was obtained from CECB and same was valid up to 30/4/2014. e.) Renewal of CTO dated 31/10/2014 was obtained from CECB and same was valid up to 30/4/2016. f.) Renewal of CTO dated 23/6/2021 was obtained from CECB and same was valid up to 22/6/2024. g.) (Renewal of CTO dated 10/7/2024 was obtained from CECB and same is valid up to 10/7/2026. h.) The proponent vide letter dated 12/12/2011 and 14/3/2022 has intimated CECB about the commencement of operation of coal washery. The project proponent informed that financial closure shall be intimated to SEIAA and regional office of Raipur in due time.

15.2.6: Salient features of the project:

i. The proposed project is for Expansion of Coal Washery Plant located at Village-Bajarmuda and Dholnara, Tehsil- Tamnar, District- Raigarh, Chhattisgarh from 0.96MTPA to 5.2 MTPA in two phases (Phase I :- 0.96 to 1.8 MTPA and Phase II :- 1.8 MTPA to 5.2 MTPA).

ii. Total coal requirement after expansion will be 5.2 MTPA out of which 1.8 MTPA will be sourced from PP's own mine adjacent to washery and remaining 3.4 MTPA coal will be taken from Jindal Steel and Power Limited. ROM Coal, Clean coal and midlings will be transported through road & rail network. PP's own railway siding is also proposed which is likely to be operational by 2026. Complete transportation of coal will be through railway once the railway siding gets operational.

iii. The project site is at the distance of about 12.5 km towards East from SH-1. The nearest railway station is Raigarh Railway Station which is located at about 31.7 km in South direction. Nearest airport is Veer Surendra Sai Airport, Jharsuguda at 64.5 km in SE.

15.2.7: Legal Issues/ Violation: PP submitted that there is no legal issue/violation wr.t i) Environment (Protection) Act, ii) Air(P&CP) Act, Water (P&CP), Act, Van (Sanrakshan Evam Samvardhan) Adhiniyam 1980, Wildlife Protection Act, MMDR Act, Factories Act. Further, there is no court case on the project.

15.2.8: Water Requirement: PP submitted that the water requirement after expansion will be 851 KLD (existing is 376 KLD). The water will be sourced from adjacent mine sumps, for which NOC from CGWA vide NOC No. CGWA/NOC/MIN/ORIG/2022/17116 dated 25.11.2022, valid up to 24.11.2024 has been obtained. PP also submitted that groundwater will be used for domestic purposes, for which NOC from CGWA for withdrawal of 10 KLD of groundwater has been obtained vide NOC No. CGWA/NOC/IND/ORIG/2022/16989 dated 04.11.2022 valid up to 03.11.2025. PP further submitted that no industrial wastewater will be discharged as the plant is designed on zero effluent discharge principle and sanitary wastewater will be sent to STP. Further, there is no diversion of any river/ nallah proposed.

15.2.9: Power Requirement: PP submitted that the total power requirement for the project is 3.2 MW which will be sourced from Chhattisgarh State Power Distribution Company Limited (CSPDCL). Also, 2x250 kVA DG sets will be operated for emergency use. There will be no any diversion of Hi-Tension/Transmission line due to the proposed expansion.

15.2.10: Baseline Data: Environmental Baseline data has been collected during1st March 2023 to 31st May 2023 (Pre Monsoon Season):

Period	**Pre Monsoon Season: 1st March 2023 to 31st May 2023**
AAQ parameters at 08 Locations	PM_{10} :- 57.1-92.7 µg/m^3 $PM_{2.5}$:- 30.9 – 52.1 µg/m^3 SO_2 :- 6.3-15.4 µg/m^3 NO_2 :- 9.1-32.6 µg/m^3 CO :- 280-1430 µg/m^3
AAQ modelling	Incremental GLCs due to the proposed proposal: PM_{10} :- 0.91µg/m^3 at 100 m in NNE $PM_{2.5}$:- 0.60 µg/m^3 at 100 m in NNE SO_2 = 1.87 µg/m^3 at 100 m in NNE NO_2 :- 2.63 µg/m^3 at 100 m in NNE CO :- 4.47 µg/m^3 at 100 m in NNE
Ground water quality at 08 locations	pH: 7.16-7.41 Total Hardness: 256-330 mg/l. Chlorides: 46-57 mg/l, Fluoride: 0.1-0.4 mg/l

<table>
<tr><td>Period</td><td>Pre Monsoon Season: 1st March 2023 to 31st May 2023</td></tr>
<tr><td>Surface water quality at 8 locations</td><td>pH: 7.36-7.56
DO: 5.6-6.3 mg/l.
BOD: 2.5-4.2 mg/l
COD : 12.7-32.3 mg/l</td></tr>
<tr><td>Noise levels</td><td>45.8 to 73.8 dBA - day time
34.6 to 65.7 dBA- Night time.</td></tr>
<tr><td>Traffic assessment
study
findings</td><td>Traffic study has been conducted at Tamnar Road and SH-1 which is adjacent to the project site.
Transportation of raw material, fuel & furnished product will be done maximum by road.
Existing PCU is 142 PCU/hr on Tamnar road and 309 PCU/hr at SH-1 and existing level of services (LOS) is:
<table>
<tr><th>Road</th><th>V (Volume in PCU/hr.)</th><th>C (Capacity In PCU/hr.)</th><th>Existing V/C Ratio</th><th>LOS</th></tr>
<tr><td>Tamnar Road</td><td>142</td><td>625</td><td>0.23</td><td>B</td></tr>
<tr><td>SH-1</td><td>309</td><td>1500</td><td>0.21</td><td>B</td></tr>
</table>
PCU load after proposed Project will be 345 PCU/hr (142 (Existing) + 203 (Increased)) at Tamnar road and 512 PCU/hr (309 (Existing) + 203 (Increased)) at SH-1 and level of Services (LOS) will be:
<table>
<tr><th rowspan="2">Road</th><th colspan="3">V (Volume in PCU/hr.)</th><th rowspan="2">C(Capacity InPCU/hr.)</th><th rowspan="2">Proposed V/C Ratio</th><th rowspan="2">LOS</th></tr>
<tr><th>Existing</th><th>Proposed</th><th>Total</th></tr>
<tr><td>Tamnar Road</td><td>142</td><td>203</td><td>345</td><td>625</td><td>0.55</td><td>C</td></tr>
<tr><td>SH-1</td><td>309</td><td>203</td><td>512</td><td>1500</td><td>0.34</td><td>B</td></tr>
</table>
Note: Capacity as per IRC 106:1990 guidelines for capacity for roads.
Conclusion:
The modified LOS on Tamnar Road will be remained “C”, i.e. Good.
The modified LOS on SH-1 will be remained “B”, i.e. Very Good.
Therefore, there will be no change in LOS after completion of the project.</td></tr>
<tr><td>Flora and fauna</td><td>7 Schedule-I species viz Elephas maximus (Elephant), Mellivora capensis (Honey badger), Melursus ursinus (Sloth bear), Panthera pardus (Panther), Striped hyaena (Hyena), Python molurus (Python), Pavo cristatus (Indian peafowl) has been sighted in the study area. Wildlife conservation plan has been prepared and submitted to CCF, Bilaspur (CG) through DFO.</td></tr>
</table>

PP reported that the Laboratory involved in analysis of water, air, noise & soil quality data, etc. has been accredited by the NABL/ MoEF&CC bearing the Certificate of Accreditation No: - TC-7501 and valid till 25.04.2025.

15.2.11: Solid & Hazardous Waste: PP submitted that currently about 0.451 MTPA of Middlings is

being generated during coal washing. The middlings are being stored in an earmarked place for sale to power plants for steam generation. Middlings are transported by road in covered trucks directly to the customer. After expansion of the washery, total of 2.184 MTPA of middlings will be generated during coal washing following the same procedure. Middlings are currently supplied to PP's own unit at Siltara and after expansion remaining middlings will be given to Jindal Steel and Power Limited.

15.2.12: EMP Cost: The budget earmarked by the PP for EMP is Rs. 385.80 Lakhs (Capital) and Rs. 104.5 Lakhs (Recurring).

S. No	Activity	Capital Cost (Lakh)	Recurring expenses propose d/ annum (Lakh)
1	**Air Pollution Control Measures**	**90.8**	**28.0**
	Ø DES and Bag House in crusher house	38	5.0
	Ø Fixed Water sprinklers	20	3.0
	Ø Mobile water sprinklers	10	4.0
	Ø Enclosures to belt conveyors	12.8	3.0
	Ø Asphalted internal roads	15	3.0
	Ø Rain gun	15	10
2	**Water pollution control measures**	**94**	**36**
	Ø Closed water Circuit , Thickener	60	20
	Ø Storm water drains	10	2.0
	Ø Rainwater Harvesting Pond	10	10
	Ø STP	05	2.5
	Ø Piezometer to monitor ground water lev el	9	1.5
3	**Green belt development**	**40**	**10.0**
4	**Solar Power Plant**	**100**	**20.0**
5	**Environment Management Cell**	**28**	**7**
6	**Environmental Monitoring**	**--**	**3.5**
7	**Budget for addressing environment rela ted issues raised during public hearing**	**33**	**--**
Total		**385.8**	**104.5**

15.2.13: Public Hearing Details: PP submitted that the Public hearing notice was published in Nayi

Duniya on 28.01.2024, in Kelo Pravah on 29.01.2024 and in The Times of India on 30.01.2024. The Public Consultation was conducted on 01.03.2024, at Middle School Ground, Vill - Bajarmuda, Tehsil – Tamnar, Dist – Raigarh, Chhattisgarh under the chairmanship of Ms. Santan Devi Jagde, Additional District Magistrate. The PH was attended by 900 people and 321 nos of written representations were received from and outside the district. The major issues raised during the PH were improvement in infrastructure, concern for drinking water, employment for the locals, air pollution control measures, road safety measures & concern about health of local people. PP earmarked an amount of 160 Lakh for addressing the issues raised during PH.

Following is the action plan along with the budget allocated for each activity by the PP for the issues raised during PH:

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
1.	Improvement of Infrastructure in nearby village	PP has proposed to adopt village Dholnara for improvement of infrastructure. Village development program under consultation with local panchayat and district administration for need-based community development activities which woul						

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		d be in addition to the development plans being undertaken by state and central government.						
2.	Employment for the locals	Willing and employable youths will be identified in consultation with gram panchayat of Bajarmuda, Dholnara and Khamariya. They will be provided training for trades namely electrician, fitters, welders,	**25 Lakhs** Stipend – 17.0 Lakh (Rs. 17000/- stipend per year to 100 persons for 1 year) ITI Fee – 8.0 Lakhs (Rs. 8000/- yearly fee for 100 persons for 1 year)	**5 Lakhs**	**5 Lakhs**	**5 Lakhs**	**5 Lakhs**	**5 Lakhs**

S. No.	Issued during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		painters, and civil construction work, etc. After successful completion of training, the youths will be offered employment in company in suitable grade.						
3.	Air Pollution Control Measures	Tree plantation (5000 trees) will be done along road side in nearby villages Bajarmuda, Dholnara and Khamariya and providing Water sprinkl	**33 Lakhs**	**6.48 Lakhs**	**6.54 Lakhs**	**6.6 Lakhs**	**6.66 Lakhs**	**6.72 Lakhs**
			Ø Plantation of 5000 trees:- **25 Lakhs**	Ø Plantation of 1000 trees:- **5 Lakhs**	Ø Plantation of 1000 trees:- **5 Lakhs**	Ø Plantation of 1000 trees:- **5 Lakhs**	Ø Plantation of 1000 trees:- **5 Lakhs**	Ø Plantation of 1000 trees:- **5 Lakhs**
			Ø Installation of 300 water sprinklers :- **3 Lakhs**	Ø Installation of 60 water sprinklers :- **0.6 Lakhs**	Ø Installation of 60 water sprinklers :- **0.6 Lakhs**	Ø Installation of 60 water sprinklers :- **0.6 Lakhs**	Ø Installation of 60 water sprinklers :- **0.6 Lakhs**	Ø Installation of 60 water sprinklers :- **0.6 La**

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		ing on road for dust dispersion control in nearby villages in consultation with the authority. 50 no. of Air purifier will be distributed Govt School Bajarmuda and nearby health centres						**khs**
				Ø Distribution of 10 no. of air purifiers:- **0.8 Lakhs** Maintanance of 10 purifiers :- **0.08 lakhs**	Ø Distribution of 10 no. of air purifiers:- **0.8 Lakhs** Maintanance of 20 purifiers :- **0.14 Lakhs**	Ø Distribution of 10 no. of air purifiers:- **0.8 Lakhs** Maintanance of 30 purifiers :- **0.20 Lakhs**	Ø Distribution of 10 no. of air purifiers:- **0.8 Lakhs** Maintanance of 40 purifiers :- **0.26 Lakhs**	Ø Distribution of 10 no. of air purifiers :- **0.8 Lakhs** Maintanance of 50 purifiers :- **0.32 Lakhs**
4.	Concern for Drinking water	Providing three Water filteration (RO) plant in village Bazarmuda and Dholnara	**12 Lakhs**	**3.6 Lakhs** Installation :- **3 Lakhs**, Maintenance :- **0.6 Lakhs**	**3.6 Lakhs** Installation :- **3 Lakhs**, Maintenance :- **0.6 Lakhs**	**3.6 Lakhs** Installation :- **3 Lakhs**, Maintenance :- **0.6 Lakhs**	**0.6 Lakhs** Maintenance :- **0.6 Lakhs**	**0.6 Lakhs** Maintenance :- **0.6 Lakhs**
5.	Road Safety Me	Large size convex	**5 Lakhs**	**1.4 Lakhs**	**1.4 Lakhs**	**1.4 Lakhs**	**0.4 Lakhs**	**0.4 Lakhs**

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
	asures	mirrors will be provided at turning points of the road connecting SH-1 to washery and regular monitoring of speed of vehicles will be done and raining on Traffic awareness will be provided in nearby villages				Ø Installing large size convex mirrors at turning points and speed breakers on village roads :- **1 Lakhs**		
						Ø Providing Training on Traffic Awareness :- **0.4 Lakhs**	Ø Providing Training on Traffic Awareness :- **0.4 Lakhs**	Ø Providing Training on Traffic Awareness :- **0.4 Lakhs**
6.	Concern about health of local people	Arrangement of 1 Modern Ambulance with Life Support system with necessary Medic	**20 Lakhs**	**12 Lakhs**	**2 Lakhs**	**2 Lakhs**	**2 Lakhs**	**2 Lakhs**
			Ø Conducting Health checkup:- **Rs. 7.5 Lakh**	Ø Conducting Health checkup:- **Rs. 1.5 Lakhs**	Ø Conducting Health checkup:- **Rs. 1.5 Lakhs**	Ø Conducting Health checkup:- **Rs. 1.5 Lakh**	Ø Conducting Health checkup:- **Rs. 1.5 Lakh**	Ø Conducting Health checkup

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		al Staff to Sub Health Centre, Dholesera and Health checkup and distribution of medicines in Villages Bazarmuda and Dholnara	s			s	s	p:- Rs. 1.5 Lakhs
Total			160 Lakhs	49.78 Lakhs	40.44 Lakhs	31.10 Lakhs	19.26 Lakhs	19.42 Lakhs

15.2.14: Plantation: PP submitted that Greenbelt has been already developed in 3.34 ha (33% of total area). Total no. of 8220 trees has been already present. Further 2000 no. of saplings will be planted.

15.2.15: Project Cost: The total capital cost of the project after expansion is Rs 80.12 Crores (Existing-Rs. 39.17 Cr + Expansion-Rs. 40.95 Cr) and the capital cost for environmental protection measures is proposed as Rs 3.86 Crores. The annual recurring cost towards the environmental protection measures is proposed as Rs 1.04 Crores. The total employment generation from the project after expansion will be 239.

15.2.16: Affidavit and Undertaking: PP has submitted an undertaking stating that there is no construction done at the project site w.r.t. the expansion part and there is no litigation on the project either at NGT or any other court of law. Total land in under possession of proponent. That there is no difference in the documents submitted and the presentation being made to the EAC. There are no data entry errors in the information uploaded in Parivesh. In case any deviation in data is found in any of the documents, the authorised signatory shall be held responsible and furthermore, the said proposal shall be rejected for the grant of EC.

15.2.17: ADS Information in chronology: Sarda Energy and Minerals Limited has made an online application vide proposal No- IA/CG/CMIN/473768/2024, dated 22.05.2024. The proposal was initially considered in 14th meeting of EAC (Coal) held on 5th – 7th August 2024 Proposal was deferred for want of additional information. The proponent submitted the ADS reply vide letter dated 30.08.2024 and uploaded on PARIVESH on 30.08.2024. Point-wise reply of ADS is given as below:

S.No.	Queries	Reply
	Approved Wildlife Conservation & Management Plan and the distance map w.r.t. the concerned coal washery plant and PCCF certificate to be submitted on Parivesh Portal.	PP submitted that wildlife conservation plan with budgetary provision of Rs. 29.48 lakhs has been prepared and same was approved by Principal Chief Conservator of Forest, CG dated 01.08.2024. Copy of approval letter is submitted. Approved wildlife conservation plan is also submitted. Distance authentication map showing distance of nearest wildlife sanctuary and animal corridor has been submitted. 7 Schedule – I species has been sighted in the study area, viz. 1. Elephas maximus (Elephant), 2. Mellivora Capensis (Honey Badger), 3. Melursus ursinus (Sloth bear), 4. Panthera pardus (Panther), 5. Striped hyaena (Hyena), 6. Python molurus (Python), 7. Pavo Cristatus (Indian Peafowl)
	Action taken report of the Certified compliance report obtained from RO, Raipur vide letter no. 18-D-25/2010 (Env)-46, dated 09.05.2024 must be submitted to the concerned RO, MoEF&CC, to obtain their comments and the same shall be further submitted to the EAC for further consideration.	PP submitted that action taken report w.r.t partially/non-compliance of conditions has been submitted to IRO, Raipur on 20.05.2024. Closure letter with comments of IRO, Raipur w.r.t ATR has been obtained vide File No-18-D-25/2010(Env)/121 dated 10.08.2024. Copy of closure letter has been submitted.
	Revised action plan to address the issues raised during public hearing as per the Ministry's O.M. dated 30/09/2020.	As per the observation raised, the budget for addressing PH issues has been increased from INR 120 lakhs to INR 160 lakhs. Revised action plan has been submitted.
	The EMP budget shall be revisited and the budget pertaining to mitigation measures and plantation must be increased. The revised EMP budget shall be submitted.	As per the observation budget for EMP has been increased from INR 2.60 Cr as capital cost and INR 0.84 Cr as recurring cost to INR 3.86 Cr as capital cost to INR 1.04 Cr as recurring cost.

S.No.	Queries	Reply
		Revised EMP budget has been submitted.
	Action plan for shifting to e-vehicles and CNG/ LNG operated vehicles in the coal washery shall be submitted.	PP submitted that our own private railway siding is already proposed which is likely to be operational by 2026. Hence all the transportation of coal will be through railway siding. NOC for taking up private railway siding has been obtained from Chhattisgarh East Railway Limited vide letter no. CERL/Raipur/SARDA/2022-23/740 dated 23.11.2022. Copy of NOC has been submitted. Employees will be encouraged to use electric vehicles. Charging stations will be installed within washery.
	Undertaking from the project proponent stating that no ground water will be utilized for the coal washery during its operation phase.	PP informed that out of the total daily water requirement i.e. 851 KLD, 841 KLD water to be used for washery operation, plantation and dust suppression will be sourced from mine sumps. Only 10 KLD water will be sourced from Ground water and will be used only for drinking purpose. Permission for dewatering of 1656 KLD water from mine sump and withdrawal of 18 KLD ground water has been obtained from CGWA vide NOC No. CGWA/NOC/MIN/ORIG/2022/17116 dated 25.11.2022. Copy of NOC and Undertaking for using water from mine sump for industrial purpose has been submitted.
	There is a Government school namely Bajarmuda at a distance of 0.830 km from the project boundary in northern direction. Action plan for relocation/mitigation measures to be adopted for the same shall be furnished.	PP is committed to have minimum adverse impact on Bajarmuda Government school. Following mitigation measures have been taken to minimize the impact on Sensitive areas within the study area: - Ø Bag filters will be provided to crushers for control of air emission. Ø Greenbelt will be thickened along the northern boundary of plant to minimize the pollutant emission due to project. Ø Village roads will be maintained and made pucca to have minimum dust emission.

S.No.	Queries	Reply
		Ø Only PUC certified trucks will be allowed for Transportation of raw materials. Trucks will be kept covered. Ø No truck movement will be allowed during peak hours. Even during non-peak hours speed of trucks will be limited to 10 kmph near school. *Note: The Govt School of Village -Bajarmuda lies within the Mine lease area of Operational "Gare Pelma Sector – III" Coal Mine of Chhattisgarh State Power Generation Company Ltd (CSPGCL).*

15.2.18: Written submissions by the proponent

Written submission made by PP are summarized as below:

S. No.	Points	Written submissions made
1.	PP should submit an undertaking regarding following points: Ø Timeline for private railway siding for transportation. Ø That, trucks used for transportation of raw coal, clean coal & midlings won't be older than 5 year. Ø That, remaining plantation will be completed within (1000 Nos) within 30 days of grant of EC. Ø That, PP will explore the possibility of additional plantation outside the plant premises along the roads and around sensitive receptors like schools and hospitals. Ø That, PP will install three (3) nos RO water purification system of having capacity of 125 LPH each in villages Bajarmuda, Dholnara and Khamariya. Ø That, PP will install solar plant of capacity 1 MW within plant premises.	An Undertaking regarding the said points is submitted.
2.	PP should submit greenbelt photographs having GPS coordinates.	PP informed that 3.34 ha land has been earmarked for greenbelt and 8220 trees are present within the project site. Additionally, 1000 nos trees will be planted within 30 days of grant of EC. Photographs of existing greenbelt are submit

S. No.	Points	Written submissions made
		ted.
3.	PP should submit revised action plan for ad dressing the issues raised during public hea ring.	PP informed that an amount of INR 1.6 cr ha s been allotted for addressing the issues raise d during public hearing. Action plan for addressing the issues has bee n submitted.
4	PP should submit the EMP budget details.	PP informed that they have allotted a budget of INR 385.8 lakhs as capital cost for Enviro nment protection measures. Additionally, an amount of INR 104.5 lakhs will be spent per year as recurring cost for the maintenance. Detailed EMP budget is submitted.
5	PP should submit the NOC and In-principle approval for private railway siding.	PP informed that NOC for setting private rai lway siding has been obtained from Chhattis garh East Railway Limited vide letter no. C ERL/Raipur/SARDA/2022-23/740 dated 23. 11.2022. Copy of NOC is submitted. Further, PP informed that in-principle appro val letter has been received from Divisional Office, South Eastern Railway Limited vide Letter No. P/GCT/EC/BUMA/SARDAE& M/22/11/04 dated 17.01.2023. Copy of in-principle approval is submitted.

3.1.3. Deliberations by the committee in previous meetings

Date of EAC 1 :07/08/2024

Deliberations of EAC 1 :

14.13.16: Committee after deliberations noted the following:

Recommendations of the Committee:

14.13.17: In view of the foregoing and after detailed deliberations, the committee ***deferred*** the proposal, and sought the following additional information for further consideration of the proposal.

3.1.4. Deliberations by the EAC in current meetings

15.2.19: The Committee noted the following:

xxiii. The EAC also deliberated on the written submission of the project proponent and found it satisfactory.

Recommendations of the Committee:

3.1.5. Recommendation of EAC

Recommended (Subject to submission of requisite information/ documents)

3.1.6. Details of Environment Conditions

3.1.6.1. Specific

Specific Conditions	
1.	PP shall deploy atleast 20% of overall fleet of trucks as electrical or CNG/LNG based trucks for transportation of raw coal, washed coal, midlings. Also, the vehicles to be used for washery operations and transportation shall not be older than 5 years.
Specific conditions	
1.	A traffic circulation plan must be designed by some reputed institute and the same shall be implemented.
2.	Project proponent shall deploy trucks having Gross Capacity of 55 ton and carrying capacity of 40 tons for road transportation of raw coal, clean coal and middling, rejects to reduce the fleet size. Transportation of run-of-mine (ROM) Coal, washed coal and rejects coal by road is permitted till 31/12/2026. The private railway siding of PP must be established by 31.12.2026 and the transportation of coal and rejects should take place through railways only, thereafter.
3.	
4.	Water spraying shall be done on regular basis inside and around the project area (within 2 km of the plant site) on a regular interval and a log book should be maintained for the same. The fog cannon must be installed at periphery of the Coal washery in order to suppress the dust.
5.	All the roads proposed to be constructed inside and around the periphery of the plant shall be concrete road only. No village road shall be used for transportation of coal and no road transport route shall be adopted, which is passing through any sensitive location such as schools, hospitals etc.
6.	Greenbelt has been already developed in 3.34 ha (33% of total area). Total no. of 8220 trees has been already planted. Further 2000 no. of saplings shall be planted during 2024-25. Greenbelt shall be thickened along the northern boundary of plant to minimize the pollutant emission due to project on Bajarmuda school as committed. Greenbelt of 30-50 m width, consisting of at least 3 tiers around plant boundary shall be maintained. In addition to this, tree plantation (5000 trees) will be done in nearby villages Bajarmuda, Dholnara and Khamariya and the near by sensitive receptors school and hospitals during 2024-25.
7.	The Plant will operate on closed water circuit with a concept of 'Zero Liquid Discharge' (ZLD). 100% water will be recycled and no treated & untreated wastewater shall be discharged outside the boundaries of project area.
8.	Project proponent shall implement the protective measures as proposed in environment management plan (EMP) in a time-bound manner. The budget earmarked for the same is Rs 385.8 Lakhs (Capital) and Rs 104.5 Lakhs (recurring)/ annum and should be kept in separate accounts and audited annually. The implementation status along with the amount spent with documentary proof shall be submitted to the concerned Regional Office of the Ministry for the activities carried out during the previous year.
9.	Wildlife conservation plan as approved by the competent authority shall be implemented. The final Wildlife conservation plan duly approved by the CWLW shall be submitted to RO, MoEF&CC within a time frame of one

	month from the date of grant of EC and the budget approved by the concerned authority shall be deposited in government account.
10.	Project proponent shall install a continuous ambient air quality monitoring station (AQMS) at suitable locations preferably the village side with the consultation of SPCB before commissioning of Plant operations. The real time data so generated shall be uploaded on company's website and it will be linked with CPCB &SPCB web portal. In addition, data should also be displayed digitally at entry and exit gate of Plant for public display.
11.	The workers shall be provided all the essential facilities/Personal Protective Equipments (PPE) during operation and maintenance at workplace.
12.	Project proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly. Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly.
13.	Project proponent shall use of Gas engine/ Cleaner fuel engine for use of machines or as power back up to reduce the pollution load on environment. Project proponent shall implement additional measures to control Air pollution.
14.	Project proponent shall implement the activities proposed to address the issues raised during the public hearing in a time bound manner as committed in EIA/EMP report inter-alia installation of 3 nos of water purification (RO) plants must be installed of 125 LPH capacity each in villages Bajarmuda, Dholnara and Khamariya. The budget earmarked to address the concerns raided during public hearing is Rs. 160 Lakhs (Capital) that should be kept in a separate accounts and audited annually. The implementation status/ action taken report along with the amount spent with documentary proof shall be submitted to the concerned Regional Office of the Ministry for the activities carried out during the previous year.
15.	Project proponent shall monitor the heavy metal in the water samples at least twice/year, and install the piezometers for regular monitoring of groundwater level. Report shall be submitted along with six-monthly compliance reports to the concerned Regional Office of the Ministry.
16.	Project proponent to undertake the recruitment of a full-fledged qualified manpower with Environmental Engineer/Env. Science degree background in Environment Management Cell etc., at coal washery plant for compliance of EC conditions.
17.	Raw coal, washed coal and rejects shall be stored in covered storage facility. Fixed-type high-pressure sprinkler shall be installed in this storage yards.
18.	NoC from Central Ground Water Authority (CGWA)/ concerned local authority, as the case may be, shall be obtained before drawing the ground water for the project activities. State pollution control board/pollution control committees shall not issue the consent to operate (CTO) under Air (prevention and control of Pollution) Act and Water (Air (prevention and control of Pollution) Act till the project proponent shall obtain such permission.
19.	Project proponent shall construct a 20 ft height wind barrier with galvanized/metal sheet all around the boundary of the washery and install fixed-type water sprinkler all along the boundary wall.

20.	Project proponent shall ensure that suitable parking area shall be provided for the parking of the trucks and necessary arrangements (drinking water facility/ rest room/ toilets etc.) shall be provided for the drivers & helpers.
21.	Project proponent is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5th June 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report.

3.1.6.2. Standard

2(a)	**Coal washeries**
Statutory compliance	
1.	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
2.	The project proponent shall obtain the necessary permission from the Central Ground Water Authority
3.	Solid/hazardous waste generated in the washery needs to addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.
4.	Coal beneficiation practices shall be carried out under strict adherence to provisions of the Factories Act, 1957 and subordinate legislations made there under.
Air quality monitoring and mitigation measure	
1.	Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc. carried out at least once in six months.
2.	Continuous ambient air quality monitoring stations as prescribed in the statue be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.
3.	Transportation of coal by road shall be carried out by covered trucks/conveyors. The transportation of clean coal and rejects shall be by rail with wagon loading through silo. Effective measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulates such as roads, belt conveyors, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled at source. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
4.	All approach roads shall be black topped and internal roads shall be concreted. The roads shall be regularly cleaned. Coal transportation shall be carried out by covered trucks.
5.	Vehicular emissions shall be kept under control and regularly monitored. The vehicles having ‘PUC’ certificate from authorized pollution testing centres shall be deployed for washery operations.

6.	Hoppers of the coal crushing unit and other washery units shall be fitted with high efficiency bag filters/mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of closed belt conveyor systems and from transportation roads
7.	The raw coal, washed coal and coal wastes (rejects) shall be stacked properly at earmarked site (s) within stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored mineral does not catch fire.
8.	The temporary storage site of reject should be appropriately planned and designed to avoid air and water pollution from such sites.
Water quality monitoring and mitigation measures	
1.	The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board.
2.	The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-lA.11 (M) dated 27th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
3.	Industrial waste water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time.
4.	The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the washery. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side stabilised with plantation so as to withstand the peak water pressure preventing any chance of inundation.
5.	Heavy metal content in raw coal and washed coal shall be analysed once in a year and records maintained thereof.
6.	The rejects should preferably be utilized in FBC power plant and Thermal Power Plant . If the coal washery rejects are to be disposed off, it should be done in a safe and sustainable manner with adequate compaction and post closure arrangement to avoid water pollution due to leachate from rejects and surface run of from reject dumping sites.
7.	An Integrated Surface Water Management Plan for the washery area up to its buffer zone considering the presence of any river/rivulet/pond/lake etc. with impact of coal washing activities on it, shall be prepared, submitted to MoEFCC and implemented.
8.	Waste Water shall be effectively treated and recycled completely either for washery operations or maintenance of green belt around the plant.
9.	No ground water shall be used for coal washing unless otherwise permitted in writing by competent authority (CGWA) or MoEFCC. The make-up water requirement of washery should not exceed 1.5 m3/tonne of raw coal.
10.	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
11.	The project proponent shall take all precautionary measures to ensure riverine/ riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state

	government
Noise and Vibration monitoring and prevention	
1.	The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.
2.	Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
Coal benefication	
1.	Coal stacking plan shall be prepared separately for raw coal, clean coal, middling and rejects.
2.	Efforts should be made to reduce energy consumption by conservation, efficiency improvements and use of renewable energy
Green belt	
1.	The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.
Public hearing and Human health issues	
1.	Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & it's RO on six-monthly basis. The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
2.	Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
3.	Implementation of the time bound action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
4.	The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.
Miscellaneous	
1.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.

2.	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
3.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
4.	The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
5.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
6.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
7.	The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
8.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
9.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
10.	No change in coal beneficiation process and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC) with such conditions mentioned therein. No change in the maximum quantum of raw material feed per annum against the approved washery capacity shall be made.
11.	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
12.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
13.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
14.	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
15.	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
16.	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Kotre Basantpur Pachmo OCP by **CENTRAL COALFIELDS LIMITED** located at **RAMGARH,JHARKHAND**			
Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/JH/CMIN/493041/2024	IA-J-11011/18/2019-IA-II(I)	20/08/2024	Mining of minerals (1(a))

3.2.2. Project Salient Features

Agenda No. 15.1

15.1: Proposal for amendment in Environment Clearance (EC) of Kotre Basantpur Pachmo OCP (area 1011.87 Ha having capacity 5 MTPA) by M/s Central Coalfields Limited located at Villages: Kotre, Pachmo, Hurdag, Basantpur, Pachanda, Rohawan and Bhagraiya; District: Ramgarh and Bokaro; State: Jharkhand – Amendment in EC – regarding.

[Online Proposal No. IA/JH/CMIN/493041/2024; File No. IA-J-11011/18/2019-IA-II-(I)]

[Consultant: CMPDI - NABET/EIA/22-25/SA 0223 valid up to 08.04.2025]

15.1.1: The instant proposal is for amendment in Environment Clearance granted to M/s Central Coalfields Limited vide letter no. IA-J-11011/18/2019-IA-II (I), dated 18.09.2023 for Kotre Basantpur Pachmo OCP (area 1011.87 Ha having capacity 5 MTPA) located at Villages: Kotre, Pachmo, Hurdag, Basantpur, Pachanda, Rohawan and Bhagraiya; District: Ramgarh and Bokaro; State: Jharkhand

Details of all the prior ECs including the EC for which amendment is sought:

S. No.	Details of Letter No.	EC/ Expansion EC /Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation
1.	IA-J-11011/18/2019-IA-II-(I)	EC	5	1011.87	18.09.2023	CTE and CTO has been obtained from the JSPCB on 23.11.2023 and 22.02.2024 respectively. The project is yet to become operational.

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.1.2: The PP has made an online application vide proposal no. IA/JH/CMIN/493041/2024, dated 20.08.2024 for amendment in EC Specific Condition no. 4(v), 4(vi), 4(xxi) & 4(xxx) of the EC dated 18/09/2023. The details of amendment sought along with the justification is summarized as below:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Conditi	PP shall install dedicated in-	PP shall install dedicat	Construction of Belt C

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
on 4(v)	pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (i.e. December 2024). Accordingly, SPCB should grant consent to operate.	ed in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (**i.e. December 2026**). Accordingly, SPCB should grant consent to operate.	onveyor and other infrastructure may take more time to commission.
Specific Condition 4(vi)	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this. Accordingly, CTO should be granted.	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this **(Beyond December 2026**). Accordingly, CTO should be granted	Construction of Belt Conveyor and other infrastructure may take some time to commission, till then transportation of Coal to Kedla washery/ any coal washery may be permitted by road transportation.
Specific Condition 4(xxi)	PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers /trucks for transportation of Coal/ OB etc. and deploy e-vehicles for workers/ staff in/out of the Mine.	PP shall deploy at least 20% of overall fleet of dumpers/ trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/OB etc. **(if techno-economically feasible)** and deploy e-vehicles for workers/staff in/out of the Mine.	Exemption may be given in respect of electrical or CNG/LNG based dumpers /trucks for transportation of Coal/OB etc. In view of the non-availability of suitable techno- economically feasible option in steeply dipping working seams existing at the Mine.
Specific Condition 4(xxx)	PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of the approved budget outlay of CSR funds. The project- affected families shall be given free medical facilities. This shall be done in consultation of	**Relaxation** in construction of new multispecialty (50 beds) hospital in the 10 km of the project area.	Central Coalfield Limited (CCL) under CSR scheme is already running two Central Hospitals in Ranchi (250 bedded apex hospital) and at Nai Sarai, Ramgarh (150 bedded) (at 40 km from KBP Project) equipp

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
	DM of the district		ed with all modern facilities for testing diagnosis and treatment. In addition to this CCL is also running Regional Hospitals at Kargali (60 bedded), Dhori (50 bedded), Kathara (35 bedded), Rajrappa (20 bedded), Dakra (50 bedded) and Kedla (32 bed ded) (which is 5 km from KBP OCP). Apart from this Hospitals/ Dispensaries are running for immediate medical aid at each project colliery. KBP Project has also planned for construction of 6 - bedded hospital for the medical needs of project affected people. Medical facilities to PAFs are free of any charges at any of the hospitals and dispensaries are being run by CCL.

3.2.3. Deliberations by the committee in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

Observations and deliberations of the Committee:
15.1.3: The EAC noted the following:

i. MoEF&CC has granted EC for the Kotre Basantpur Pachmo OCP of M/s Central Coalfileds Limited vide letter no. IA-J-11011/18/2019-IA-II-(I), dated 18.09.2023 for capacity of 5 MTPA in an area of 1011.87 Ha.

ii. The Committee observed that there is total 855.17 Ha of forestland is involved and the Stage – II FC has been accorded on the same vide letter dated 14.03.2024.

iii. The Committee observed that the CTE has been obtained from the Jharkhand State Pollution Control Board (JSPCB) for 5 MTPA vide letter dated 23.11.2023 and obtained CTO from JSPCB vide

letter dated 22.02.2024 which is valid up to 31.12.2024.

iv. The project is yet to be operational and is undergoing the construction work.

v. Specific Condition no. 4(v) of EC stipulated that *"the PP shall install a dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (i.e. December 2024). Accordingly, SPCB should grant consent to operate."* The PP justified that the construction work of the project could start only after the grant of EC, hence it will take some time to commission the construction of belt conveyor and other infrastructure. Therefore, PP sought amendment in the said condition seeking time extension for transportation by road till December 2026.

The Committee deliberated on the same and enquired about the length of conveyor belt to be established. PP reported it to be of 2 km length and also submitted that crusher will be installed by March 2025.

The Committee is of the opinion that the length of conveyor belt to be established is of relatively short length and can be easily targeted to be established by July 2026 instead of December 2026.

vi. Specific Condition no. 4(vi) of EC stipulated that *"PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this. Accordingly, CTO should be granted."* The PP justified that construction of Belt Conveyor and other infrastructure may take some time to commission, till then transportation of Coal to Kedla washery/ any coal washery may be permitted by road transportation. Therefore, PP sought amendment in the said condition seeking permission for transportation by road till December 2026.

The Committee deliberated on the same and in pursuant to above condition is of the opinion that the establishment of the conveyor belt required can be achieved by July 2026 instead of December 2026.

vii. The Committee also deliberated on how the transportation of coal to take place while the time conveyor belt is under construction. The PP reported that it will take place by a dedicated road and approach road to mine will be constructed inside and outside the project area of length 1.50 km and 0.26 km respectively. It will also include an already existing road to Kedla Washery of 0.70 km.

viii. The Committee deliberated on the mitigative measures proposed for air pollution control along the coal transportation road. PP submitted that, coal will be transported through tarpaulin-covered tippers, a mobile mist type sprinkler of 28 KL capacity for dust suppression will be installed, permanent windscreens will be installed along the project's south-western and southern boundaries with a total length of 8 km, PCC topping on the concerned road is proposed to be done, fixed sprinklers along the length of Coal Transportation Route (CTR) are proposed, a vehicle wheel washing system is proposed, 3 row avenue plantation is proposed to be developed all along the transportation roads, also a CAAQMS is proposed to be installed and commissioned. PP reported that all of this will be adopted before the start of the transportation of coal along the dedicated coal transportation road of 1 km.

ix. The Committee also deliberated about the condition of the coal transportation road and observed that the said road is yet to be constructed. PP reported that the land on which the said road will be constructed is not in possession yet and the construction will be started as soon as the land possession is acquired. Committee also deliberated on the number of trucks which will pass daily through that road on an average. The PP reported that 30 trucks on an average of the capacity of 40 tonnes each are proposed to pass through that road daily.

x. The Committee is of the opinion that before the mining operations starts the PP must ensure that one CAAQMS shall be installed in the lease area and PP should submit the timeline of completion and budget of the same including additional measures like plantation, mobile sprinklers etc., to the EAC.

xi. The Committee also deliberated on the plantation being done by the PP and observed that no plantation has been started yet. Committee asked the PP to submit the budget of plantation and a concurrent plantation plan to the Committee.

xii. Specific Condition 4(xxi) of EC stipulated *"PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/OB etc, and deploy e-vehicles for workers/staff in/out of the Mine."* The PP justified that due to non-availability of suitable techno- economically feasible option in steeply dipping working seams existing at the Mine, this particular condition may be exempted. The Committee deliberated on the same and is of the opinion that there are multiple options available in this regard. The mine is yet to be operational and available options for electrical or CNG/LNG are yet to be explored by the PP. The PP shall first explore the options available in this regard and accordingly shall fulfil the stipulated condition.

xiii. Specific Condition 4(xxx) of EC stipulated *"PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of the approved budget outlay of CSR funds. The project- affected families shall be given free medical facilities. This shall be done in consultation of DM of the district."* The PP justified that there are already two Central Hospitals in Ranchi, running under their CSR scheme of 250 and 150 beds each at 40 km from the project area. Apart from this there are 6 other regional hospitals which are being operated by CCL and all of these are within 5 km from the project area. There are also dispensaries running at each project colliery. PP also submitted that it has also planned for construction of 6 bedded hospitals for the medical needs of PAPs and medical facilities to PAFs are free of charge at any hospital or dispensary being run by CCL.

The Committee deliberated on the same and took a serious view on the amendment sought by the PP in this regard. The Committee is of the opinion that the project is yet to be started and PP has not even envisaged the requirement of a multispecialty hospital (50 beds) within 10 km of the project area for locals and came for seeking amendment in the said condition. The Committee is of the opinion that the said condition must be complied with. In addition to this details of the operational primanry health centres and community health centres within 5 km of the mine must be provided to the Committee.

xiv. The Committee also enquired about the court cases if any. The PP submitted that there is no litigation pending on the project.

xv. The Committee observed in the DSS KML that there is a school within the project area and deliberated on the mitigative measures proposed by the PP for its safeguard. The PP submitted that it is not proposed to be relocated and greenbelt development is proposed around the school in order to control the air pollution around the school.

xvi. The Committee also observed that there are 4 seasonal nallahs flowing within the project boundary which are reported to be rain-fed and are nearly dry during the non-monsoon periods. PP submitted that in order to ensure the protection of nallas in a sustainable manner and also to protect the mines from the risk of flooding during rainy season, they involved IIT Roorkee for diversion plan of the concerned nallahs and IIT (ISM) Dhanbad for Sustainability study of the said mines. A detailed project report with respect to diversion of nallah was prepared by IIT Roorkee. Committee observed that Kotre stream will be diverted during the 1st year of construction as it flows through the proposed infrastructure land and for any construction work to happen, it needs to be diverted. Another stream, that is Jhumra is observed to be diverted in 3rd year of operations and will be merged with the Pachmo stream. The Pachmo and Bhagaria streams are proposed to be diverted in 15th and 20th year of operations respectively.

xvii. The Committee also observed that the said project appears to be falls under Severely Polluted Area (SPA) as per CEPI 2018 Assessment, as it is part of Ramgarh district. PP submitted that as per Jharkhand State Pollution Control Board report dated 10.11.2022, there are 2 SPAs in Ramgarh district (Ramgarh Industrial Area & Patratu Industrial Area) and none in Bokaro. Both the SPAs of Ramgarh are at the distance of 20 km and 38 km respectively. Hence, KBP OCP does not fall

within SPA.

xviii. The Committee also found mismatch in the information submitted by the PP before meeting and took it seriously and is of the view that the PP and Consultant should submit the information and the documents correctly without any error as it leads to ambiguity.

Recommendations of the Committee:

15.1.4: After deliberation, the Committee **recommended** the proposal for amendment in EC granted vide file no. IA-J-11011/18/2019-IA-II-(I) dated 18.09.2023 as detailed below. Other terms and conditions prescribed in the EC dated 18/9/2023 shall remain unchanged.

Reference in EC letter dated 18.09.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition 4(v)	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (i.e. December 2024). Accordingly, SPCB should grant consent to operate.	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (**i.e. December 2026**). Accordingly, SPCB should grant consent to operate.	**Partially agreed.** PP was asked about the length of conveyor to be established and found it to be 2 km. Committee found it to be achievable by July 2026. Hence, now the condition to be read as *"PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road till July 2026. Accordingly, SPCB should grant consent to operate."*
Specific Condition 4(vi)	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this. Accordingly, CTO should be granted.	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this **(Beyond December 2026**). Accordingly, CTO should be granted.	**Partially agreed.** With regard to the changes in specific condition 4(v), Committee is of the opinion to amend specific condition 4(vi) as follows. *"PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and road transportation allowed for this till July 2026 only. Accordingly, CTO should be granted.*

Reference in EC letter dated 18.09.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition 4(xxi)	PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/ OB etc, and deploy e-vehicles for workers/ staff in/out of the Mine.	PP shall deploy at least 20% of overall fleet of dumpers/ trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/OB etc. **(if techno-economically feasible)** and deploy e-vehicles for workers/staff in/ out of the Mine.	**Not agreed.** The Committee is of the opinion that mine is yet to be operational and options for deployment of electrical or CNG/ LNG based dumpers/ trucks is yet to be explored. Therefore, the condition shall remain intact and PP should explore and introduce the best options available for the same.
Specific Condition 4(xxx)	PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of the approved budget outlay of CSR funds. The project- affected families shall be given free medical facilities. This shall be done in consultation of DM of the district	**Relaxation** in construction of new multispecialty (50 beds) hospital in the 10 km of the project area.	**Not agreed.** The Committee is of the opinion that this particular condition is not properly envisaged by the PP and it should be given a serious thought before asking for such amendments. The project is yet to be started and health of habitants must be of utmost concern. Therefore, the said condition shall remain intact and no amendment will be granted for the same.

3.2.5. Recommendation of EAC

Recommended

3.2.6. Details of Environment Conditions

3.2.6.1. Specific

	Specific Condition
1.	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road till July 2026. Accordingly, SPCB should grant consent to operate.

2.	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and road transportation allowed for this till July 2026 only. Accordingly, CTO should be granted.
3.	Other terms and conditions prescribed in the EC dated 18/9/2023 shall remain unchanged.

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Proposed Expansion of Parsa East and Kanta Basan Pit Head Coal Washery from 15 MTPA to 21 MTPA at villages Salhi, Hariharpur, Parsa, Kente, Ghatbarra, Parogiya and Basan in Udaypur Tehsil, Surguja District, Chhattisgarh by M/ s Rajasthan Rajya Vidyut Utpadan Nigam Limited (RVUNL) over an area of 2682.856 ha by **RAJASTHAN RAJYA VIDHYUT UTPADAN NIGAM LTD** located at **SURGUJA,CHHATTISGARH**

Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/CG/CMIN/494543/2024	J-11015/03/2008-IA-II(M)	02/09/2024	Coal washeries (2(a))

3.3.2. Project Salient Features

Agenda No. 15.4

15.4: Proposal for amendment in Environment Clearance (EC) of Parsa East and Kanta Basan Pit Head Coal Washery (area 2682.856 Ha having capacity 18 MTPA) by M/s Rajasthan Rajya Vidyut Utpadan Nigam Limited located at Villages: Ghatbarra, Salhi, Kedmaforest, Kete, Mahadevpara, Para, Hariharpur; District: Surguja; State: Chhattisgarh – Regarding Amendment in EC
[Online Proposal No. IA/CG/CMIN/494543/2024; File No. J-11015/03/2008-IA-II(M)]
[Consultant: Vardan Environet LLP NABET/EIA/2326/RA0284 valid up to 04/05/2026]

15.4.1: The proposal is for amendment in Environment Clearance granted to M/s Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL) vide letter no. J-11015/03/2008-IA.II(M) dated 14.02.2022 and 12.07.2023 granted to Integrated project of Parsa East and Kanta Basan Pit Head Coal Washery (area 2682.856 Ha having capacity 18 MTPA) located in Villages: Ghatbarra, Salhi, Kedmaforest, Kete, Mahadevpara, Parsa, Hariharpur; District: Surguja; State: Chhattisgarh.

Details of all the prior ECs including the EC for which amendment is sought:

Sr. no.	**Details of letter no.**	**EC/Expansion EC/Amendment in EC/validity Transfer/Transfer of EC**	**Capacity (MTPA)**	**Area (ha)**	**Date of issuance**	**Status of implementation**
1	J-11015/03/2008-IA-II (M)	Environment Clearance (EC)	Coal Mining and Pit Head washery of 10 MTPA	2711.034 Ha	21.12.2011	Implemented
	-do-	EC revalidation	10 MTPA	2711.034 Ha	25.07.2015	Implemented

Sr. no.	Details of letter no.	EC/Expansion EC/Amendment in EC/validity Transfer/Transfer of EC	Capacity (MTPA)	Area (ha)	Date of issuance	Status of implementation
	-do-	Environmental Clearance Expansion	Coal Mining and Pit Head washery from 10 to 15 MTPA	2682.856 Ha	10.08.2018	Implemented
	-do-	EC for expansion of Coal Washery	15 to 18 MTPA	2682.856 Ha	12.07.2023	At present following is the process being adopted at the PEKB mines & washery right from mining of coal & washery to dispatch to end users: ROM Coal of 55000 Tonne/Day from mine is transported to In-pit conveyor at a distance of 0.8 Km to 3.39 Km (average). ROM Coal is crushed at CHP from 100 mm to size -50 mm. From CHP the crushed coal is transported to coal washery of 62000Tonne/Day capacity through conveyor belt with different routes of processing plant which is located at a distance of 1 Km. Washed coal of 42600 Tonne/day is sent to Silo of 4000 Tonne /Hour capacity with the help of 02 Nos. of Stacker - Reclaimer of 4000 TPH capacity and other belt conveyor. The same quantity of washed coal is loa

Sr. no.	Details of letter no.	EC/Expansion EC/Amendment in EC/validity Transfer/Transfer of EC	Capacity (MTPA)	Area (ha)	Date of issuance	Status of implementation
						ded in rail wagons for transport to Power plant

Details of the proposal, as ascertained from the proposal documents and as revealed from the discussion held during the meeting, are given as under:

15.4.2: The PP has now made an online application vide proposal no. IA/CG/CMIN/494543/2024, dated 25.04.2024 for amendment of EC Specific Condition no. xii of EC dated 12.07.2023.

PP has submitted the following amendment along with the justification:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition no. xii	Raw coal washed coal and rejects shall be stored in covered silos or in dome shaped storage facility. Fixed type-high pressure sprinkle shall be installed in this storage yards.	Kindly recommend amendment in Exemption of EC specific condition no (xii) for 'Clearance Type' of the Environment Clearance dated 12.07.2023 of Parsa East and Kanta Basan (PEKB) Opencast Coal Mine & Washer	Ø The Storage area of Washed Coal, and Reject area is spread in approx. 31.14 ha. Ø At present, handling of washed coal is done by two (2) number of Stackers and Reclaimers with height of boom 30 meters. Ø In order to comply with the EC condition and store coal in a covered silo or dome, a structure of height 30 meter is required to be constructed. Such a high dome structure of 30 m spread over 31.14 ha area is like adding on to a potential safety fire hazard and construction of it in mine active area is also technically unrenderable. Ø Coal is by itself a bad conductor of heat and also possess spontaneous heating property. Together, if it is not ventilated, an occurrence of fire will happen for sure. Hence, covering the whole coal stock in a silo will lead to dows fiery situation. Ø At present following is the process being adopted at the PEKB mines & washery right from mining of coal & washery to dispatch to end users: ROM Coal of 55000 Tonne/Day from mine is transported to In-pit conveyor at a distance of 0.8 Km to 3.39 Km (average). ROM Coal is crushed at CHP from 100 mm to size -50 mm. From CHP the crushed coal is transported to coal washery of 62000Tonne/Day capacity through conveyor belt with different ro

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			utes of processing plant which is located at a distance of 01 Km. Washed coal of 42600 Tonne/day is sent to Silo of 4000Tonne/Hour capacity with the help of 02 Nos. of Stacker Reclaimer of 4000 TPH capacity and other belt conveyor. The same quantity of washed coal is loaded in rail wagons for transport to Power plant.

15.4.3: Detail of the court cases:

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
Civil Appeal no(s). 4395 of 2014	Hon'ble Supreme Court of India	Mr. Sudiep filed an appeal before the NGT Delhi, against order dated 28.03.2012 by the Forest Department, Chhattisgarh. Further against the judgment passed by NGT, RVUNL preferred a civil appeal (CA. no. 4395 of 2014) before the Hon'ble Supreme Court of India.	Last listed on 16.10.2023 – Disposed off	On 13.09.2022 both the matters were listed together and upon mentioning of Sudiep Shrivastava the Court issued notice to Ministry of Coal as a party in DK Soni matter. No direction was passed in FC matter.
Writ Petition No. 371 of 2019	Hon'ble Supreme Court of India	Writ Petition related to PEKB raising issues of: (i) Formation of JV for MDO Operation is against coal block de-allocation judgement (ii) washery rejects to private party is causing loss to RVUNL, and in turn, tothe public of Rajasthan (iii) Coal supplied by PEKB coal Block is at very high price than CIL price (iv) EC dated 21st December 2011 is not being complied with.	Last listed on 16.10.2023 – next date of hearing not yet final	The matter is tagged along with the CA No. 4395/2014 and on the last date of hearing i.e. 13.09.2022 Ministry of Coal is made a party for furnishing its response on the issue involved in the Writ Petition.
Appeal No. 185	National Gre	The present appeal is fil	Last listed	List after the decisio

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
of 2018	en Tribunal, New Delhi	ed challenging the Environment Clearance dated 10.08.2018 granted by MOEF for expansion of PEKB from 10 MTPA to 15 MTPA.	on 19.12.2022 – Disposed off	n of the Hon'ble Supreme Court in Civil Appeal No(s). 4395 of 2014. *Adjourned sine die.*
Writ Petition (C) No. 1346/2016	Hon'ble High Court of Chhattisgarh	The present petition is filed to challenge the order dated 08.1.2016 passed by the District Level Forest Rights Committee (DLC) Sarguja, office of Collector (Tribal Welfare) Ambikapur, District Sarguja. Matter is regarding Forest Rights of the Community over the forest land.	Last listed on 02.05.2024 – Next date of hearing not given	Pleadings are complete and the matter is at the stage of final hearing. No next date is fixed in the matter and shall come up for hearing in due course. Post completion of all pleadings, the court of Registrar-1 of Supreme Court has referred this matter to main bench on 23/11/2016 for final arguments. Presently case is pending before supreme courts after some hearings.

15.4.4: Written submissions of proponent:

Written submission made by PP are summarized as below:

S. No.	Raised Points	Reply
1.	Ambient Air Quality Monitoring reports and Continous Air Quality monitoring system data for last 3 months.	The Ambient Air Quality (AAQ) levels of 10 locations ar summarized and Continous air quality reports for last 3 months are submitted.
2.	Latest six-monthly compliance report submitted for EC dated 12.07.2023	Six monthly compliance report for the period October 2023 to March 2024 is submitted.
3.	Origin of the Specific condition xii: "Raw coal washed coal and rejects shall be stored in covered silos or in dome shaped storage facility. Fixed high-type pressure sprinkler shall be installed in this storage yards."	Environment Clearance (EC) of PEKB project was granted for Integrated Mine (ROM) and pit head coal washery for 15 MTPA F. No. J-11015/03/2008-IA-II (M) dated 10.08.2018 and said condition was not mentioned in this EC. After that project proponent applied for expansion for a capacity from 15 MTPA to 21 MTPA pit head coal washery. The EC was granted for 18 MTPA vide F. No. J-11015/03/2008-IA-II (M) dated 12.07.2023. The EIA report submitted for the capacity enhancement did not envisage any provision for covered storage. However, the condition was mentioned in the minutes of the 4

S. No.	Raised Points	Reply
		1st meeting of the Expert Appraisal Committee, held during 1 3 – 14 March 2023, Agenda No. 41.1. The copy of the minutes of the 41st EAC meeting are submitte d.
4.	Mitigation measures for raw coal, washed coal a nd rejects storage area.	In raw coal, washed coal and reject storage areas adequate mo isture will be maintained to ensure that dust is not getting air b orne. Fix type sprinkling will be carried out in the open area to arres t fugitive dust. Further, greenbelt is being maintained around the storage area s.

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

Observations and deliberation of the Committee:

15.4.4: The EAC noted the following:

i. MoEF&CC has accorded EC for Parsa East and Kanta Basan Opencast Mine and Pit Head Coal Washery vide letter dated 21.12.2011 for the capacity of 10 MTPA in an area of 2711.034 Ha. Subsequently, EC dated 10.08.2018 was granted for expansion in capacity of coal washery from 10 MTPA to 15 MTPA with reduction in area to 2682.856 Ha. EC dated 10.08.2018 superseded all earlier granted EC's and its amendments in terms of Condition no. 12 of the said EC.

ii. Later another EC was granted to Integrated project of Parsa East and Kanta Basan Open Cast Coal Mine with expansion in Pit head Coal Washery from 15 MTPA to 18 MTPA in total mine lease area of 2682.856 ha vide letter dated 12.07.2023.

iii. Coal washery with a capacity of 15 MTPA has been implemented and the expansion of coal washery from 15 to 18 MTPA is under implementnation.

iv. Specific Condition no. xii of EC dated 12.07.2023, stipulated that, *"raw coal, washed coal and rejects shall be stored in covered silos or in dome-shaped storage facility. Fixed type high-pressure sprinkler shall be installed in this storage yards."* The PP justified that the construction of a structure like this is technically unrenderable, as the storage area is spread in approx. 31.14 Ha and the height required for the same is 30 meters. PP further justified that this could also lead to potential safety fire hazard aqs coal is a bad conductor of heat and also possess spontaneous heating property, which is not ventilated can lead to occurrence of fire which will lead to a fiery situation.

v. The Committee further deliberated on how storage is being handled right now and PP submitted that at present, the handling of washed coal is done by two nos stackers and reclaimers with a height of boom 30 meters. Regarding transportation of the same the PP submitted that, ROM coal from mine is transported to in-pit conveyor, which is crushed at CHP and then the crushed coal is transported to washery through conveyor belt with different routes. Washed coal is then sent to silo with the help of 2 nos of stackers and reclaimer and other belt conveyor and the same is then loaded in railway wagons for transport to the power plants.

vi. The Committee deliberated on the CCR of the washery and observed that the CTO for 18 MTPA washery is yet to be acquired, hence washery is still operational on 15 MTPA EC.

vii. The Committee deliberated on the air quality data of the concerned mines for the last 3 months and found it satisfactory based on the data submitted by the PP. The Committee observed that air quality monitoring devices were installed which are connected to the CPCB server and live AAQMS data was displayed in front of the Committee. The data exhibited diuring the meeting are found to be within the NAAQS.

viii. The EAC also deliberated on the written submission of the project proponent and found it satisfactory.

Recommendations of the Committee:

15.4.5: After detailed deliberations, the Committee **recommended** the proposal for amendment in EC granted vide file no. J-11015/03/2008-IA-II(M) dated 12.07.2023 as detailed below. Other terms and conditions prescribed in EC dated 12.07.2023 shall remain unchanged.:

Reference in EC letter dated 12.07.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition xii	Raw coal, washed coal and rejects shall be stored in covered silos or in dome-shaped storage facility. Fixed type high-pressure sprinkler shall be installed in this storage yards.	Exemption of EC specific condition no (xii) of Environment Clearance dated 12.07.2023 of Parsa East and Kanta Basan (PEKB) Open cast Coal Mine & Washery.	Agreed With regard to the changes in specific condition xii, Committee is of the opinion to amend specific condition xii as follows: "Raw coal, washed coal and rejects shall be stacked properly at earmarked site within storage yards fitted with wind breakers/shields. Fixed type high-pressure sprinkler shall be installed in this storage yards."

3.3.5. Recommendation of EAC

Recommended

3.3.6. Details of Environment Conditions

3.3.6.1. Specific

	Additional Specific Conditions
1.	Raw coal, washed coal and rejects shall be stacked properly at earmarked site within storage yards fitted with wind breakers/shields. Fixed type high-pressure sprinkler shall be installed in this storage yards.
2.	Other terms and conditions prescribed in EC dated 12.07.2023 shall remain unchanged.

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Amendment in Environment Clearance (EC) of Pakri Barwadih Coal Mining Project, NTPC Mining Limited by **NTPC MINING LIMITED** located at **HAZARIBAGH,JHARKHAND**	
Proposal For	Amendment in EC

Proposal No	File No	Submission Date	Activity (Schedule Item)
IA/JH/CMIN/475123/2024	N/A	03/09/2024	Mining of minerals (1(a))

3.4.2. Project Salient Features

Agenda No. 15.3

15.3: Pakri Barwadih Coal Mining Project (area 3319.42 Ha having capacity 18 MTPA) by M/s NTPC Mining Limited located at Villages: Barkagaon, Itij, Chiruadih, Urub, Chepa, Kalan, Nagri, Jugra, Sinduari, Churchu, Carahara, Sonbarsa, Pakri – Barwadih; District: Hazaribagh; State: Jharkhand – Regarding Amendment in EC

[Online Proposal No. IA/JH/CMIN/475123/2024; File No. J-11015/692/2007-IA-II(M)]

[Consultant: Min Mec Consultancy Private Limited NABET/EIA/2225/IA 0096 valid up to 29.03.2025]

15.3.1: The instant proposal is for amendment in Environment Clearance granted to M/s NTPC Limited vide letter no. J-11015/692/2007-IA-II(M) dated 19.05.2009, later transferred to M/s NTPC Mining Limited vide letter no. J-11015/692/2007-IA-II(M) dated 02.05.2024 for Pakri Barwadih Coal Mining Project (area 3319.42 Ha having capacity 18 MTPA) located at Villages: Barkagaon, Itij, Chiruadih, Urub, Chepa, Kalan, Nagri, Jugra, Sinduari, Churchu, Carahara, Sonbarsa, Pakri – Barwadih; District: Hazaribagh; State: Jharkhand.

Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

S. No.	Details of Letter No.	Details of EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation
1	J-11015/692/2007-IA.II(M)	**Fresh EC**	15	3319.42	19.05.2009	Production of 15 MTPA achieved during the year 2023-2024
2	-do-	**Amendment in EC** [Road transportation granted till 28.06.2018]	15	3319.42	29.06.2016	Implemented
3	-do-	**Amendment in EC** [Specific Condition nos (iii), (vi) & (ix) And General Condition nos (ix) & (xiii)]	15	3319.42	07.12.2017	Being implemented
4	-do-	**Amendment in EC** [Road transportation granted till 28.06.2020]	15	3319.42 Ha	14.08.2018	Implemented
5	-do-	**Amendment in EC** [Road transport granted till 28.06.2022 an	15 MTPA	3319.42 Ha	10.11.2020	Road transport granted till 28.06.2022 and a

S. No.	Details of Letter No.	Details of EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation
		d auto extended to 28.06.2023 in line with Covid notification of MOEF&CC]				uto extended to 28.06.2023 in line with Covid notification of MOEF&CC - Implemented
6	-do-	**Amendment in EC** [Road transport granted till 31.10.2023]	15 MTPA	3319.42 Ha	16.08.2023	Implemented
7	-do-	**Amendment in EC** [Road transport granted till 31.01.2024]	15 MTPA	3319.42 Ha	09.11.2023	Implemented
8	-do-	**Amendment in EC** [Road transport granted till 31.07.2024]	15 MTPA	3319.42 Ha	15.01.2024	Implemented
9	-do-	**PRC Enhancement (1st phase 20%) as per MoEF&CC guidelines dated 11/04/2022**	18 MTPA	3319.42 Ha	06.03.2024	Being implemented
10	-do-	**Transfer of EC** [Transfer from NTPC Ltd to NTPC Mining Ltd]	18 MTPA	3319.42 Ha	02.05.2024	Transfer from NTPC Ltd to NTPC Mining Ltd
11	-do-	**Amendment in EC** [Road transport granted till 31.10.2024]	18 MTPA	3319.42 Ha	16.07.2024	Being Implemented

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.3.2: The PP has made an online application vide proposal no. IA/JH/CMIN/475123/2024 dated 28.08.2024 for amendment in EC Specific Condition no. 2A(ix) accorded vide letter no. J-11015/692/2007-IA-II(M) dated 19.05.2009, seeking further amendment for extension of timeline regarding transportation of coal by road using State Highway/ Service Road till 31.12.2024 and after that 13 MTPA by belt conveyor and 5 MTPA by State Highway/ Service Road till 31.03.2026.

PP submitted the following details for the amendment sought along with the justification:

<table>
<tr><th>Specific/ General Condition No.</th><th>Details of Conditions as per EC</th><th>Amendment Sought</th><th>Justification</th></tr>
<tr><td>Specific Condition No.- 2A (ix)</td><td>The PP needs to complete the construction of closed belt conveyor system of a length of 13 km to Banadag railway station. The pp is permitted till 31.10.2024 to use Service road/State Highways for transportation of coal to Banadag railway siding.</td><td>The PP is permitted to use Service Road/ State Highways for transportation of 18 MTPA of coal to Banadag railway siding till 31.12.2024 and after that 13 MTPA by Belt conveyor and 5 MTPA by Service Road/State Highways till 31.03.2026 adopting all mitigative measure to control dust pollution.</td><td>Silo Rapid Loading System is still under construction and was getting delayed due to various land acquisition and local law and order issues. The delay in construction was mainly due to the unavailability of land. It is pertinent to submit that due to the continuous agitations of locals for fulfilment of demands beyond the acquisition policy etc., NTPC had to repeatedly write to the Deputy Commissioner, Hazaribagh, Jharkhand requesting for deployment of police personnel for taking possession of the notified land (for which the payment was already disbursed/ compensation was already deposited). Due to such protest and agitations, the required extent of land could be taken in possession only on 28.04.2023. After 28.04.2023, construction of Silo Rapid Loading System is in full swing and complete conveyor belt system is expected to be completed by 31.12.2024.
Hon’ble Supreme Court has extended the timeline for completion of belt conveyor system till 31.12.2024 vide its order dated 29.01.2024 in the matter of Misc. Appeal No. 1824 of 2023 in Civil Appeal No. 6249 of 2021 (NTPC Ltd v. Tripurari Singh and Others).
Presently, Pakri Barwadih Coal Mining Project (PBCMP) dispatches coal from mine at Pakri Barwadih to railway siding at Banadag in following modes/ways:
Part I:
From mine pit to crusher installed at mine pithead by mine trucks for the entire quantity proposed throughout the mine life.
Part II:
For connecting TP 10 to siding by conveyor, Silo Rapid Loading System is still under construction and likely to be complete by 31.12.2024. The completion status of the RLS work, as on 31.08.2024, is as follows:
<table>
<tr><td>Sl. No.</td><td>Description</td><td>Completion %</td></tr>
<tr><td>i</td><td>Civil works</td><td>99.39</td></tr>
<tr><td>ii</td><td>Structural Supply</td><td>100</td></tr>
<tr><td>iii</td><td>Electrical and Mechanical Supply</td><td>100</td></tr>
<tr><td>iv</td><td>Structural Erection</td><td>87</td></tr>
<tr><td colspan="3">The Expected Completion Schedule is as follows:</td></tr>
<tr><td>i</td><td>Civil works</td><td>30.09.2024</td></tr>
<tr><td>ii</td><td>Structural work</td><td>10.10.2024</td></tr>
<tr><td>iii</td><td>Mechanical works</td><td>20.10.2024</td></tr>
</table>
</td></tr>
</table>

Specific/ General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			iv | Electrical works | 31.10.2024 v | Final Commissioning | 31.12.2024 As submitted, the initial EC accorded in 2009 was for 15 MTPA of Peak rated capacity (PRC), accordingly, Coal Handling Plant (CHP) & Rapid Loading Systems (RLS) of PBCMP was designed to transport coal up to 15 MTPA. Subsequent upon the revision of PRC, vide File no. J-11015/692/2007-IA-II(M) dated 16.07.2024, EC was granted to transport coal up to 18 MMT per annum till 31.10.2024. Due to design capability of present CHP & RLS System, which is of 15 MTPA, balance 3 MTPA shall be required to be transported through road after 31.12.2024, till the completion of capacity enhancement of existing coal conveying system, which may require approximately 24-month time. It is also pertinent to mention that, from commissioning till the achievement of its peak rated capacity, the present RLS system will approximately require three to four months of stabilisation period after 31.12.2024. Assuming the comprehensive coal conveying system operates at 90% of its rated capacity after the stabilisation period, there may be additional requirement of 2 MTPA required to be transported through road. Therefore, after 31.12.2024, approx. 5 MTPA out of 18 MTPA shall be required to be transported through road.

15.3.3: Certified Compliance Report and Action Taken thereof: The PP submitted that CCR from Regional office (RO), Ranchi was received on 19.06.2024 vide letter no. 103-425/376 and PP submitted ATR on the same on 26.08.2024.

With respect to the Condition for which amendment is sought, RO has given its observations and has mentioned that, *"during inspection on 30.05.2024 it was observed that coal transportation is still being done by road from Pakri Barwadih coal mine project to Banadag railway siding. It is observed that rapid loading system of the conveyor system is under construction near Banadag railway siding. PP informed that now full efforts are being made to complete the same before 31.12.2024."*

15.3.4: Detail of the court cases:

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
WP (C) 5732/2016	HC of Jharkhand	Writ Petition filed by Bhartiya Suraj Dal against State of Jharkhand and others regarding pollution and diversion of	Next hearing scheduled on 20.09.2024.	

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
		forest land without obtaining the consent of Gram Sabhas under the FRA Act 2006.		
WP (C) 4036/2021	HC of Jharkhand	Writ Petition has been filed by NTPC against the State of Jharkhand and others against demand of transit fee on 100% coal production under Jharkhand Forest Produce Transit (Regulation of Transport) Rules 2020 issued by State of Jharkhand.	Listed for hearing in first week of February 2024. No date showing for now. Next date is not given.	
WP (C) 1759/2023	HC of Jharkhand	Writ Petition filed by NTPC against the State of Jharkhand and others to stay the operation, implementation and execution of the letter No. 43, dated 03.01.2023 of Divisional Forest Officer (West), Hazaribagh by which the State of Jharkhand has demanded the payment of Transit Fee for the second time on the same load by stating that NTPC is liable to generate the challan for the second time when there is a change of mode of transportation.	Next hearing date is not given	Hon'ble court vide order dated 06.09.2024 directed NTPC not to be charged twice for the same forest produce on the change of mode of transportation for transportation of any forest produce as transit fee. Hon'ble Court has stayed the order till next date of hearing held on 21/02/24.
WP (C) 3256/2023	HC of Jharkhand	Writ Petition filed by NTPC against the State of J		The Hon'ble High Court granted stay on the letter vide ord

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
		harkhand and others regarding quashing the letter No. 3426, dated 23.06.2023 of Divisional Forest Officer (West), Hazaribagh by which Forest Dept. has denied Coal Transportation by Road.		er dated 30.06.2024.
WP (C) 3614/2023	HC of Jharkhand	PIL filled by Shri Mantu Soni against State of Jharkhand and Others regarding FC granted to Pakri Barwadih Coal Mining Project on forged document (Consent letter of Van Prabandhan Samittee).	Next hearing is scheduled on 20.09.2024	Ø CA filled by NTPC on 18.06.2024. Ø Rejoinder filled by applicant on 27.06.2024. Ø Supplementary Counter Affidavit filed by NTPC on 07.08.2024. Ø Reply of affidavit filed by applicant on 20.08.2024.
OA no 63/2023/EZ (158/2023/PB)	NGT, Kolkata	Filed by Shri Anup Kumar against State of Jharkhand and Others regarding illegal mining in Pakri Barwadih Coal Mining Project. Vide order dated 11.08.2023, NTPC and its MDO(TSMPL) has been made party by the Hon'ble court.	Next hearing is scheduled on 12.11.2024.	Ø Due to similar nature hearings are being held with Appeal No 20/2023 Ø Last hearing conducted on 22.08.2024. Case o be further heard on 12.11.2024.
Appeal No 20/2023	NGT, Kolkata	Appeal filed by NTPC against State of Jharkhand & Others to stay on DFO's demand letter for payment of Penal NPV with interest i	Next hearing is scheduled on 12.11.2024.	Ø 1st hearing done on 01.08.2023. Hon'ble NGT stayed on DFO's Demand letter. Ø Last hearing conducted on 22.0

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
		n line with MOEF&CC amendment letter dated 25.05.2023 for amendment of condition no-8 of FC.		8.2024, stay continued till further order.
W.P.(PIL) 4358/ 2024	HC of Jharkhand	PIL filed by Shri Ravikant Singh Vs Union of India and others regarding Mining beyond lease and regarding FC granted to Pakri Barwadih Coal Mining Project on forged document (Consent letter of Van Prabandhan Samittee).	Next hearing scheduled on 20.09. 2024	Ø First Hearing held on 28.08.2024. Ø CA filed by NTPC on 02.09.2024.

15.3.4 Traffic assessment study

Traffic study report had been carried for assessment of impacts due to transportation of coal by road from Pakri Barwadih coal mining project to Banadag railway siding. The traffic study has conducted traffic and road surveys for assessment of carrying capacity on route, monitoring of air quality and noise levels along the route, air quality modelling for impact assessment of incremental ground level concentration of air pollutants, data collection regarding flora and opinion survey along the road and identification of villages, forests within 100 m along the route. Based on the existing traffic volume monitored, existing width of roads, traffic projections upto December 2024 and additional trucks from Pakri Barwadih coal mine, the carrying capacity has been calculated for December 2024. The resultant future traffic load will vary between 8.4% to 63.8% of the maximum capacity of the road. To minimise air pollution at the mine and railway sidings, the PP has installed Wind breaker (20' high, 2 km length) along with 10 nos. fixed water sprinklers at Banadag Railway Siding. A mobile water sprinkler has been deployed for the roads. Currently all the trucks / tippers involved in transportation of coal are covered with tarpaulin & stamped. Only Trucks/Tippers with valid PUC certification & fitness certificate and using unadulterated diesel are allowed to ply. Safety measures include installation of speed bumps near settlements, awareness to drivers and local people, deployment of traffic marshals from villages and following a "no horn, low speed" protocol while passing through inhabited stretches and 24 x 7 Ambulance & Crane facility.

3.4.3. Deliberations by the committee in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

Observations and deliberation of the Committee:
15.3.5: The EAC noted the following:
Recommendations of the Committee:
15.3.6: After deliberations, the Committee **recommended** the proposal for amendment in EC granted

vide file no. J-11015/692/2007-IA.II(M) dated 19.05.2009, as detailed below subject to stipulation of following additional specific conditions. Other terms and conditions prescribed in EC dated 19.05.2009 and its subsequent amendment shall remain unchanged.:

Reference in EC letter dated 19.05.2009	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition No.- 2A (ix)	The PP needs to complete the construction of closed belt conveyor system of a length of 13 km to Banadag railway station. The PP is permitted till 31.10.2024 to use Service road/State Highways for transportation of coal to Banadag railway siding.	The PP is permitted to use Service Road/ State Highways for transportation of 18 MTPA of coal to Banadag railway siding till 31.12.2024 and after that 13 MTPA by Belt conveyor and 5 MTPA by Service Road/State Highways till 31.03.2026 adopting all mitigative measure to control dust pollution.	With regard to the changes in specific condition 2A(ix), Committee is of the opinion to amend specific condition 2A(ix) as follows: "*The PP is permitted to use Service Road/ State Highway for transportation of 15 MTPA of Coal to Banadag railway siding till 31.12.2024 adopting all the mitigative measure to control dust pollution.*"

In addition to the above, the EAC also recommended for a site visit by the sub-committee for on spot assessment of various environmental conditions.

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Environment Conditions

3.4.6.1. Specific

	Additional Specific Conditions
1.	A time bound action plan for transportation of additional 3 MTPA coal as part of expansion of EC dated 06.03.2024 from the Coal Handling Plant (CHP) shall be submitted by 31.10.2024.
2.	Project proponent shall submit a fresh certified compliance report from the concerned Regional Office of the Ministry regarding the compliance of all the stipulated conditions in the exisiting ECs and its subsequent amendments to the Ministry by 31.10.2024.
3.	Audit report of ICFRE regarding the assessment of efficacy of plantations done by the PP shall be submitted by 31.10.2024.
4.	Ambient Air Quality (AAQ) and Noise quality data along the entire coal transportation route shall be monitored and the data shall be submitted along with the six monthly compliance to the concerned Regional Office and also kept on the web portal of the company.
5.	All the recommendations made in the Traffic Assessment Study Report regarding coal transportation by road shall be strictly adhered with. PP shall install CAAQMS in the villages nearby the coal transportation road in

	consultation with the JSPCB. Compliance in this regard shall be submitted along with the six monthly compliance to the concerned Regional Office and also kept on the web portal of the company.
6.	Additional air pollution control measures should be taken along roads being used for transport of coal including e-/CNG/PNG vehicles.
7.	*The PP is permitted to use Service Road/ State Highway for transportation of 15 MTPA of Coal to Banadag railway siding till 31.12.2024 adopting all the mitigative measure to control dust pollution.*
8.	Other terms and conditions prescribed in EC dated 19.05.2009 and its subsequent amendment shall remain unchanged.

Day 2 -19/09/2024

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Proposed Pathora West Coal Block (Sohagpur Coalfield) has an area of 640.520 ha and Project area 554.0843 ha and targeted Production capacity of 0.80 MTPA (Peak-rated capacity of 1.2 MTPA) located in the Villages of Gh unGhuti, Githauri, and PatnarKalan, Tehsil Pali, District Umaria, and State Madhya Pradesh by M/s. Shri Bajr ang Power and Ispat Limited. by **SHRI BAJRANG POWER AND ISPAT LIMITED** located at **UMARIA,MADH YA PRADESH**

Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MP/CMIN/492431/2024	IA-J-11015/63/2024-IA-II(M)	04/09/2024	Mining of minerals (1(a))

3.1.2. Project Salient Features

Agenda No 15.7

15.7: Pathora West Coal Block (Sohagpur Coalfield) (area 554.0843 Ha having capacity 0.8 MTPA) by M/s Shri Bajrang Power and Ispat Limited located at Villages: Gitori, Ghunghuti, Patnarkala; District: Umaria; State: Madhya Pradesh – Prescribing of Terms of Reference – reg.

[Proposal No. IA/MP/CMIN/492431/2024; File No. IA-J-11015/63/2024-IA.II(M); Consultant: Ecomen Mining Pvt. Ltd. Lucknow; NABET/EIA/2022-25/SA 0219, Valid till 22.03.2025 as on 04.09.2024]

15.7.1: M/s. Shri Bajrang Power and Ispat Limited has made an online application for ToR vide proposal no. IA/MP/CMIN/492431/2024 dated 04.09.2024 along with the application in prescribed format Form-I (CAF, Part A and Part B), copy of pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at item no 1(a) Under Category "A" (> 500 Ha) of the schedule of the EIA Notification, 2006 and appraised at the Central Level.

Details of the proposal, as ascertained from the proposal documents and as revealed from the discussion held during the meeting, are given as under:

15.7.2: The Proposed Pathora West Coal Block (Sohagpur Coalfield)' with an area of 640.520 Ha and Project area 554.0843 Ha and targeted Production capacity of 0.80 MTPA (Peak-rated capacity of 1.2 MTPA) by M/s Shri Bajrang Power and Ispat Limited is located in the Villages of GhunGhuti, Githauri,

and PatnarKalan, Tehsil Pali, District Umaria, and State Madhya Pradesh.

15.7.3: Environmental site settings:

The project area is covered under Survey of India Topo sheet No. F44D3 (64E3). and is bounded by the geographical coordinates with Latitude 23° 21' 0.3940" N to 23° 22' 10.1617" N and Longitude 81° 10' 22.3570" E to 81° 12' 24.7285" E. Project does not fall in the Critically Polluted Area (CPA)/Severely Polluted Area (SPA) as per CEPI Assessment, 2018.

Forest Area: The project involved total 140.8988 Ha of forest land. The details of the approval already obtained are as follows:

S. No.	Nature of Land involved	Area in Ha	Status of FC/remarks
i.	Non-Forest Land (A)	404.3965	-
ii.	Forest Land (B)	140.8988	Stage I FC applied for 149.6878 Ha area vide proposal no. FP/MP/MIN/QRY/464461/2024 dated 02.03.2024
iii.	Revenue Forest (C)	8.789	--
	Total Land (A+B+C)	**554.0843**	

Protected Area: PP submitted that the project is not located within 10 KM of any ESZ/ ESA national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. In case any schedule-I species observed, conservation plan will be prepared for approval from PCCF/CWLW.

15.7.4: Mine lease: The mining block of Pathora West Coal Block, which lies in Sohagpur Coalfield and covers a mining leasehold area of about 554.0843 ha in Umaria District of Madhya Pradesh, has been allocated to M/s Shri Bajrang Power and Ispat Limited via Letter No. NA-104/29/2023-NA dated December 14, 2023, by the MoC, GoI. The original block area allotted to the company was 640.52 ha, but after scrutiny of mining plan by CCO, New Delhi, the project area reduced to 554.0843 Ha. Details of the mine lease submitted by the PP are as follows:

S. No	Govt. Order/Notifications as the case may be	Area(ha)
1.	Coal Block Area	640.520
2.	Project Area	554.0843
3.	Mining Lease Area	554.0843

15.7.5: Mining Plan: PP submitted that Mining Plan along with mine closure plan for Pathora West Coal Block (Sohagpur Coalfield) Project was approved by Ministry of Coal for the capacity 0.80 MTPA (Peak Rated Capacity 1.20 MTPA), area 554.0843 Ha area vide letter dated 28.08.2024.

a. Present land-use and occupancy of pathora west underground coal block

Sl.No	Description	Area in Ha
	Private Land	

1	Agriculture (including residential houses)	360.5065
	Township	0.1210
2	**Government-non-Forest land**	
	Agriculture	5.0650
	Road	7.3592
	River/nala	14.5700
	Water Bodies	4.8040
	Grazing	8.7288
	Community/others	3.2420
3	**Forest Land**	
	Revenue forest	8.7890
	Reserve forest	140.8988
	Total	**554.0843**

b. Pre-mining Land Use

Sr. no.	**Namer of the villages & Forest range**	**Private Land (in Ha)**	**Govt. Land (in Ha)**	**Forest Land (in Ha)**	**Total area (in Ha)**
1.	Githouri	58.368	6.119	-	64.487
2.	Ghunghuti	287.4865	34.669	-	322.1555
3.	Patnarkala	25.655	0.888	-	26.543
4.	Forest Range Ghunghuti	-	-	140.8988	140.8988
	Total				**554.0843**

c. Post Mining

Sr. No	**Description**	**Area in Ha**

1	UG Entry	0.600
2	Top Soil Dump	0.8750
3	Diversion Or Below River or Nala or Canal	19.374
4	Settling pond	0.2815
5	Safety Zone	3.4305
6	Infrastructure area	19.500
7	Green Belt	6.0409
8	Undisturbed Area	503.9824
	Total	**554.0843**

	Proposed change in transportation means if any, give details	A two-lane road of about 104 meters i n length will be constructed to connect NH 78 to the infrastructure area propo sed near the incline mouth for transpor tation of coal. An area of 1.11 ha is pro posed for the staking of coal near the i ncline mouth.

15.7.6: Baseline Studies: Baseline data generated from **1st March to 31st May 2024**. PP reported that the Laboratory involved in analysis of water, air, noise & soil quality data, etc. has been accredited by the NABL/ MoEF&CC bearing the Certificate of Accreditation with conformance of ISO 17025:2005 vide no. TC-7470 valid up to 03.10.2026.

15.7.7: Water requirement: PP submitted the estimated water requirement is 773 KLD. Industrial water requirements will be met from existing reservoirs, groundwater, and mine water sources. Potable water requirements will be met from groundwater sources with appropriate treatment.

S. No.	Purpose	Water Requirement (KL D)	Source
1	Mines operation (Machineries)	550	Underground Water
2	Dust Suppression (Surface)	70	
3	Plantation	81	
4	Vehicles Washings & Workshop s	20	

5	Domestic Purpose including surrounding villages	52	Borewell
Total		**773**	

15.7.8: Solid and hazardous Waste generation: The details of solid and hazardous waste generation along with its mode of treatment/disposal submitted by the PP is furnished as below:

Sl No	Type of Waste	Source	Quantity (TPA)	Mode of Treatment	Disposal	Remarks
1	Rejection/ overburden	During Mining incline drivages and shaft sinking in the sub-soil and in hard rocks and also from drivages of cross-cuts in hard rock	804104.8569 cum	The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation of bank heads, filling of low-lying areas, development of the land/road for infrastructure, and development of greenery.	The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation of bank heads, filling of low-lying areas, development of the land/road for infrastructure, and development of greenery.	The liquid waste, like used engine oil, gear oil, brake oils, and other lubricants, will be stored in separate tins, drums, and cans and sent to the main stores for disposal by to the authorized recyclers.

15.7.9: R&R Plan: Being Underground Mine, R & R not applicable.

15.7.10: Project Cost: PP submitted the estimated project cost to be Rs. 613.73 Crores. EMP cost shall be Rs. 30.0 Crores and recurring cost shall be Rs. 5.1 Crores.

15.7.11: Geenbelt: The mine area of the project is 554.0843 ha, out of which plantation will be done in a phased manner in an area of 6.0409 ha.

15.7.11: Benefit of the project: Proposed project will provide employment opportunities in the region & local infrastructure including ancillary development and supporting other infrastructure by Project CSR & CER Activity by Shri Bajrang Power and Ispat Limited in the local region.

15.7.12: Legal Issues/ Violation: PP submitted that there is no legal issue/violation w.r.t Environment (Protection) Act, Air (P&CP) Act, Water (P&CP), Act, Van (Sanrakshan Evam Samvardhan) Adhiniyam, Wildlife Protection Act, MMDR Act, and Factories Act. Further, there is no court case against the proposed project.

3.1.3. Deliberations by the committee in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

Observations and deliberations of the EAC

15.7.13: The Committee noted the following:

Recommendations of the Committee

15.7.14: EAC after detailed deliberations, under the provision of EIA Notification 2006 and as amended, **recommended** the proposal for grant of Terms of Reference (ToR), as applicable to the project, with Public Consultation and following Specific ToR to M/s **Shri Bajrang Power and Ispat Limited** in addition to generic ToR given at Annexure –II for underground mines for preparation of EIA/EMP report for Pathora West Coal Block (Sohagpur Coalfield) (area 554.0843 Ha having capacity 0.8 MTPA) by M/s Shri Bajrang Power and Ispat Limited located at Villages: Gitori, Ghunghuti, Patnarkala; District: Umaria; State: Madhya Pradesh.

3.1.5. Recommendation of EAC

Recommended

3.1.6. Details of Terms of Reference

3.1.6.1. Specific

Specific Conditions	
1.	Project proponent shall prepare disaster management plan considering the risk involved in the proposed underground mining.
2.	Project proponent has to prepare the EIA-EMP report based on the valid baseline data and thereafter conduct the Public Consultation (including public hearing), through concerned SPCB in the concerned Districts as per the provisions/procedure contained in the EIA Notification, 2006 (as amended)and OM issued by the MoEF&CC in this regard.
3.	Project Proponent shall submit the detailed activities proposed with year-wise budgetary provisions (Capital and recurring) as per the Ministry's OM dated 30.09.2020, to address the concerns raised during the Public consultation including the public hearing. Activities proposed shall be part of the EMP.
4.	Project proponent shall submit the EIA/EMP report after the plagiarism check using authenticated plagiarism software.
5.	Project proponent has to Plot the wind rose diagram using the typical meteorological year (TMY) data for the period considered for the study. The monitoring units shall be deployed in the field based on the coverage area ratio and direction of the wind. A mathematical model shall be developed for the local site rather than using the standard model available in software for both air & water quality modelling.
6.	Impact of underground mining on the environment including underground mine air quality needs to be done by a reputed Government institute. The action plan on recommendation of study with budgetary provision needs to be submitted.
7.	PP has to submit two (02) alternate locations of mine incline and present the environmental details of such sites at time of EC appraisal.
8.	Mine seepage will be monitored and seepage water control measures/management plan shall be developed to ensure the safety of the workers during the underground mining.
9.	Assess the temporal and spatial data for 10 years for surrounding area to show and identify the changes in land use/land cover.

10.	As the project involves groundwater intersection a Hydrological study shall be carried out by reputed Government Institute. Further, PP shall comply with the Ministry's OM dated 23.05.2019 and provide necessary details/studies in the EIA/EMP Report.
11.	Project proponent shall submit the drone video & photographs of mined area, fresh lease area to be mined and existing and proposed transportation route. The height and speed of the drone shall be so maintained to give legible images/videos. Necessary titles should be included for better understanding.
12.	Project proponent should submit the detailed plan in tabular format (year-wise for life of mine) for concurrent afforestation and green belt development in three tiers by using the native species in and around the mining lease. The PP should submit the number of saplings to be planted, area to be covered under afforestation & green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this PP should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Plantation plan should be prepared in such a way that 80% of the plantation to be carried out in first 5 years and for the remaining years the proposal for gap filling. The seedling of height not less than 2 meters to be selected and accordingly cost of plantation needs to be decided.
13.	Project proponent should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle need to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.
14.	Pond rejuvenation plan and plan for water recharge within and outside ML/surrounding area needs to be prepared. The capital and recurring expenditure to be incurred needs to be submitted.
15.	PP has to avoid the use of forest land towards North-east (NE) and South-west (SW) part of the mining lease (ML) area.
16.	Project proponent should clearly bring out the details of the manpower to be engaged for this project with their roles /responsibilities/designations. In addition to this PP should mention the number and designation of person to be engaged under Environment Management Cell for implementation of environmental management plan (EMP). The capital and recurring expenditure to be incurred needs to be submitted.
17.	Project proponent should clearly bring out that what is the specific diesel consumption ~ (Litres/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. The year-wise target for reduction in the specific diesel consumption needs to be submitted. PP shall also explore the possibility and submit strategy of using e-vehicles/cleaner fuel (LNG/CNG) based mining machinery and trucks for mining operations and transportation of men and material and submit a time bound action plan.
18.	Project proponent should clearly show the transport route of the mineral and protection and mitigative measures to be adopted while transporting of the mineral. The impact from the centre line of the road/conveyor on either side should be brought out clearly. Based on the above study the compensation to be paid in the event of damage to the crop and land on either side of the road/conveyor needs to be mentioned.
19.	All the certificates viz. Involvement of Forest land, distance from the protected area, and list of flora & fauna should be duly authenticated by the Forest Department. The Certificate should bear the name, designation, official seal of the person signing the certificate and dispatch number.
20.	Analyse terrestrial/aquatic biodiversity and wildlife studies of the surrounding area and prepare wildlife management plan for the surrounding area. PP has to submit a Certificate from concerned DFO about existence of wildlife corridor adjacent to project site with adequate management plan.
2	A detailed Wild Life Conservation/Management plan for Schedule 1 species shall be prepared for the conservation

1.	of the species. PP shall ensure that a conservation plan shall be prepared and approved by the CWLW. PP shall obtain the authenticated list of schedule-1 species from the concerned department.
22.	Project proponent shall submit the action plan to adhere to the Plastic Waste Management Rules 2016 and to adhere Ministry's OM dated 18/07/2022.
23.	Project proponent shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of the Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs.
24.	It should be ensured that only NABET-accredited consultants shall be engaged for the preparation of EIA/EMP Reports. PP shall ensure that the accreditation of the consultant is valid during the collection of baseline data, preparation of EIA/EMP report and the appraisal process. The PP and consultant should submit an undertaking the information and data provided in the EIA Report and submitted to the Ministry are factually correct and the PP and consultant are fully accountable for the same.
25.	Project proponent shall submit the photographs 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 analyse the samples.
26.	A Social Impact Assessment Study shall also be carried out and an action plan on its recommendations may also be submitted with budgetary provisions.
27.	Details of solar power facility proposed to be installed as energy conservation measures shall be submitted.
28.	Project proponent shall align its activities to one/few of the Sustainable Development Goals (SDG) and start working on the mission of net zero emission by 2050. PP shall update the same to the EAC.
29.	Project proponent should provide in the EIA Report details of the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after the grant of EC.
30.	Project proponent shall submit the applications for obtaining NOC for the diversion of Road/River/Nallah/Electric lines, if any, passing through the block area to the concerned authority and details shall be provided in EIA Report. No diversion of River/nalah permitted at this stage.
31.	Project proponent shall also submit an action plan pursuant to MoEF&CC OM dated 29.10.2014.
32.	Project proponent shall provide the details of wastewater treatment facilities to be installed within its capacity, timeline and budget. The EIA report should also include details of STP/ETP to be provided for treatment of domestic and industrial waste water.
33.	Heavy metals including other parameters in surface water quality shall be analysed and provided in EIA Report.
34.	Project proponent shall assess the environmental impact on schools present inside/surrounding areas and explore possibility for their maximum protection or relocation. A mitigation measures shall be adopted against pollutions around the schools within the lease area in order to safeguard the interest and health of the students. A plan in this regard needs to be submitted.
35.	Project proponent shall provide the action plan for the safety of the local people and their cattle from the mining activities by providing fencing and natural wind barrier between the mine infrastructure and settlements etc. shall be a part of such action plan. PP shall ensure to provide right of way to local people and EMP should have provision for the same.

36.	Project proponent shall submit time bound action plan to reduce the post-mining void and submit the rejuvenation plan for the ponds within/surrounding the lease area so that it can be used by local people.
37.	Project proponent shall submit a plan to reduce the overburden (OB) generated during underground mining of coal and its deposition outside mining lease (ML) area.
38.	Project proponent shall provide the details of the bore wells in the mine lease area and compensation to be paid in case bore wells fails in future due to mining activities.
39.	Project proponent shall provide the details of the facilities to be provided to mine workers.
40.	Project proponent shall submit a plan for skill development of the Project affected family (PAF) and nearby community so that they are capable enough to get employment/self-employed.
41.	Project proponent shall explore use of porta- magazine for explosives, if any.
42.	Project proponent is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5thJune 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report.

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

CHATTI BARIATU COAL MINING PROJECT by **NTPC MINING LIMITED** located at **HAZARIBAGH,JHARKHAND**			
Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/JH/CMIN/493289/2024	J-11015/133/2007-IA.II(M)	05/09/2024	Mining of minerals (1(a))

3.2.2. Project Salient Features

Agenda No. 15.5

15.5: Chatti Bariatu Coal Mining Project (area 646.23 Ha having capacity 7 MTPA) by M/s NTPC Mining Limited located at Villages: Chatti Bariatu, Pagar, Jordag; District: Hazaribagh; State: Jharkhand – Regarding Amendment in EC

[Online Proposal No. IA/JH/CMIN/493289/2024; File No. J-11015/133/2007-IA.II(M)]

[Consultant: Min Mec Consultancy Private Limited NABET/EIA/2225/IA 0096 valid up to 29.03.2025]

15.5.1: The instant proposal is for amendment in Environment Clearance granted to M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M), dated 19.04.2010 for Chatti Bariatu Coal Mining Project (area 646.23 Ha having capacity 7 MTPA) and later re-validated vide letter no. J-11015/133/2007-IA.II(M) dated 03.03.2016. Amendments in this EC were accorded vide letter no. J-11015/133/2007-IA.II(M) dated 01.12.2020 & 05.01.2024. Later, this EC was transferred to NTPC Mining Limited vide letter dated 08.03.2024.

Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

S. No.	Details of Letter No.	EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (MTPA)	Date of issuance	Status of implementation
1	J-11015/133/2007-IA.II(M)	EC	7 MTPA	646.23 Ha	19.04.2010	Being Implemented
2	-do-	Revalidation of EC (due to re-allotment of coal block in 2015)	7 MTPA	646.23 Ha	03.03.2016	Being Implemented
3	-do-	Amendment in EC (Road transport permission granted till 30.11.2023)	7 MTPA	646.23 Ha	01.12.2020	Implemented
4	-do-	Amendment in EC (Road transport permission granted till 31.10.2024 by allowing the construction of closed conveyor till 31.10.2024 and siding by 31.03.2026)	7 MTPA	646.23 Ha	05.01.2024	Implemented
5	-do-	Transfer in EC (Transfer of EC from NTPC Ltd. to NTPC Mining Limited)	7 MTPA	646.23 Ha	08.03.2024	Transfer of EC from NTPC Ltd. NTPC Mining Limited.

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.5.2: Production Details: PP submitted the actual production details of the concerned mine and submitted that the mine became operational from 25.04.2022 onwards.

Year	Actual Coal Production in MTPA	Planned Coal production in MTPA as per Environmental Clearance	Excess Production
2022-23	0.57	7	NIL
2023-24	3.3	7	NIL
2024-25 (till 31.08.2024)	1.65	7	NIL

CTO renewal has been obtained from the JSPCB and is valid up to 30.06.2027.

15.5.3: The PP has made an online application vide proposal no. IA/JH/CMIN/493289/2024 dated

04.09.2024 for amendment in EC Specific Condition no. 2A (ix) & (xi) accorded vide letter no. J-11015/133/2007-IA.II(M) dated 19.04.2010, seeking further amendment for extension of timeline to allow transportation of coal by road through covered tippers/ dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori Sidings for supply of coal to Barh STPP and to transport the coal by road to NKSTPP till 31.03.2027. In addition to this, another amendment sought by the PP is to allow the establishment of railway siding by March 2027.

PP submitted the following details for the amendment sought along with the justification:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition No.- 2A (ix) & (xi)	2A (ix): "Raw coal from CHP shall be transported by closed conveyors to the railway siding and from there to linked Barh STPS by rail. There shall be no road transportation of coal". 2A (xi): "Company's Railway siding shall be established within 3 years from date of grant of environmental clearance"	(a) Change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori Sidings (over a distance of 26 km, 38 km, 95 km, 81 km, 92 km & 96 km, respectively) for supply of coal to Barh STPP and to transport of coal by road to NKSTPP (over a distance of 24 km) till 31.03.2027.	**Delay in construction of Conveyor system** Pre-requisite to start the construction of CHP is the availability of encumbrance free land that is not available for the entire stretch of coal evacuation corridor of CB&KD. For construction of CHP, NTPC had awarded the contract to M/s L&T on 27.09.2019 immediately after obtaining the St-II forest clearance on 28.08.2019; However, approval of forest land transfer accorded by Govt of Jharkhand only on 23.12.2021. Subsequently Tree cutting permission was received on 08.03.2022. The schedule for construction of CHP is 24 months from the date of front handover. Land Acquisition and R&R issues along the CHP corridor at times have stalled the construction work. Construction work was delayed due to Covid-19 and law & order issue in the area and at times works was stalled by local villagers and even the contractor persons were manhandled. Unfortunately, one executive of a construction agency was shot dead on 19.02.2021 by miscreants. Communication to the Nominated Authority regarding the incident had been provided. In the EC amendments dated 05.01.2024 and 05.02.2024 for CB & KD CMP, respectively the time for conveyor construction was granted till 31.10.2024. However, due to difference in the rate of land compensation provided by State Govt to landowners of different villages, physical possession of land could not be completed. The conveyor falls in both Hazaribagh and Chatra District. The land compensation rate paid by Chatra District Administration is less than that paid by the Hazaribagh District Administration. Hence, the landowners in Chatra District demanded at par payment with Hazaribagh and did not allow the work to start. This matter was discussed many times at District Administration and State Govt and also flagged at PM

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			G portal. It was deliberated that it is not prudent to make different payments for the same project activity which may result in IR problems. Hence, it was decided to accommodate complete conveyor system in Hazaribagh District. Subsequently, re-engineering of the conveyor system has been done with the help of agency to accommodate conveyor system within the Hazaribagh District which further delayed the progress. At present, approx. **73%** of conveyor work is completed and the balance work is expected to be completed by Dec' 2025. In addition to the above, law and order situation in the area is hostile and the following incidents have impacted the construction of the conveyor system: Firing of gunshots at NTPC and MDO officials by unidentified persons Threatening calls to Head of the Project by extremist groups Life threats to workmen engaged in construction activities by local villagers Organization of Mahjutaan/Mahapanchayat by the local politicians by halting the project activities Setting ablaze the machineries by unknown persons etc. Moreover, the tenure of General Lok Sabha Elections (2024) has resulted in lack of workforce and further, the working hours have also been reduced to almost six hours/day due to resistance of local Villagers. **Status of Railway line connecting conveyor** The alternate railway alignment for the Shivpur – Hazaribagh line viz Shivpur – Kathautia was finalized subsequently, and survey work started by Railways only in 2022. DPR for the same is under finalization by Railways. This matter is being regularly followed with Railways, Dhanbad Division and ECR, Hajipur. NTPC has also requested Ministry of Power to co-ordinate with Ministry of Railways for expeditious construction of Railway siding. During the recent discussion with ECR, Hajipur it is informed that DPR finalization is expected by Oct' 2024. Considering

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027.

15.5.4: Traffic Assessment Report: Traffic study report has been carried for assessment of impacts due to transportation of coal by road from Chatti Bariatu opencast coal mine project pit head to six railway sidings (Bachra – 38 km, Shivpur – 26 km , Katkamsandi – 95 km, Kusmahi – 81 km , Bira Toli – 92 km and Tori siding – 95 km) and North Karanpura Super Thermal Power Plant (24 km). The present traffic is 896 trucks to and fro towards North Karanpura STPP, Bachra siding and Katkamsandi siding. Additional 416 trucks will move to and fro towards the aforementioned six sidings and North Karanpra STPP. Thus, total 1312 trucks per day will move 19700 TPD of coal from mines. Based on the existing traffic volume monitored, existing width of roads, traffic projections upto March 2027 and additional trucks of Chatti Bariatu coal mine, the carrying capacity has been calculated for March 2027 and two stretches of roads from near Jordag to near Bhadaikhap totalling around 2 km are not having adequate carrying capacity because width of road is only 5 m. Therefore, NTPC Mining Ltd. has constructed a new road bypassing village Bhadaikhap. In addition to this road, PP also needs to complete the construction of road from village Brinda to Shivpur siding. To minimise air pollution at the mine and railway sidings, the PP has installed Wind breaker, installed fixed water sprinkling system & Fixed type rain-guns and undertaken plantation at Katkamsandi Railway Siding. A PM_{10} analyser has also been installed at Katkamsandi. At Bachra siding mobile water sprinkler has been deployed and wind breakers have been installed all along the Bachra.

15.5.5: Details of Court Cases: There are no court cases pending on the said proposal.

15.5.6: Monitoring report received from Regional Office, Ranchi: The Ministry is in receipt of monitoring report from Regional Office, Ranchi on 24/09/2024 on the status of compliance of conditions imposed in the EC letter dated 19/04/2010, its revalidation dated 03.03.2016 and amendment in EC dated 05.01.2024 granted by MoEF&CC. As per the said report, following serious partial compliances and non-compliances have been reported by the Regional Office:

i. **Specific condition no.(iii), page no.3; Specific condition no.(xii), page no.6; Specific condition no.(xv), page no.7; additional condition, page no.20**: No reclamation of the closed portion of OB dump has been initiated. Therefore, the proponent is instructed to prepare time bound comprehensive plantation plan with native species for protection of the ecology of the surrounding area and post-mining ecological restoration plan and implement on priority

ii. **Specific condition no.(vi), page no.5:** The retaining wall is under construction. 250 m long retaining wall has already been constructed. Therefore the proponent is instructed to submit time-bound action plan w.r.t the construction of retaining wall to RO Office.

iii. **Specific condition no.(ix), page no.5, Additional condition no.1.1, page no.21:** Work for the construction of closed conveyor under progress has been observed. Therefore, the proponent is instructed to complete the work of construction of closed conveyors on priority and submit its progress along with half-yearly compliance report to RO Office.

iv. **Specific condition no.(xi), page no.6, Additional condition 1.5, page no.22**: Work for the construction of railway siding under progress has been observed. Therefore, the proponent is instructed to complete the work of construction of railway siding on priority and submit its progress along with half-yearly compliance report to RO Office.

v. **Specific condition no.(xiii), page no.7; Specific condition no.(xiv), page no.7; Specific condition no. (xxi), page no. 10; Specific condition no. (xxii), page no 10:** Construction of 50 KLD ETP has been observed under construction. No rainwater harvesting measures have been implemented at the project site. Therefore, the proponent, is instructed to complete the construction work of ETP and water harvesting structures on priority and submit its progress report to RO Office.

vi. **Specific condition no (xviii), page no.9, Additional condition 1.13, page no.24:** The proponent informed that the implementation of Wildlife Conservation Plan and Site-Specific Wildlife Management Plan has

been entrusted to the State Forest Department. Therefore, the proponent is instructed to submit progress of implementation of Wildlife Conservation Plan and Site-Specific Wildlife Management Plan to RO Office.

vii. **Specific condition no. (xxiv), page no. 11:** The proponent informed that these details of environmental activities with expenditure shall be uploaded on the company's website and updated. Therefore, the proponent is instructed to upload details of environmental activities with expenditure on the company's website and submit status to RO Office.

viii. **Specific condition no (xxv), page no. 11:** The proponent informed that so far the land compensation amount has been paid Rs. 702.66 acres out of 1071.90 acres. A separate Corpus fund of Rs 5 crores will be created in future after displacement and settlement of the PAFs in R&R colony for maintenance of the R&R colony. However, till date no consent has been received from the villages for R&R colony. Alternate livelihood schemes shall be implemented for the persons not being absorbed for employment. Therefore the proponent is instructed to submit action plan for implementation of R&R on priority to RO Office.

ix. **Specific condition no. (xxvii), page no 12**: The proponent informed that land use pattern shall be prepared for the period 2025- 27 in 2025. Therefore, the proponent is instructed to carry out DS once in three years and the same shall be fumished to RO Office.

x. **General condition no.iii), page no.13; General condition no.iv), page no. 14; General condition no.xv), page no.16:** One Continuous Ambient Air Quality Monitoring Station (CAAQMS) to monitor ambient air quality within the mining lease area near Site Office at Pagar. The values on the display of CAAQMS are far lower values hence the proponent was instructed to calibrate the instrument immediately. The display board has not been working on the day of inspection. Therefore, the proponent is instructed to rectify the problem and resume the function of CAAQMS and display board urgently. The proponent is instructed to establish ambient air quality monitoring stations as imposed in the EC and submit details to RO Office.

xi. **General condition no.ix, page no.15:** The proponent informed that regular training on safety & health has been conducted. However, no details have been received in this Office. Further the proponent informed that the occupational health surveillance has been conducted regularly. However, no details have been received in this Office. Therefore the proponent is instructed to submit details of training and occupational health surveillance to RO Office.

xii. **General condition no.xii, page no.16**: No advertised copies have been received in this Office. Therefore, the proponent is instructed to submit advertised copies to RO Office.

xiii. **General condition no xviii), page no.17:** No environmental statements in the prescribed Form V for the year 2023-2024 have been observed when visited the website. Therefore, the proponent is instructed to submit environmental statement in the prescribed Form V for the year 2023-2024 regularly to this Office and also upload all environmental statements in the prescribed Form V on the company's website.

xiv. **Additional page no. 18:** No copy of revalidation of EC No.J-11015/133/2007-IA II(M) dated 03/03/2016 and its compliance status report has been received in RO Office. Therefore, the proponent is instructed to submit copy of revalidation of EC No.J-11015/133/2007- IA.II(M) dated 03/03/2016 and its compliance status report to this Office for further action.

xv. **Additional condition, page no. 19. Additional condition no.1.4. page no.21, Additional condition no.1.6, page no.22, Additional condition no.1.11, page no.22:** The proponent informed that the expected timeline for completion of construction of alternate road before December, 2024. Therefore, the proponent is instructed to submit detailed plan for construction of alternate road along with timeline to RO Office.

xvi. **Additional condition no.1.3, page no 22**: The proponent informed that all the necessary permissions have been obtained from the Forest Department for the transportation of coal by road through the forest land However, no details of such permission have been received in this Office. Therefore, the proponent is instructed to submit such all details to RO Office.

xvii. **Additional condition no. 1.7, page no.23**: The trucks used for transportation of coal are optimally loaded and properly covered with tarpaulin to curb pollution. Further, the coal is being transported with all the necessary permission from the State Government. However, no details of such permission have been received in this Office. Therefore, the proponent is instructed to submit such all details to RO Office.

xviii. **Additional condition no.1.8, page no.23**: The proponent informed that for installment of fog cannons is under the tendering process and shall be completed within 2 or 3 months. At present, the proponent deployed mobile water tankers for dust suppression. Therefore, the proponent is instructed to install 10 fog cannons and submit its status to RO Office.

xix. **Additional condition no.1.9, page no.23:** No environmental laboratory has been established at the project

site. Therefore the proponent is instructed to establish environmental laboratory and submit action plan for establishment of environmental laboratory to RO Office.

xx. **Additional condition no.1.10, page no 23**: No details of deploy of CNG/LNG/e-vehicles for workers/staff in/out of the mine have been received in this Office. Therefore, the proponent is instructed to submit action plan for deploying CNG/LNG/e-vehicles for workers/staff in/out of the mine to RO Office.

xxi. **Additional condition no. 1.14, page no.25**: The proponent has not submitted compliance of EC re-validated dated 03/03//2016 therewith half yearly compliance report to this Office. Therefore, the proponent is instructed to clarify for why was not submitting the compliance status of EC re- validated dated 03/03//2016 to RO Office.

xxii. **Additional condition no.1.15, page no.25:** The proponent informed that an e-mail request was sent to the Director of Institute of Forest Productivity, Ranchi, Jharkhand, to conduct the studies for evaluating the impact of air pollution generated by the mining activities on the forest up to a distance of about 10 km. Reply is awaited from the Institute of Forest Productivity. Therefore, the proponent is instructed to get study done by the reputed institution/university and submit copy of said study report to RO Office.

3.2.3. Deliberations by the committee in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

Observations and deliberation of the Committee:

15.5.7: The EAC noted the following:

i. MoEF&CC has granted EC for Chatti Bariatu Coal Mining Project of M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M), dated 19.04.2010 for capacity of 7 MTPA in an area of 646.23 Ha. Later this EC was revalidated vide letter dated 03.03.2016. Subsequently, amendments regarding permission for road transport, for the same were issued vide letters dated 01.12.2020 and 05.01.2024.

ii. Further, this EC was transferred from M/s NTPC Limited to M/s NTPC Mining Limited vide letter no. J-11015/133/2007-IA.II(M) dated 08.03.2024.

iii. It is observed that there is 128.92 Ha of forestland involved in the said project and stage – II FC is accorded on it vide letter dated 13.04.2017.

iv. The above project is partly implemented and the mine is already under operation.

vii. Now, the PP has submitted the proposal for amendment in Specific Condition no. 2A(ix) & (xi) of EC vide letter dated 19.04.2010 (last amended vide EC letter dated 05.01.2024), regarding the change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori Sidings (over a distance of 26 km, 38 km, 95 km, 81 km, 92 km & 96 km, respectively) for supply of coal to Barh STPP and to transport of coal by road to NKSTPP (over a distance of 24 km) till 31.03.2027 instead of 31.10.2024 and 31.03.2026 respectively.

The Committee deliberated on the same observed that the length of conveyor has been declined and that of railway siding has been increased due to the non-availability of land. The PP also submitted that it is being re-engineered and terrain of the same is also being changed. The Committee also observed that there are major changes in transportation route vis-a-vis with transportation route envisaged under the EC dated 19/04/2010.

viii. PP submitted that in order to start with the construction of CHP, encumbrance free land is required which was not available for the entire stretch of coal evacuation corridor. Hence, contract for construction of CHP could be awarded only after the grant of Stage – II FC, approval of forestland transfer by Govt of Jharkhand and tree cutting permission, which were accorded on 28.08.2019, 23.12.2021 and 08.03.2022 respectively.

Thereafter, land acquisition and R&R issues along with the CHP corridor many a times has stalled the construction work and later COVID-19 and law and order issues of the area further delayed the same. Considering the same, EC amendment was accorded vide letters dated 01.12.2020 and 05.01.2024.

ix. PP also submitted that law and order situation in the area is hostile and several incidents like – firing of gunshots NTPC and MDO officials by unidentified persons, threatening calls to head of the project by extremist groups, life threats to workmen engaged in construction activities by local villagers, organization of Mahjutaan/Mahapanchayat by the local politicians by halting the project activities & setting ablaze the machineries by unknown persons etc, have impacted construction of conveyor system.

Moreover, due to political instability there is lack of workforce and working hours are also reduced to 6 hours/ day due to resistance of local villagers.

x. In pursuance to status of railway line connecting the conveyor (specific condition no. 2A (xi)), PP submitted that survey work for the alternate railway alignment for Shivpur – Hazaribagh line viz Shivpur – Kathautia was started in 2022 only. Daily Progress Report for the same is under finalization by railways and the matter is being regularly followed-up with railways. PP further submitted that considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027.

xi. The Committee deliberated on the condition of the roads through which transportation of coal being done currently. The Committee observed that at some places road is passing through forest area. The Committee asked PP to submit a certificate from DFO certifying that no elephant corridor passes through the coal transportation road. Committee also asked the PP to submit a drone video of the roads through which coal is being transported.

xii. The Committee also deliberated on the air quality monitoring data of the coal transportation roads and observed that the air quality prediction models show levels of pollution almost near the permissible limits, hence high level of pollution, that too away from the coal transportation road. The Committee is of the opinion that this might exceed the annual permissible limits. The Committee therefore, has asked PP to submit a time bound action plan for the mitigation measures to be adopted to control the high level of air pollution along with the budget proposed for the same.

xiii. The Committee also deliberated on the plantation activities done by the PP since the mine is operational and observed that plantation is developed only on the 8 Ha land area. Also, there is no road side plantation observed. PP submitted that plantation drives are being carried out and recently they have also launched the "Ek Ped Maa K Naam" campaign in the villages falling in the purview of lease area. The Committee is of the opinion that the PP must submit a plantation plan along the road side along with the estimated budget for the same.

xiv. The Committee observed that due to no entry during day time, at some places, transportation of coal by road will take place at night. The Committee deliberated on the noise pollution and air pollution mitigation measures to be adopted in this regard and asked the PP to submit air quality and noise level monitoring data of both during day and night time of the public roads being used for haulage. The air quality monitoring data presented by the PP was for locations not exactly on the road side due to which proper appraisal could not be done.

xv. The Committee also deliberated on the Traffic Assessment Study carried out by the PP and observed that issues such as air quality and noise level monitored data of both during day and night time of the public roads being proposed for road transportation, incremental impact on the environmental attributes due to road transportation and man-animal conflict during transportation of coal etc. have not been adequately addressed in the study report.

xvi. The Committee taken in to cognizance the partial compliances and non-compliances reported by the Regional Office of the Ministry in its monitoring report as mentioned at para no. 15.5.6.

xvii. The Committee observed that conveyor which is under construction for which the extension in timeline is being sought is the common conveyor for the adjoining Kerandari Coal Mine. Both mines are adjacent to each other and the issues are common. The latter is also placed in the same meeting for seeking amendment in the timeline same as that of the instant proposal (Chatti Bariatu Coal Mining Project).

Recommendations of the Committee:

15.5.8: In view of the foregoing and after detailed deliberations, the Committee **deferred** the proposal for amendment in EC granted by vide file no. J-11015/133/2007-IA.II(M) dated 19.04.2010 and sought for following additional information for further consideration:

i. Action taken report on the partial compliances and non-compliances reported by the Regional Office in its monitoring report shall be submitted by the proponent to the concerned RO, MoEF&CC to obtain their views/comments and the same shall be further submitted to the EAC for further consideration.

ii. Revised traffic assessment study report inter-alia covering the following shall be submitted:

a. Ambient Air Quality (AAQ) and Noise quality data along the entire coal transportation route i.e., from mine pit head to six railway sidings and North Karanpura TPP during day and night time.

b. Anticipated impact on all environmental attributes

c. Environmental Management Plan including monitoring program to address all concerns arising out of coal transportation by road

iii. Certificate from DFO shall be submitted stating that coal transport route does not intersect with wildlife corridors.
iv. Drone video of the entire coal transportation route by road shall be submitted.
v. No overburden dumping should be done outside the ML area.
vi. Action plan for reducing the coal transportation by road in a time bound manner.

In addition to the above, the EAC also recommended for a site visit by the sub-committee for on spot assessment of various environmental conditions.

3.2.5. Recommendation of EAC

Deferred for ADS

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

KERANDARI COAL MINING PROJECT by **NTPC MINING LIMITED** located at **HAZARIBAGH,JHARKHAND**			
Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/JH/CMIN/493281/2024	J-11015/133/2007-JA.II(M)	05/09/2024	Mining of minerals (1(a))

3.3.2. Project Salient Features

Agenda No. 15.6

15.6: Kerandari Coal Mining Project (area 1173 Ha having capacity 6 MTPA) by M/s NTPC Mining Limited located at Villages: Pandu, Pagar, Basaria, Lochar, Baledori, Kabed, Tarhesa; District: Hazaribagh; State: Jharkhand – Regarding Amendment in EC

[Online Proposal No. IA/JH/CMIN/493281/2024; File No. J-11015/133/2007-IA.II(M)]

[Consultant: Min Mec Consultancy Private Limited NABET/EIA/2225/IA 0096 valid up to 29.03.2025]

15.6.1: The instant proposal is for amendment in Environment Clearance granted to M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M) dated 31.03.2010 for Kerandari Opencast Coal Mining Project (area 1173 Ha having capacity 6 MTPA). Amendment in this EC was accorded vide letter dated 05.02.2024. Later this EC was transferred to M/s NTPC Mining Limited vide letter dated 08.03.2024.

It is to be noted that allocation of Kerandari Coal Block along with 203 other coal blocks was cancelled by the Hon'ble Supreme Court vide Judgement dated 25.08.2014 read with Order dated 24.09.2014. Vide allotment order no. 103/29/2015/NA dated 08.09.2015, re-allocated the Kerandari 'A' coal block (area 1173 Ha having capacity of 6 MTPA) to M/s NTPC Limited. Thereafter, Revalidation/transfer of EC of the said block was granted to NTPC Limited vide letter dated 28.10.2015.

Details of all the ECs including its amendment are summarized as below:

S. No.	**Details of Letter No.**	**EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC**	**Capacity (MTPA)**	**Area (MTPA)**	**Date of issuance**	**Status of implementation**
1	J-11015/133/2007-IA.II(M)	EC	6 MTPA	1173 Ha	31.03.2010	Being Implemented

S. No.	Details of Letter No.	EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (MTPA)	Date of issuance	Status of implementation
2	-do-	Revalidation/ Transfer of EC	6 MTPA	1173 Ha	28.10.2015	Being Implemented
2	-do-	Amendment in EC (Road transport granted till 31.10.2024)	6 MTPA	1173 Ha	05.02.2024	Being Implemented
3	-do-	Transfer of EC	6 MTPA	1173 Ha	08.03.2024	Transferred from M/s NTPC Ltd to M/s NTPC Mining Ltd

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.6.2: Production Details: PP submitted the actual production details of the concerned mine and submitted that the mine became operational from 05.04.2023 onwards.

Details of the same are as follows:

Year	Actual Coal Production in MTPA	Planned Coal production in MTPA as per Environmental Clearance	Excess Production
2023-2024	0.02	2	NIL
2024-25 (as on date 05.09.2024)	0.04	4	NIL

CTO renewal has been obtained from the SPCB and is valid up to 30.06.2025.

15.6.3: The PP has made an online application vide proposal no. IA/JH/CMIN/4932891/2024 dated 04.09.2024 for amendment in EC Specific Condition no. 2A (xi) & (xiv) accorded vide letter no. J-11015/133/2007-IA.II(M) dated 31.03.2010, seeking further amendment for extension of timeline to allow transportation of coal by road through covered tippers/ dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori railway sidings for supply of coal to Tanda STPP and to transport the coal by road to NKSTPP till 31.03.2027. In addition to this, another amendment sought by the PP is to allow the establishment of railway siding by March 2027.

PP submitted the following details for the amendment sought along with the justification:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition No.- 2A (xi) & (xiv)	EC Sp. Cond. No 2A(xi) Raw coal from CHP shall be transported by closed conveyors to the railway siding proposed at village Khada	Change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kushmahi, Bira Toli & Tori railway sidings for supply of coal to Tan	**Delay in construction of Conveyor system** Pre-requisite to start the construction of CHP is the availability of encumbrance free land that is not available for the entire stretch of coal evacuation corridor of CB&KD. For construction of CHP, NTPC had awarded the contract to M/s L&T on 27.09.2019 immediately after obtaining the St-II forest clearance on 28.08.2019;

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
	mdari and thereafter by rail to the linked Tanda/ Barh STPP. The conveyor-cum-rail corridor consisting of a stretch of 13.1 km of rail and 10.5 km of overhead closed conveyors and extend upto unloading part of the railway siding with Silo Loading facilities and from there to the linked Barh STPP/ Tanda by rail. There shall be no road transportation of coal. EC Sp. Cond. No. 2A (xiv) Company's Railway Siding at village Khadambari shall be established within 3 years from date of grant of Environmental Clearance. The pp is permitted till 31.10.2024 to use Service road/State Highways for transportation of coal to Banadag railway siding.	da STPP and transport of coal by road to NKSTPP till 31.03.2027	However, approval of forest land transfer accorded by Govt of Jharkhand only on 23.12.2021. Subsequently Tree cutting permission was received on 08.03.2022. The schedule for construction of CHP is 24 months from the date of front handover. Land Acquisition and R&R issues along the CHP corridor at times have stalled the construction work. Construction work was delayed due to Covid-19 and law & order issue in the area and at times works was stalled by local villagers and even the contractor persons were manhandled. Unfortunately, one executive of a construction agency was shot dead on 19.02.2021 by miscreants. Communication to the Nominated Authority regarding the incident had been provided. In the EC amendments dated 05.01.2024 and 05.02.2024 for CB & KD CMP, respectively the time for conveyor construction was granted till 31.10.2024. However, due to difference in the rate of land compensation provided by State Govt to landowners of different villages, physical possession of land could not be completed. The conveyor falls in both Hazaribagh and Chatra District, and the land is acquired under LA Act 1894. The land compensation rate paid by Chatra District Administration is less than that paid by the Hazaribagh District Administration. Hence, the landowners in Chatra District demanded at par payment with Hazaribagh and did not allow the work to start. This matter was discussed many times at District Administration and State Govt and also flagged at PMG portal. It was deliberated that it is not prudent to make different payments for the same project activity which may result in IR problems. Hence, it was decided to accommodate complete conveyor system in Hazaribagh District. Subsequently, re-engineering of the conveyor system has been done with the help of agency to accommodate conveyor system within the Hazaribagh District which further delayed the progress. At present, approx. **73%** of conveyor work is completed and the balance work is expected to be completed by Dec' 2025. In addition to the above, law and order situation in the area is hostile and the follo

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			wing incidents have impacted the construction of the conveyor system: Firing of gunshots at NTPC and MDO officials by unidentified persons Threatening calls to Head of the Project by extremist groups Life threats to workmen engaged in construction activities by local villagers Organization of Mahjutaan/Mahapanchayat by the local politicians by halting the project activities Setting ablaze the machineries by unknown persons etc. Moreover, the tenure of General Lok Sabha Elections (2024) has resulted in lack of workforce and further, the working hours have also been reduced to almost six hours/day due to resistance of local Villagers. **Status of Railway line connecting conveyor** The alternate railway alignment for the Shivpur – Hazaribagh line viz Shivpur – Kathautia was finalized subsequently, and survey work started by Railways only in 2022. DPR for the same is under finalization by Railways. This matter is being regularly followed with Railways, Dhanbad Division and ECR, Hajipur. NTPC has also requested Ministry of Power to co-ordinate with Ministry of Railways for expeditious construction of Railway siding. During the recent discussion with ECR, Hajipur it is informed that DPR finalization is expected by Oct' 2024. Considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027.

15.6.4: Traffic Assessment Report: Traffic study report has been carried for assessment of impacts due to transportation of coal by road from Kerandari 'A' opencast coal mine project pit head to six railway sidings (Bachra – 40.5 km, Shivpur – 28.8 km, Katkamsandi – 97.6 km, Kusmahi -83.3 km, Bira Toli - 94.6 km and Tori siding – 97.9 km) and North Karanpura Super Thermal Power Plant – 26.3 km. Based on the existing traffic volume monitored, existing width of roads, traffic projections upto March 2027 and additional trucks of Kerandari 'A' coal mine, the carrying capacity has been calculated for March 2027 and two stretches of roads from near Jordag to near Bhadaikhap totalling around 2 km are not having adequate carrying capacity because width of road is only 5 m. Therefore, NTPC Mining Ltd. has constructed a new road bypassing village Bhadaikhap. In addition to this road, PP also needs to complete the construction of road from village Brinda to Shivpur siding. To minimise air pollution at the mine and

railway sidings, the PP has installed Wind breaker, installed fixed water sprinkling system & Fixed type rain-guns and undertaken plantation at Katkamsandi Railway Siding. A PM_{10} analyser has also been installed at Katkamsandi. At Bachra siding mobile water sprinkler has been deployed. Wind breakers have been installed all along the Bachra and Tori siding as well.

15.6.5: Details of Court Cases: There are no court cases pending on the said proposal.

15.6.6: Monitoring report received from Regional Office, Ranchi: on the status of compliance of conditions imposed in the EC letter dated 31/03/2010, transfer/ revalidation of EC dated 03.03.2016 and amendment in EC dated 05.02.2024 granted by MoEF&CC. As per the said report, following glaring partial compliances and non-compliances have been reported by the Regional Office:

i. **Status of EC, page no.2:** No copy of transfer revalidation of EC No.J-11015/120/2007-IA.II(M) dated 28/10/2015 and all copies of CTES/CTOs have been received in RO Office. Therefore the proponent is instructed to submit transfer / revalidation of EC No.J- 11015/120/2007-IA II(M) dated 28/10/2015 and all copies of CTES/CTOS to RO Office.

ii. **Specific condition no.ii, page no.2:** The proponent informed that State Water Resources Department vide letter dated 19/3/2013 approved for the diversion of Baldeori nala, which is yet to be diverted. Therefore, the proponent is instructed to submit time bound plan for the diversion of Baldeori nala and construction of embankment, details of plantation, etc., to RO office.

iii. **Specific condition no.iv, page no.3; Specific condition no.xii, page no.7; Specific condition no.xxiii, page no.9; Specific condition no.xxi, v page no.10:** No reclamation of the closed portion of OB dump has been initiated. Therefore, the proponent is instructed to prepare time bound comprehensive plantation plan with native species for protection of the ecology of the surrounding area and post-mining ecological restoration plan. The proponent should submit the detailed plan in tabular format (year-wise for life of mine) for afforestation and green belt development in and around the mining lease. The proponent should submit the number of saplings to be planted, area to be covered under afforestation and green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this, the proponent should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Plantation plan should be prepared in such a way that 80% of the plantation to be carried out in first 5 years and for the remaining years the proposal for gap filling. The seedling of height not less than 2 meters to be selected and accordingly cost of plantation needs to be decided. In addition to this, plantation in the safety zone at lease boundary the plantation should be planned in such a way that it should be completed within 2 years only.

iv. **Specific condition no.viii, page no.5**: No retaining wall has been observed. Therefore, the proponent is instructed to submit the comprehensive action plan for the construction of retaining wall to RO Office.

v. **Specific condition no.xiii, page no.5, Additional condition no.1.1, page no.20**: Crushers are yet be constructed. The proponent informed that the optimum loaded tarpaulin covered trucks have used for transportation of coal. Mobile water tankers have been deployed for dust suppression along the transportation route. Therefore, the proponent is instructed to complete the construction of crushers on priority and submit detailed timeline for the construction crushers at CHP to RO Office.

vi. **Specific condition no xiv, page no.6, Additional condition no.1.6, page no.21; Additional condition no.1.8. page no.21:** Work for the construction of railway siding under progress has been observed. The proponent informed that the amendment in EC has been obtained from MoEF&CC vide letter dated 05/01/2024 for completing the for construction of railway siding by March 2025 and construction of closed belt conveyor upto October, 2024. Therefore, the proponent is instructed to complete the work of construction of railway siding on priority and submit its progress report to RO Office.

vii. **Specific condition no.xvii, page no.8; Specific condition no xxi, page no.8:** No rainwater harvesting structures have been observed in the mine premise. The proponent informed that the rainwater harvesting structures shall be established within 2 or 3 months. The water requirement of the nearby villages shall be met in case the village wells go dry due to dewatering of mine. Therefore, the proponent is instructed to construct rainwater harvesting structures in consultation with CGWA/ State Water Resources Department and submit its detail to RO Office.

viii. **Specific condition no.xix, page no.8; Specific condition no.xxii, page no.9; General condition no.vi, page no. 15:** ETP without oil/grease traps on has been constructed. Therefore, the proponent is instructed to install oil/grease traps on priority and submit action taken report to RO Office.

ix. **Specific condition no.xx, page no.8:** No STP has been provided. Therefore the proponent is instructed to provide STP on priority basis and submit action taken report to RO Office.

x. **Specific condition no xxv, page no.10:** Wildlife Conservation Plan and Site-Specific Wildlife Management Plan have been prepared and approved by the State Chief Wildlife Warden. Copies of plans have been received in this Office. It was informed that for implementation of site- specific wildlife management plan Rs. 24.76 Crores was deposited in the ad-hoc CAMPA account. Therefore, the proponent is instructed to submit progress report of implementation of Wildlife Conservation Plan and Site-Specific Wildlife Management Plan to RO Office.

xi. **Specific condition no xxvi, page no.11**: The proponent earmarked separate budget for implementing environmental measures. The details of expenditure on environmental activities for FY 2023- 2024 have not been received in RO Office. The proponent informed that these details of activities with expenditure shall be uploaded on the company's website and updated. Therefore, the proponent is instructed to upload details of environmental activities with expenditure on the company's website and submit status to RO Office.

xii. **Specific condition no.xxvii, page no. 11:** Alternate livelihood schemes shall be implemented for the persons not being absorbed for employment. Therefore, the proponent is instructed to submit action plan for implementation of R&R on priority to RO Office.

xiii. **Specific condition no.xxxi, page no. 12:** The proponent informed that land use pattern shall be prepared for the period 2025-27 in 2025. Therefore, the proponent is instructed to carry out DS once in three years and the same shall be furnished to RO Office.

xiv. **General condition no.iii, page** no.13; General condition no.vili, page no. 15, General condition no.xv, page no. 17: No four ambient air quality monitoring stations have been established. However, one Continuous Ambient Air Quality Monitoring Station (CAAQMS near Site Office has been installed and. The values on the display of CAAQMS are far lower values hence the proponent was instructed to calibrate the instrument immediately. The display board has not been working on the day of inspection. Therefore, the proponent is instructed to rectify the problem and resume the 3 Page function of CAAQMS and display board urgently. The proponent is instructed to establish ambient air quality monitoring stations as imposed in the EC and submit details to RO Office.

xv. **General condition no.ix, page no. 16**: The proponent informed that regular training on safety & health has been conducted. However, no details have been received in this Office. Further the proponent informed that the occupational health surveillance has been conducted regularly. However, no details have been received in this Office. Therefore the proponent is instructed to submit details of training and occupational health surveillance to RO Office.

xvi. **General condition no.xii, page no.16**: No advertised copies have been received in this Office. Therefore, the proponent is instructed to submit advertised copies to RO Office.

xvii. **General condition no.xviii, page no. 18**: No environmental statements in the prescribed Form V for the year 2023-2024 have been observed when visited the website. Therefore, the proponent is instructed to submit environmental statement in the prescribed Form V for the year 2023-2024 regularly to RO Office and also upload all environmental statements in the prescribed Form V on the company's website Office.

xviii. **Additional condition no. 1.14, page no.23:** No copy of transfer / revalidation of EC No.J-11015/133/2007-IA.II(M) dated 28/10/2015 and its status of compliance has been received in this Office. Therefore the proponent is instructed to copy of copy of transfer / revalidation of EC No.J-11015/133/2007-IA.II(M) dated 28/10/2015 and its status of compliance to RO Office.

xix. **Additional condition no. 1.9, page no.21:** The proponent informed that for instalment of fog cannons is under the tendering process and shall be completed within 2 or 3 months. At present, the proponent deployed mobile water tankers for dust suppression. Therefore, the proponent is instructed to install 10 fog cannons and submit its status to RO Office.

xx. **Additional condition no. 1.11. page no.22**: The proponent informed that there are no CNG/LNG/recharge stations located near the mine site. BS VI tippers have been used for transportation of coal to minimize the emissions. No details of deploy of CNG/LNG/e-vehicles for workers/staff in/out of the mine have been received in this Office. Therefore, the proponent is instructed to submit action plan for deploying CNG/LNG/e-vehicles for workers/staff in/out of the mine to RO Office.

xxi. **Additional Condition no. 1.12, page no. 22:** No details of engage the State Biodiversity Authority and local biodiversity committee for implementation of CSR activity for developing the local market have been received in this Office. Therefore, the proponent is instructed to submit progress of implementation of Wildlife Conservation Plan along with details of expenditure and details of engage the State Biodiversity Authority and local biodiversity committee for implementation of CSR activity for developing the local market to RO office.

xxii. **Additional condition no. 1.15, page no 23:** No Copy of study on evaluating the impact of air pollution generated by its activities on the forests upto a distance of about 10 km have been received in this Office.

Therefore, the proponent is instructed to get study done by the reputed institution/ university and submit copy of said study report to RO office.

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

Observations and deliberation of the Committee:
15.6.7: The EAC noted the following:

i. MoEF&CC has granted EC for Kerandari Opencast Coal Mining Project of M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M), dated 31.03.2010 for capacity of 6 MTPA in an area of 1173 Ha. Later this EC was revalidated/ transferred vide letter dated 28.10.2015 (since it was de-allocated vide the Judgement of Hon'ble Supreme Court and then further re-allocated vide allotment order MOC to M/s NTPC Limited). Further, amendment in EC was granted to permit the transportation of coal by road till 31.10.2024 vide letter dated 05.02.2024 and later this EC was transferred to M/s NTPC Mining Limited vide letter dated 08.03.2024.

ii. The above project is partly implemented and is already under operation.

iii. It is observed that the said project involves 243.32 Ha of forestland and stage – II on the same was accorded vide letter dated 28.08.2019.

iv. Specific Condition no. 2A (xi) of EC stipulated that the raw coal from CHP shall be transported by closed conveyors to the railway siding proposed at village Khadamdari and thereafter by rail to the linked Tanda/ Barh STPP. The conveyor-cum-rail corridor consisting of a stretch of 13.1 km of rail and 10.5 km of overhead closed conveyors and extend upto unloading part at the railway siding with Silo Loading facilities and from there to the linked Barh STPS/ Tanda by rail. There shall be no road transportation of coal. The timeline for the same was extended until 31.10.2024 (for construction of closed conveyor) vide EC amendment dated 05.02.2024.

v. Specific Condition no. 2A (xiv) of EC stipulated that the company's railway siding at village Khadambari shall be established within 3 years from date of grant of EC. The timeline for the same was extended until 31.03.2025 (for construction of railway siding) vide EC amendment dated 05.02.2024.

vi. Now, the PP has submitted the proposal for amendment in Specific Condition no. 2A(xi) & (xiv) of EC vide letter dated 31.03.2010 (last amended vide EC letter dated 05.02.2024), regarding change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kushmahi, Bira Toli & Tori railway sidings for supply of coal to Tanda STPP and transport of coal by road to NKSTPP till 31.03.2027 instead of 31.10.2024 and 31.03.2025 respectively.
The Committee deliberated on the same observed that the length of conveyor has been declined and that of railway siding has been increased due to the non-availability of land. The PP also submitted that it is being re-engineered and terrain of the same is also being changed.

vii. PP submitted that in order to start with the construction of CHP, encumbrance free land is required which was not available for the entire stretch of coal evacuation corridor. Hence, contract for construction of CHP could be awarded only after the grant of Stage – II FC, approval of forestland transfer by Govt of Jharkhand and tree cutting permission, which were accorded on 28.08.2019, 23.12.2021 and 08.03.2022 respectively.
Thereafter, land acquisition and R&R issues along with the CHP corridor many a times has stalled the construction work and later COVID-19 and law and order issues of the area further delayed the same. Considering the same, EC amendment was accorded vide letter dated 05.02.2024.

viii. PP also submitted that law and order situation in the area is hostile and several incidents like – firing of gunshots NTPC and MDO officials by unidentified persons, threatening calls to head of the project by extremist groups, life threats to workmen engaged in construction activities by local villagers, organization of Mahjutaan/ Mahapanchayat by the local politicians by halting the project activities & setting ablaze the machineries by unknown persons etc, have impacted construction of conveyor system. Moreover, due to political instability there is lack of workforce and working hours are also reduced to 6 hours/ day due to resistance of local villagers.

ix. In pursuance to status of railway line connecting the conveyor (specific condition no. 2A (xiv)), PP submitted that survey work for the alternate railway alignment for Shivpur – Hazaribagh line viz Shivpur –

Kathautia was started in 2022 only. Daily Progress Report for the same is under finalization by railways and the matter is being regularly followed-up with railways, Dhanbad Division and ECR, Hajipur. PP further submitted that considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027.

x. The Committee deliberated on the condition of the roads through which transportation of coal being done currently. The Committee observed that at some places road is passing through forest area. The Committee asked PP to submit a certificate from DFO certifying that no elephant corridor passes through the coal transportation road. Committee also asked the PP to submit a drone video of the roads through which coal is being transported.

xi. The Committee also deliberated on the air quality monitoring data of the coal transportation roads and observed that the air quality prediction models show levels of pollution almost near the permissible limits, hence high level of pollution, that too away from the coal transportation road. The Committee is of the opinion that this might exceed the annual permissible limits. The Committee therefore, has asked PP to submit a time bound action plan for the mitigation measures to be adopted to control the high level of air pollution along with the budget proposed for the same.

xii. The Committee also deliberated on the plantation activities done by the PP since the mine is operational and observed that plantation developed till now is not adequate. Also, there is no road side plantation observed. PP submitted that plantation drives are being carried out and recently they have also launched the "Ek Ped Maa K Naam" campaign in the villages falling in the purview of lease area. The Committee is of the opinion that the PP must submit a plantation plan along the road side along with the estimated budget for the same.

xiii. The Committee observed that due to no entry during day time, at some places, transportation of coal by road will take place at night. The Committee deliberated on the noise pollution and air pollution mitigation measures to be adopted in this regard and asked the PP to submit air quality and noise level monitoring data of both during day and night time of the public roads being used for haulage. The air quality monitoring data presented by the PP was for locations not exactly on the road side due to which proper appraisal could not be done.

xiv. The Committee also observed that OB dumping is being done outside the ML area (in the adjoining mine lease area, i.e., Chatti Bariatu Mine lease) and is of the opinion that the same should be immediately stopped and should be restricted to ML area only.

xv. The Committee also deliberated on the Traffic Assessment Study carried out by the PP and observed that issues such as air quality and noise level monitored data of both during day and night time of the public roads being proposed for road transportation, incremental impact on the environmental attributes due to road transportation and man-animal conflict during transportation of coal etc. have not been adequately addressed in the study report.

xvi. The Committee taken in to cognizance the partial compliances and non-compliances reported by the Regional Office of the Ministry in its monitoring report as mentioned at para no.15.6.6.

xvii. The Committee observed that conveyor which is under construction for which the extension in timeline is being sought is the common conveyor for the adjoining Chatti Bariatu Coal Mining Project. Both mines are adjacent to each other and the issues are common. The latter is also placed in the same meeting for seeking amendment in the timeline same as that of the instant proposal (Kerandari Coal Mining Project).

Recommendations of the Committee:

15.6.8: In view of the foregoing and after detailed deliberations, the Committee **deferred** the proposal for amendment in EC granted vide file no. -11015/133/2007-IA.II(M) dated 31.03.2010 and sought for following additional information for further consideration:

i. Action taken report on the partial compliances and non-compliances reported by the Regional Office in its monitoring report shall be submitted by the proponent to the concerned RO, MoEF&CC to obtain their views/comments and the same shall be further submitted to the EAC for further consideration.

ii. Revised traffic assessment study report inter-alia covering the following shall be submitted:

   a. Ambient Air Quality (AAQ) and Noise quality data along the entire coal transportation route i.e., from mine pit head to six railway sidings and North Karanpura TPP during day and night time.
   b. Anticipated impact on all environmental attributes
   c. Environmental Management Plan including monitoring program to address all concerns arising out of coal transportation by road

iii. Certificate from DFO shall be submitted stating that coal transport route does not intersect with wildlife corridors.

iv. Drone video of the entire coal transportation route by road shall be submitted.
v. No overburden dumping should be done outside the ML area.
vi. Action plan for reducing the coal transportation by road in a time bound manner.

In addition to the above, the EAC also recommended for a site visit by the sub-committee for on spot assessment of various environmental conditions.

3.3.5. Recommendation of EAC

Deferred for ADS

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 M TPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023 by **ADANI POWER MAHARASHTRA LIMITED** located at **NAGPUR,MAHARASHTRA**

Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/CMIN/495430/2024	IA-J-11011/46/2022-IA. II(M)	05/09/2024	Mining of minerals (1(a))

3.4.2. Project Salient Features

Agenda No. 15.8

15.8: Gondkhari Underground Coal Mine (Kamptee Coalfield) (area 862 Ha having targeted capacity 2 MTPA) by M/s Adani Power Maharashtra Limited located at Villages: Waddhamana, Gondkhari, Pendhari, Kalameshwar, Nagpur (rural); District: Nagpur; State: Maharashtra – Amendment in EC –reg.

[Online Proposal No. IA/MH/CMIN/495430/2024; File No. J-11011/46/2022-IA.II(M)]

[Consultant: Vardan Environet LLP NABET/EIA/2326/RA0284 valid up to 04/05/2026]

15.8.1: The instant proposal is for amendment in Environment Clearance granted to M/s Adani Power Maharashtra Limited vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 for Gondkhari Underground Coal Mine (area 862 Ha having targeted capacity 2 MTPA) regarding change in infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft. Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

Sl. No.	**Details of Letter No**	**EC/Expansion EC/Amendment in EC/Validity extension/Transfer of EC**	**Capacity (MTPA)**	**Area (Ha)**	**Date of Issuance**	**Status of Implementation**
1.	IA-J-11011/46/2022-IA. II(M)	Environmental Clearance	2/3 (Normative/Peak)	862	02.02.2024	Project activity is yet to commence at the site.

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.8.2: The PP has made an online application vide proposal no. IA/MH/CMIN/495430/2024 dated 05.09.2024 for amendment in "EC Miscellaneous Condition no. 9.9" and "EC particulars s. no. 2 (iii) – Clearance type" accorded vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024.

Specific/General Condition no.	Details of Conditions as per EC	Amendment Sought	Justification
9. Miscellaneous	9.9 – No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Change in infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft.	**1. Change in location of land:** a. Air return shaft land was shifted from Khasra No. 236 private land to Khasra No. 274 private land due to issues in land availability. b. Incline land was shifted from Khasra No. 104, 106, 109 & 110 private land to Khasra No. 96 due to flatten the incline gradient and issues in land availability. c. The location of the Incline mouth and associated infrastructure is proposed to be shifted with a view to make the gradient of the Incline milder/flatter (from 12° to 8°) for deploying tyre mounted trackless equipment for men/material transport. The location of the ventilation shaft has also been changed slightly accordingly. However, there are no other changes in UG layout of any seam. d. The above modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine.
EC Particulars 2. The particulars of the proposal are as below :	(iii) Clearance Type : Mining EC Under 5 Ha	Mine lease area is 862 ha, which is more than 5 ha.	Mine lease area is 862 ha, which is more than 5 ha.

Salient features of the proposed amendment:

15.8.3: A. PP sought following amendment in the EC:

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
Shift of Air Return Shaft	Falls in Khasra No. 236 (private land)	Will be shifted to Khasra No. 274 (private land) due to issues in land availability.	**<u>Justification given by PP:</u>** The slight changes proposed will further add to safer men/material transport and with a view to enhance conducive work environment for the workers deployed in the mine. The location of the Incline mouth and associated infrastructure has been shifted with a view to make the gradient of the Incline milder/flatter (from 12° to 8°) for deploying tyre mounted trackless equipment for men/material transport. The location of the ventilation shaft has also been changed slightly accordingly. However, there are no other changes in UG layout of any seam. This modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine. **<u>View of Ministry of Coal on the above changes:</u>** Ministry of Coal vide letter no. CCO-MPMC01(110)/1/2024-MPMC dated 06.08.2024, has mentioned that the ***<u>"Mine entries are part of mine infrastructure and the same is evident from Coal Mines (Special Provisions) Act, 2015, where compensation is payable to mine entries under infrastructure. So, the changes proposed in the location of mine entries will come under the provisions of "minor changes" under para 1.3B of the OM dated 29.05.2020 of M</u>***	Considering the letter received from Ministry of Coal, with respect to change in infrastructure location for mine entries through incline and air return shaft as mentioned by PP in the proposal submitted shall only be allowed. For any other expansion or modification, PP shall take prior approval of Ministry of Environment, Forest and Climate Change (MoEF&CC).
Shift of Incline Land due to technical requirement of flatter gradient incline.	Falls in Khasra No. 104, 106, 109 & 110 (private land)	Will be shifted to Khasra No. 96 (private land) due to flatten the incline gradient and issues in land availability.		

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
			inistry of Coal regarding Mining Plan and Mine Closure Guidelines. Also, the related necessary changes in the mine layout and sequence of mining may be taken as "minor changes" and may be allowed without any modification of Mining Plan. Accordingly, it was confirmed that the shaft and incline are integral parts of the mine infrastructure and their relocation falls within the minor changes category as per the guidelines."	

Due to the shift of Air Return Shaft and inclined mouth, the land use changes during mining and post closure is furnished as below:

As per Approved Mine Plan					Changes envisaged in the approved mining plan				
Type	**Land use (proposed)**	**Land use (end of mine life)**	**Agriculture**	**Total**	**Type**	**Land use (proposed)**	**Land use (end of mine life)**	**Agriculture**	**Total**
Road & Infrastructure Area	13.845	13.845	13.845	**13.845**	Road & Infrastructure Area	13.845	13.845	13.845	**13.845**
Settling Pond	0.08	0.08	0.08	**0.08**	Settling Pond	0.08	0.08	0.08	**0.08**
Embankment	0.075	0.075	0.075	**0.075**	Embankment	0.075	0.075	0.075	**0.075**
Green Belt	2.0	2.0	2.0	**2.0**	Green Belt	5.3	5.3	5.3	**5.3**
UG Entry	2.0	2.0	2.0	**2.0**	UG Entry	2.0	2.0	2.0	**2.0**
Undisturbed/ Mining Right for UG	844	844		**844**	Undisturbed/ Mining Right for UG	840.7	840.7		**840.7**

Grand Total	**862**	**862**	**18.0**	**862**	**Grand Total**	**862**	**862**	**21.3**	**862**

15.8.4 B. PP sought the following corrigendum in the EC letter dated 02.02.2024:

Para No	As per EC dated 02/02/2024	Amendment Sought
2	The particulars of the proposal are as below:	Mine lease area is 862 ha, which is more than 5 ha. (iii) Clearance Type: Fresh EC

15.8.5: Details of court cases:

Case No.	Court	Brief	Next date of hearing
APPEAL NO. 145 OF 2024 (WZ)	NGT (Western Zone Bench, Pune)	EC on which amendment is being sought has been challenged before Hon'ble NGT (WZ), Pune on the grounds to quash and set aside the environmental public hearing held on 13/07/2023 by MPCB.	16.10.2024

3.4.3. Deliberations by the committee in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

Observations and deliberation of the Committee:

15.8.6: The EAC noted the following:

i. MoEF&CC has granted EC for Gondkhari Underground Coal Mine of M/s Adani Power Maharashtra Limited vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 for targeted capacity of 2 MTPA and peak capacity of 3 MTPA in an area of 862 Ha.

ii. It is observed that the said project involves 87.351 Ha of forestland and the Stage – I FC has been accorded on the same on 02.01.2024.

iii. The above mentioned project is yet to be implemented.

iv. Miscellaneous Condition no. 9.9 of EC stipulated that, "No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC)."

Now, the PP has submitted the proposal to seek amendment in this particular condition to amend the same and allow the PP to "change the infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft." Justification provided for the same by the PP is that due to issues in land availability, air return shaft and incline had to be shifted and there was also a technical requirement of a flatter gradient incline to be developed for safe working.

PP further submitted that changes in acreage are also proposed. Area for infrastructure was earlier proposed to be 18 Ha, which is now being increased by 3.31 Ha, i.e. total area proposed for acreage will be 21.31 Ha. PP also submitted that the increased area proposed will be used for greenbelt development only.

v. The Committee observed that the said proposal was earlier deliberated in 13th EAC held on 1st-2nd July 2024, where along with the board approval letter dated 11.04.2024, PP submitted that the modifications in the mine plan proposed to be made are of minor nature (as per clause 1.3 (B) of OM dated 29.05.2020 of MOC) and the same need not to be approved from MOC. The Member Secretary confirmed the same from MOC and it was informed that it does not falls under the purview of minor changes as per the guidelines of MOC. Hence, the proposal was returned in the present form.

vi. Now the PP has again submitted the proposal for amendment along with the letter of MOC, dated 06.08.2024, wherein it is submitted that a meeting was held at MOC on 29.07.2024 under the chairmanship of Additional Secretary and Nominated Authority, regarding this particular issue for the said project. The MOC in this letter has mentioned that the *"Mine entries are part of mine infrastructure and the same is evident from Coal Mines (Special Provisions) Act, 2015, where compensation is payable to mine entries under infrastructure. So, the changes proposed in the location of mine entries will come under the provisions of "minor changes" under para 1.3B of the OM dated 29.05.2020 of Ministry of Coal regarding Mining Plan and Mine Closure Guidelines. Also, the related necessary changes in the mine layout and sequence of mining may be taken as "minor changes" and may be allowed without any modification of Mining Plan. Accordingly, it was confirmed that the shaft and incline are integral parts of the mine infrastructure and their relocation falls within the minor changes category as per the guidelines."*

The Committee deliberated on the same and observed MOC has conducted a separate meeting under the chairmanship of Additional Secretary and Nominated Authority, in order to give clarification instant matter under consideration and has issued a specific report for the same stating that such changes may be taken as minor changes and may be allowed without modification of Mining Plan.

vii. The Committee further deliberated on the impact of making such changes on the environment. In this regard, PP informed that that there is less than 50 m difference in the distance between old land and the newly proposed land and no such impact will be there on the environment for making such changes. The Committee also observed that the area increased for infrastructure (i.e., 3.31 Ha) will be used for greenbelt development.

viii. The Committee also observed that, the proposed shift being made for air return shaft and incline land is from private land to private land only with a view to make the gradient of the Incline milder/flatter (from 12° to 8°). This modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine.

ix. Apart from this, another amendment sought by the PP is rectification in the EC Particulars, S. no. (iii) Clearance Type, which is mentioned as "Mining EC under 5 Ha" instead of "Fresh EC". The Committee observed that some part of the EC letter are system generated and due to technical error it is wrongly mentioned as Mining EC under 5 Ha". This should be as "Fresh EC" rather.

x. The Committee also deliberated on the litigations pertaining to the said project and observed that the EC on which amendment is sought has been challenged at the NGT – Pune and the case has been registered as *Brijkishore Hargovind Agarwal vs UOI* on 24.07.2024 as Appeal No. 145/2024. The said EC has been challenged before Hon'ble NGT (WZ), Pune on the grounds to quash and set aside the environmental public hearing held on 13/07/2023 by MPCB.PP is advised to abide by the Order of Hon'ble NGT.

Recommendations of the Committee:

15.8.7: After deliberations, the Committee **recommended** the proposal for amendment in EC granted vide file no. - IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 with respect to Change in infrastructure location for mine entries through incline and air return shaft as mentioned at paragraph no. 15.8.3 subject to stipulation of following additional specific condition. Other terms and conditions prescribed in EC dated 02/02/2024 shall remain unchanged.

In addition to the above, the Committee also recommended corrigendum in the EC dated 02/02/2024 as given below:

Para No	As per EC dated 02/02/2024	Amendment Sought

2		(iii) Clearance Type: Fresh EC

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Environment Conditions

3.4.6.1. Specific

Additional Specific Conditions	
1.	Change in infrastructure location for mine entries through incline and air return shaft as mentioned by PP in the proposal submitted shall only be allowed. For any other expansion or modification, PP shall take prior approval of Ministry of Environment, Forest and Climate Change (MoEF&CC).
2.	The project proponent shall abide by all orders and judicial pronouncements, made from time to time by the Hon'ble National Green Tribunal (NGT), Western Zone, Pune in Appeal No. 145 of 2024.
3.	Additional Green belt shall be developed by the project proponent in an area of 5.51 Ha around the periphery of Infrastructure area as committed in accordance with the CPCB guidelines and in consultation with Local Forest Department. Compliance status in this regard shall be submitted to the concerned Regional Office of the Ministry along with the six monthly compliance report.
4.	Other terms and conditions prescribed in EC dated 02/02/2024 shall remain unchanged.

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Dr Sharad Singh Negi	Chairman, EAC	sha**********@gmail.com	Present
2	Dr Santoshkumar Hampannavar	Member (EAC)	san**********@yahoo.com	Present
3	Dr Umesh Jagannathrao Kahalekar	Member (EAC)	uka*******@rediffmail.com	Present
4	Shri K B Biswas	Member (EAC)	bis*********@gmail.com	Present
5	Dr Nazimuddin	Member (EAC)	naz*******@nic.in	Absent on 18.09.2024 & Present on 19.09.2024

6	Shri Mahi Pal Singh	Member (E AC)	mps********@nic.in	Present
7	Sundar Ramanathan	Scientist E	r.s*****@nic.in	Present
8	Sh Inder Pal Singh Matharu IFS	Member (E AC)	mat********@gmail.com	Present
9	Sh Lalit Kapur	Member (E AC)	lka********@yahoo.com	Present
10	Sh Savalge Chandrasekhar	Member (E AC)	sav*****@gmail.com	Present
11	Prof Shyam Shanker Singh	Member (E AC)	sin********@gmail.com	Present
12	Dr Vinod Agrawal	Member (E AC)	vin*****@yahoo.com	Present
13	Shri Harmeet Sahaney	Member (E AC)	har***********@imd.gov.in	Absent
14	Prof R M Bhattacharjee	Member (E AC)	rmb***********@iitism.ac.in	Present

e-KYC
CAF
PARIVESH
DSS
e-Compliance
e-Payments
e-Processing
Nature Protects if She is Protected
CPC GREEN

Ministry of Environment, Forest and Climate Change
Impact Assessment Division
(Coal Mining sector)

Date of zero draft MoM sent to Chairman: 26/09/2024
Approval by Chairman: 28/09/2024
Uploading on PARIVESH: 30/09/2024

SUMMARY RECORD OF THE FIFTEENTH (15TH) MEETING OF EXPERT APPRAISAL COMMITTEE (EAC) HELD ON 18 – 19TH SEPTEMBER 2024 FOR ENVIRONMENT APPRAISAL OF COAL MINING SECTOR PROJECTS THROUGH VIRTUAL MODE.

DAY-1: 18TH SEPTEMBER, 2024 [WEDNESDAY]]

At the outset, the Chairman welcomed the Expert members & other participants and requested to start the proceeding as per the agenda listed for this meeting. The list of Members who participated in the meeting is at Annexure – VI. The Standard/Generic ToR conditions shall be system generated through the PARIVESH Portal.

Confirmation of the Minutes of the 14th Meeting of the EAC (Coal): The minutes of the 14th Meeting of the EAC (Coal) held during 5 – 7th August 2024 have been confirmed by the EAC.

Agenda No. 15.1

15.1: Proposal for amendment in Environment Clearance (EC) of Kotre Basantpur Pachmo OCP (area 1011.87 Ha having capacity 5 MTPA) by M/s Central Coalfields Limited located at Villages: Kotre, Pachmo, Hurdag, Basantpur, Pachanda, Rohawan and Bhagraiya; District: Ramgarh and Bokaro; State: Jharkhand – Amendment in EC – regarding.

[Online Proposal No. IA/JH/CMIN/493041/2024; File No. IA-J-11011/18/2019-IA-II-(I)]
[Consultant: CMPDI - NABET/EIA/22-25/SA 0223 valid up to 08.04.2025]

15.1.1: The instant proposal is for amendment in Environment Clearance granted to M/s Central Coalfields Limited vide letter no. IA-J-11011/18/2019-IA-II (I), dated 18.09.2023 for Kotre Basantpur Pachmo OCP (area 1011.87 Ha having capacity 5 MTPA) located at Villages: Kotre, Pachmo, Hurdag, Basantpur, Pachanda, Rohawan and Bhagraiya; District: Ramgarh and Bokaro; State: Jharkhand

Details of all the prior ECs including the EC for which amendment is sought:

S. No.	Details of Letter No.	EC/ Expansion EC /Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation

1.	IA-J-11011/18/2019-IA-II-(I)	EC	5	1011.87	18.09.2023	CTE and CTO has been obtained from the JSPCB on 23.11.2023 and 22.02.2024 respectively. The project is yet to become operational.

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.1.2: The PP has made an online application vide proposal no. IA/JH/CMIN/493041/2024, dated 20.08.2024 for amendment in EC Specific Condition no. 4(v), 4(vi), 4(xxi) & 4(xxx) of the EC dated 18/09/2023. The details of amendment sought along with the justification is summarized as below:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition 4(v)	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (i.e. December 2024). Accordingly, SPCB should grant consent to operate.	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (**i.e. December 2026**). Accordingly, SPCB should grant consent to operate.	Construction of Belt Conveyor and other infrastructure may take more time to commission.
Specific Condition 4(vi)	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this. Accordingly, CTO should be granted.	PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this **(Beyond December 2026**). Accordingly, CTO should be granted	Construction of Belt Conveyor and other infrastructure may take some time to commission, till then transportation of Coal to Kedla washery/ any coal washery may be permitted by road transportation.
Specific	PP shall deploy atleast	PP shall deploy at	Exemption may be

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Condition 4(xxi)	20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/ OB etc. and deploy e-vehicles for workers/ staff in/out of the Mine.	least 20% of overall fleet of dumpers/ trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/OB etc. **(if techno-economically feasible)** and deploy e-vehicles for workers/staff in/out of the Mine.	given in respect of electrical or CNG/LNG based dumpers /trucks for transportation of Coal/OB etc. In view of the non-availability of suitable techno-economically feasible option in steeply dipping working seams existing at the Mine.
Specific Condition 4(xxx)	PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of the approved budget outlay of CSR funds. The project-affected families shall be given free medical facilities. This shall be done in consultation of DM of the district	**Relaxation** in construction of new multispecialty (50 beds) hospital in the 10 km of the project area.	Central Coalfield Limited (CCL) under CSR scheme is already running two Central Hospitals in Ranchi (250 bedded apex hospital) and at Nai Sarai, Ramgarh (150 bedded) (at 40 km from KBP Project) equipped with all modern facilities for testing diagnosis and treatment. In addition to this CCL is also running Regional Hospitals at Kargali (60 bedded), Dhori (50 bedded), Kathara (35 bedded), Rajrappa (20 bedded), Dakra (50 bedded) and Kedla (32 bedded) (which is 5 km from KBP OCP). Apart from this Hospitals/

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			Dispensaries are running for immediate medical aid at each project colliery. KBP Project has also planned for construction of 6 - bedded hospital for the medical needs of project affected people. Medical facilities to PAFs are free of any charges at any of the hospitals and dispensaries are being run by CCL.

Observations and deliberations of the Committee:

15.1.3: The EAC noted the following:

i. MoEF&CC has granted EC for the Kotre Basantpur Pachmo OCP of M/s Central Coalfileds Limited vide letter no. IA-J-11011/18/2019-IA-II-(I), dated 18.09.2023 for capacity of 5 MTPA in an area of 1011.87 Ha.

ii. The Committee observed that there is total 855.17 Ha of forestland is involved and the Stage – II FC has been accorded on the same vide letter dated 14.03.2024.

iii. The Committee observed that the CTE has been obtained from the Jharkhand State Pollution Control Board (JSPCB) for 5 MTPA vide letter dated 23.11.2023 and obtained CTO from JSPCB vide letter dated 22.02.2024 which is valid up to 31.12.2024.

iv. The project is yet to be operational and is undergoing the construction work.

v. Specific Condition no. 4(v) of EC stipulated that *"the PP shall install a dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (i.e. December 2024). Accordingly, SPCB should grant consent to operate."* The PP justified that the construction work of the project could start only after the grant of EC, hence it will take some time to commission the construction of belt conveyor and other infrastructure. Therefore, PP sought amendment in the said condition seeking time extension for transportation by road till December 2026.

The Committee deliberated on the same and enquired about the length of conveyor belt to be established. PP reported it to be of 2 km length and also submitted that crusher will be installed by March 2025.

The Committee is of the opinion that the length of conveyor belt to be established is of relatively short length and can be easily targeted to be established by July 2026 instead of December 2026.

vi. Specific Condition no. 4(vi) of EC stipulated that *"PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this. Accordingly, CTO should be granted."* The PP justified that construction of Belt Conveyor and other infrastructure may take some time to commission, till then transportation of Coal to Kedla washery/ any coal washery may be permitted by road transportation. Therefore, PP sought amendment in the said condition seeking permission for transportation by road till December 2026.

The Committee deliberated on the same and in pursuant to above condition is of the opinion that the establishment of the conveyor belt required can be achieved by July 2026 instead of December 2026.

vii. The Committee also deliberated on how the transportation of coal to take place while the time conveyor belt is under construction. The PP reported that it will take place by a dedicated road and approach road to mine will be constructed inside and outside the project area of length 1.50 km and 0.26 km respectively. It will also include an already existing road to Kedla Washery of 0.70 km.

viii. The Committee deliberated on the mitigative measures proposed for air pollution control along the coal transportation road. PP submitted that, coal will be transported through tarpaulin-covered tippers, a mobile mist type sprinkler of 28 KL capacity for dust suppression will be installed, permanent windscreens will be installed along the project's south-western and southern boundaries with a total length of 8 km, PCC topping on the concerned road is proposed to be done, fixed sprinklers along the length of Coal Transportation Route (CTR) are proposed, a vehicle wheel washing system is proposed, 3 row avenue plantation is proposed to be developed all along the transportation roads, also a CAAQMS is proposed to be installed and commissioned. PP reported that all of this will be adopted before the start of the transportation of coal along the dedicated coal transportation road of 1 km.

ix. The Committee also deliberated about the condition of the coal transportation road and observed that the said road is yet to be constructed. PP reported that the land on which the said road will be constructed is not in possession yet and the construction will be started as soon as the land possession is acquired. Committee also deliberated on the number of trucks which will pass daily through that road on an average. The PP reported that 30 trucks on an average of the capacity of 40 tonnes each are proposed to pass through that road daily.

x. The Committee is of the opinion that before the mining operations starts the PP must ensure that one CAAQMS shall be installed in the lease area and PP should submit the timeline of completion and budget of the same including additional measures like plantation, mobile sprinklers etc., to the EAC.

xi. The Committee also deliberated on the plantation being done by the PP and observed that no plantation has been started yet. Committee asked the PP to submit the budget of plantation and a concurrent plantation plan to the Committee.

xii. Specific Condition 4(xxi) of EC stipulated *"PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/OB etc, and deploy e-vehicles for workers/staff in/out of the Mine."* The PP justified that due to non-availability of suitable techno- economically feasible option in steeply dipping working seams existing at the Mine, this particular condition may be exempted. The Committee deliberated on the same and is of the opinion that there are multiple options available in this regard. The mine is yet to be operational and available options for electrical or CNG/LNG are yet to be explored by the PP. The PP shall first explore the options available in this regard and accordingly shall fulfil the stipulated condition.

xiii. Specific Condition 4(xxx) of EC stipulated *"PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of the approved budget outlay of CSR funds. The project- affected families shall be given free medical facilities. This shall be done in consultation of DM of the district."* The PP justified that there are already two Central Hospitals in Ranchi, running under their CSR scheme of 250 and 150 beds each at 40 km from the project area. Apart from this there are 6 other regional hospitals which are being operated by CCL and all of these are within 5 km from the project area. There are also dispensaries running at each project colliery. PP also submitted that it has also planned for construction of 6 bedded hospitals for the medical needs of PAPs and medical facilities to PAFs are free of charge at any hospital or dispensary being run by CCL.

The Committee deliberated on the same and took a serious view on the amendment sought by the PP in this regard. The Committee is of the opinion that the project is yet to be started and PP has not even envisaged the requirement of a multispecialty hospital (50 beds) within 10 km of the project area for locals and came for seeking amendment in the said condition. The Committee is of the opinion that the said condition must be complied with. In addition to this details of the operational primanry health centres and community health centres within 5 km of the mine must be provided to the Committee.

xiv. The Committee also enquired about the court cases if any. The PP submitted that there is no litigation pending on the project.

xv. The Committee observed in the DSS KML that there is a school within the project area and deliberated on the mitigative measures proposed by the PP for its safeguard. The PP submitted that it is not proposed to be relocated and greenbelt development is proposed around the school in order to control the air pollution around the school.

xvi. The Committee also observed that there are 4 seasonal nallahs flowing within the project boundary which are reported to be rain-fed and are nearly dry during the non-monsoon periods. PP submitted that in order to ensure the protection of nallas in a sustainable manner and also to protect the mines from the risk of flooding during rainy season, they involved IIT Roorkee for diversion plan of the concerned nallahs and IIT (ISM) Dhanbad for Sustainability study of the said mines. A detailed project report with respect to diversion of nallah was prepared by IIT Roorkee. Committee observed that Kotre stream will be diverted during the 1st year of construction as it flows through the proposed infrastructure land and for any construction work to happen, it needs to be diverted. Another stream, that is Jhumra is observed to be diverted in 3rd year of operations and will

be merged with the Pachmo stream. The Pachmo and Bhagaria streams are proposed to be diverted in 15th and 20th year of operations respectively.

xvii. The Committee also observed that the said project appears to be falls under Severely Polluted Area (SPA) as per CEPI 2018 Assessment, as it is part of Ramgarh district. PP submitted that as per Jharkhand State Pollution Control Board report dated 10.11.2022, there are 2 SPAs in Ramgarh district (Ramgarh Industrial Area & Patratu Industrial Area) and none in Bokaro. Both the SPAs of Ramgarh are at the distance of 20 km and 38 km respectively. Hence, KBP OCP does not fall within SPA.

xviii. The Committee also found mismatch in the information submitted by the PP before meeting and took it seriously and is of the view that the PP and Consultant should submit the information and the documents correctly without any error as it leads to ambiguity.

Recommendations of the Committee:

15.1.4: After deliberation, the Committee **recommended** the proposal for amendment in EC granted vide file no. IA-J-11011/18/2019-IA-II-(I) dated 18.09.2023 as detailed below. Other terms and conditions prescribed in the EC dated 18/9/2023 shall remain unchanged.

Reference in EC letter dated 18.09.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition 4(v)	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (i.e. December 2024). Accordingly, SPCB should grant consent to operate.	PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road within three years (**i.e. December 2026**). Accordingly, SPCB should grant consent to operate.	**Partially agreed.** PP was asked about the length of conveyor to be established and found it to be 2 km. Committee found it to be achievable by July 2026. Hence, now the condition to be read as *"PP shall install dedicated in-pit belt conveyor with silo loading system till railway siding for transportation of 90% of extracted coal through rail and only 10% by road till July 2026. Accordingly, SPCB should grant consent to operate."*
Specific Condition 4(vi)	PP shall transport coal through conveyor belt	PP shall transport coal through conveyor	**Partially agreed.** With regard to the

Reference in EC letter dated 18.09.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
	to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this. Accordingly, CTO should be granted.	belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and no road transportation shall be done for this **(Beyond December 2026)**. Accordingly, CTO should be granted.	changes in specific condition 4(v), Committee is of the opinion to amend specific condition 4(vi) as follows. *"PP shall transport coal through conveyor belt to the linked Kedla Washery (as in approved Mine Plan) only or any coal washery and road transportation allowed for this till July 2026 only. Accordingly, CTO should be granted.*
Specific Condition 4(xxi)	PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/ OB etc, and deploy e-vehicles for workers/ staff in/out of the Mine.	PP shall deploy at least 20% of overall fleet of dumpers/ trucks as electrical or CNG/LNG based dumpers/trucks for transportation of Coal/OB etc. **(if techno-economically feasible)** and deploy e-vehicles for workers/staff in/out of the Mine.	**Not agreed.** The Committee is of the opinion that mine is yet to be operational and options for deployment of electrical or CNG/ LNG based dumpers/ trucks is yet to be explored. Therefore, the condition shall remain intact and PP should explore and introduce the best options available for the same.
Specific Condition 4(xxx)	PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of the approved budget outlay of CSR funds. The project- affected	**Relaxation** in construction of new multispecialty (50 beds) hospital in the 10 km of the project area.	**Not agreed.** The Committee is of the opinion that this particular condition is not properly envisaged by the PP and it should be given a serious thought

Reference in EC letter dated 18.09.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
	families shall be given free medical facilities. This shall be done in consultation of DM of the district		before asking for such amendments. The project is yet to be started and health of habitants must be of utmost concern. Therefore, the said condition shall remain intact and no amendment will be granted for the same.

Agenda No 15.2

15.2: Environment Clearance (EC) for expansion in Coal Washery from 0.96 MTPA to 5.2 MTPA in an area 10.12 Ha **by M/s Sarda Energy and Minerals Limited** located at Villages: Dholnara, Mudagaon; District: Raigarh; State: Chhattisgarh – **Reconsideration for grant of expansion in EC based on ADS reply – reg.**

[Online Proposal No. IA/CG/CMIN/473768/2024 File No. J-11015/37/2004-IA-II(M)] [Consultant: GRC India Pvt Ltd; NABET/EIA/21-24/SA 0211 valid till 11/11/2024]

15.2.1: M/s. Sarda Energy and Minerals Limited has made an online application vide proposal No-IA/CG/CMIN/473768/2024, dated 22.05.2024 along with copy of EIA/EMP Report, certified compliance report and Common Application Form (CAF) for seeking Environment Clearance (EC) under the provisions of EIA Notification, 2006 for the project. The proposed project activity is listed at schedule no. 2(a), Coal Washeries under Category "A" of the EIA Notification, 2006 & amendment thereof and as the capacity is more than 2.5 MTPA, is being appraised at Central Level.

The project was granted ToR for expansion of production capacity from 0.96 MTPA to 5.2 MTPA in two phases (Phase I: - 0.96 to 1.8 MTPA and Phase II: - 1.8 MTPA to 5.2 MTPA) vide letter no. J-11015/37/2004-IA-II (M) dated 25.07.2023. The TOR is valid till 24.07.2027.

Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

15.2.2: Environmental site settings:

The project area is covered under Survey of India Toposheet No. 64N8 and is bounded by geographical co-ordinates ranging from latitude 22°09'56.43"N to 22°10'10.01"N and longitude 83°28'09.92"E to 83°10'27.46"E.

Project does not fall in the Critically Polluted Area (CPA)/ Severely Polluted Area (SPA), as per CEPI Assessment, 2018. This aspect has also been verified and confirmed through DSS.

Forest Area: PP submitted that the project does not involves any forest land. This aspect has also been verified and confirmed through DSS.

Protected Area: PP submitted that the project is not located within 10 km of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. and there is no violation of WLP act. This aspect has also been verified and confirmed through DSS.

7 Schedule-I species viz Elephas maximus (Elephant), Mellivora capensis (Honey badger), Melursus ursinus (Sloth bear), Panthera pardus (Panther), Striped hyaena (Hyena), Python molurus (Python), Pavo cristatus (Indian peafowl) has been sighted in the study area. Wildlife conservation plan has been prepared and approved by PCCF, Chhattisgarh.

Project Area: PP submitted that the existing plant is over 10.12 Ha of land and for the expansion project no additional land is required. Thus, total land required will remain same i.e. 10.12 Ha after expansion which has been provided to the proponent through vesting order.

15.2.3: Details of the ToR are furnished below:

Date of Application	Details	Date of Accord	ToR Validity
10.07.2023	J-11015/37/2004-IA-II (M)	25.07.2023	24.07.2027

15.2.4: Details of existing EC and its implementation status

The existing 0.96 MTPA Coal Washery obtained EC from SEIAA, Chhattisgarh vide letter no. 309/SEIAA-CG/EC/Coal Wahsery/RGH/10 dated 23.08.2010. CTE was obtained from CECB on 30.10.2010. Renewal of CTO was obtained from CECB on 10.07.2024 and same is valid till 31.05.2026. Production details of the same are as follows:

Year	Actual Coal Production in MTPA	Approved Production Capacity in MTPA as per EC	Excess Production
2023-24	0.95	0.96	Nil

15.2.5: Certified Compliance Report: The Status of compliance of earlier EC was obtained from Regional Office, Raipur vide letter no. 18-D-25/2010 (Env)-46, dated 09.05.2024 in the name of M/s. Sarda Energy and Minerals Limited. The Action taken report regarding the partially complied/non-complied condition was submitted to Regional officer MoEF&CC, Raipur vide letter no. SEML/ENV/CWI2024-25/5758 dated 20.05.2024. MoEF&CC (RO), Raipur evaluated the same and has issued letter vide File No. 18-D-25/2010 (Env) /121 dated 10.08.2024. The details of the

observations made by IRO in the report dated 10.08.2024 along with its re-assessment as furnished by the PP is given as below: -

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
1.	**Condition XVII** The proponent informed that details of safety measures including plant layout in the plan coal stock yard have already been submitted to CECB/SEIAA/or Regional Office of MoEF&CC. However, no document/evidence of such details have been received in this Sub-Office. **PP shall submit Details of safety measures including approved plant layout in the plan coal stock yard.**	Safety measures plan along with approved Location Plant layout is submitted.	Safety measures plan along with plant location layout has been received in this office. On perusal of the safety measures plan it has been observed that the said plan mentions the various safety measures during construction phase, during operation phase and maintenance phase and the personnel responsible for ensuring the safety.
2.	**Condition XVIII** The proponent has not developed a green belt of 33% of total area of project area. Therefore, the proponent is instructed to submit the comprehensive plan for plantation over an area of 3.34 ha. **PP shall submit Comprehensive plan for plantation over an area of 3.34 ha**	Comprehensive Plantation plan with year-wise breakup and earmarked funds allocated for plantation is enclosed. In this monsoon season we shall plant different plant species of 2000 nos all along the boundary.	Comprehensive plantation plan including eleven plant species to be planted during 2024-25 and the plantation map with funds earmarked (Rs 20 lakhs) has been received in the office.
3.	**Condition XX** The proponent informed that total expenditure incurred for implementation of EMP measure has been Rs.453.0	All environmental measures with budget incurred as committed in EIA/EMP report has been taken up since the commencement of operation of coal washery.	Environment protection measures and safeguards recommended in the EIA/EMP report, CSR activities carried with pictures and funds earmarked have been received

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
	lakhs. However, no documents/ evidences of implementation of recommendations of EIA/EMP and socioeconomic development activities in the surrounding villages. Further the proponent informed that the code of practice for coal washery issued by Central Pollution Control Board. **PP shall submit documents/ evidences of implementation of recommendations of EIA/EMP and socio-economic development activities in the surrounding villages.**	Details Enclosed Socio developmental activities carried in the surrounding villages with year-wise budget incurred along with the photographs is enclosed.	in the office.
4.	**Condition XXI** The proponent has constructed rainwater harvesting over 26900 m^2 area in the premise. However, no documents/evidence that detailed scheme for rainwater harvesting was prepared in consultation with CGWA/SGWB and same submitted to CECB/SEIAA/ or Regional Office of MoEF&CC. The proponent informed that no ground water has been used. **PP shall submit documents/evidence that detailed scheme for rainwater harvesting was**	Four Rainwater harvesting structures have been constructed in consultation and as per the guidelines of CGWA/CGWB. Photographs of Rainwater harvesting structures enclosed.	Rainwater harvesting structures with measurements, coefficient of runoffs and quantity of rainwater has been received in the office.

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
	prepared in consultation with CGWA/SGWB.		
5.	**Condition XXXVII** The proponent informed that coal washery was installed in October, 2010 and commissioned in May 2011 adjacent to our Karwahi open cast coal mine. Due to the unavailability of ROM coal, coal washery was temporarily discontinued from 31/03/2015 to 13/2/2021and restarted on 14/2/2022. However, no relevant documents have been received in this Sub-Office. **PP shall submit all CTOs obtained from CECB and the validity of environmental clearance dated 23/08/2010**	Final approval of the project and date of commencement of land development work and commissioning of the coal washery has already been submitted to Regional Office Bhopal. A copy of the same is enclosed. Financial closure shall be intimated to SEIAA and Regional Office of Raipur. All CTE, CTO's & Valid EC copies are enclosed.	a.) EC No.309/SEIAA-CG/EC/ Coal Washery/RGH 10/ dated 23/8/2010 was obtained from SEIAA, Chattisgarh. b.) CTE dated 30/10/2011 was obtained from CECB. c.) (c) CTO dated 24/5/2011 was obtained from CECB and same was valid up to 23/5/2012. d.) Renewal of CTO dated 19/7/2012 was obtained from CECB and same was valid up to 30/4/2014. e.) Renewal of CTO dated 31/10/2014 was obtained from CECB and same was valid up to 30/4/2016. f.) Renewal of CTO dated 23/6/2021 was obtained from CECB and same was valid up to 22/6/2024. g.) (Renewal of CTO dated 10/7/2024 was obtained from CECB and same is valid up to 10/7/2026. h.) The proponent vide letter dated 12/12/2011 and 14/3/2022 has intimated CECB about the commencement of operation of coal washery. The project proponent informed

S.No.	Non-Compliance Details (Observation by RO)	Response of PP	Reassessment by RO
			that financial closure shall be intimated to SEIAA and regional office of Raipur in due time.

15.2.6: Salient features of the project:

i. The proposed project is for Expansion of Coal Washery Plant located at Village-Bajarmuda and Dholnara, Tehsil- Tamnar, District- Raigarh, Chhattisgarh from 0.96MTPA to 5.2 MTPA in two phases (Phase I :- 0.96 to 1.8 MTPA and Phase II :- 1.8 MTPA to 5.2 MTPA).

ii. Total coal requirement after expansion will be 5.2 MTPA out of which 1.8 MTPA will be sourced from PP's own mine adjacent to washery and remaining 3.4 MTPA coal will be taken from Jindal Steel and Power Limited. ROM Coal, Clean coal and midlings will be transported through road & rail network. PP's own railway siding is also proposed which is likely to be operational by 2026. Complete transportation of coal will be through railway once the railway siding gets operational.

iii. The project site is at the distance of about 12.5 km towards East from SH-1. The nearest railway station is Raigarh Railway Station which is located at about 31.7 km in South direction. Nearest airport is Veer Surendra Sai Airport, Jharsuguda at 64.5 km in SE.

15.2.7: Legal Issues/ Violation: PP submitted that there is no legal issue/violation wr.t i) Environment (Protection) Act, ii) Air(P&CP) Act, Water (P&CP), Act, Van (Sanrakshan Evam Samvardhan) Adhiniyam 1980, Wildlife Protection Act, MMDR Act, Factories Act. Further, there is no court case on the project.

15.2.8: Water Requirement: PP submitted that the water requirement after expansion will be 851 KLD (existing is 376 KLD). The water will be sourced from adjacent mine sumps, for which NOC from CGWA vide NOC No. CGWA/NOC/MIN/ORIG/2022/17116 dated 25.11.2022, valid up to 24.11.2024 has been obtained. PP also submitted that groundwater will be used for domestic purposes, for which NOC from CGWA for withdrawal of 10 KLD of groundwater has been obtained vide NOC No. CGWA/NOC/IND/ORIG/2022/16989 dated 04.11.2022 valid up to 03.11.2025. PP further submitted that no industrial wastewater will be discharged as the plant is designed on zero effluent discharge principle and sanitary wastewater will be sent to STP. Further, there is no diversion of any river/ nallah proposed.

15.2.9: Power Requirement: PP submitted that the total power requirement for the project is 3.2 MW which will be sourced from Chhattisgarh State Power Distribution Company Limited (CSPDCL). Also, 2x250 kVA DG sets will be operated for emergency use. There will be no any diversion of Hi-Tension/Transmission line due to the proposed expansion.

15.2.10: Baseline Data: Environmental Baseline data has been collected during1st March 2023 to 31st May 2023 (Pre Monsoon Season):

<table>
<tr><td>Period</td><td>Pre Monsoon Season: 1st March 2023 to 31st May 2023</td></tr>
<tr><td>AAQ parameters at 08 Locations</td><td>PM_{10} :- 57.1-92.7 µg/m^3
$PM_{2.5}$:- 30.9 – 52.1 µg/m^3
SO_2 :- 6.3-15.4 µg/m^3
NO_2 :- 9.1-32.6 µg/m^3
CO :- 280-1430 µg/m^3</td></tr>
<tr><td>AAQ modelling</td><td>Incremental GLCs due to the proposed proposal:
PM_{10} :- 0.91µg/m^3 at 100 m in NNE
$PM_{2.5}$:- 0.60 µg/m^3 at 100 m in NNE
SO_2 = 1.87 µg/m^3 at 100 m in NNE
NO_2 :- 2.63 µg/m^3 at 100 m in NNE
CO :- 4.47 µg/m^3 at 100 m in NNE</td></tr>
<tr><td>Ground water quality at 08 locations</td><td>pH: 7.16-7.41
Total Hardness: 256-330 mg/l.
Chlorides: 46-57 mg/l,
Fluoride: 0.1-0.4 mg/l</td></tr>
<tr><td>Surface water quality at 8 locations</td><td>pH: 7.36-7.56
DO: 5.6-6.3 mg/l.
BOD: 2.5-4.2 mg/l
COD : 12.7-32.3 mg/l</td></tr>
<tr><td>Noise levels</td><td>45.8 to 73.8 dBA - day time
34.6 to 65.7 dBA- Night time.</td></tr>
<tr><td>Traffic assessment study findings</td><td>Traffic study has been conducted at Tamnar Road and SH-1 which is adjacent to the project site.

Transportation of raw material, fuel & furnished product will be done maximum by road.

Existing PCU is 142 PCU/hr on Tamnar road and 309 PCU/hr at SH-1 and existing level of services (LOS) is:
<table>
<tr><th>Road</th><th>V (Volume in PCU/hr.)</th><th>C (Capacity In PCU/hr.)</th><th>Existing V/C Ratio</th><th>LOS</th></tr>
<tr><td>Tamnar Road</td><td>142</td><td>625</td><td>0.23</td><td>B</td></tr>
<tr><td>SH-1</td><td>309</td><td>1500</td><td>0.21</td><td>B</td></tr>
</table>
PCU load after proposed Project will be 345 PCU/hr (142 (Existing) + 203 (Increased)) at Tamnar road and 512 PCU/hr (309 (Existing) + 203 (Increased)) at SH-1 and level of Services (LOS) will be:
<table>
<tr><th rowspan="2">Road</th><th colspan="3">V (Volume in PCU/hr.)</th><th rowspan="2">C(Capacity InPCU/hr.)</th><th rowspan="2">Proposed V/C Ratio</th><th rowspan="2">LOS</th></tr>
<tr><th>Existing</th><th>Proposed</th><th>Total</th></tr>
<tr><td>Tamnar Road</td><td>142</td><td>203</td><td>345</td><td>625</td><td>0.55</td><td>C</td></tr>
<tr><td>SH-1</td><td>309</td><td>203</td><td>512</td><td>1500</td><td>0.34</td><td>B</td></tr>
</table>
Note: Capacity as per IRC 106:1990 guidelines for capacity for roads.</td></tr>
</table>

Period	Pre Monsoon Season: 1st March 2023 to 31st May 2023
	Conclusion: The modified LOS on Tamnar Road will be remained "C", i.e. Good. The modified LOS on SH-1 will be remained "B", i.e. Very Good. Therefore, there will be no change in LOS after completion of the project.
Flora and fauna	7 Schedule-I species *viz Elephas maximus* (Elephant), *Mellivora capensis* (Honey badger), *Melursus ursinus* (Sloth bear), *Panthera pardus* (Panther), *Striped hyaena* (Hyena), *Python molurus* (Python), *Pavo cristatus* (Indian peafowl) has been sighted in the study area. Wildlife conservation plan has been prepared and submitted to CCF, Bilaspur (CG) through DFO.

PP reported that the Laboratory involved in analysis of water, air, noise & soil quality data, etc. has been accredited by the NABL/ MoEF&CC bearing the Certificate of Accreditation No: - TC-7501 and valid till 25.04.2025.

15.2.11: Solid & Hazardous Waste: PP submitted that currently about 0.451 MTPA of Middlings is being generated during coal washing. The middlings are being stored in an earmarked place for sale to power plants for steam generation. Middlings are transported by road in covered trucks directly to the customer. After expansion of the washery, total of 2.184 MTPA of middlings will be generated during coal washing following the same procedure. Middlings are currently supplied to PP's own unit at Siltara and after expansion remaining middlings will be given to Jindal Steel and Power Limited.

15.2.12: EMP Cost: The budget earmarked by the PP for EMP is Rs. 385.80 Lakhs (Capital) and Rs. 104.5 Lakhs (Recurring).

S. No	Activity	Capital Cost (Lakh)	Recurring expenses proposed/ annum (Lakh)
1	**Air Pollution Control Measures**	**90.8**	**28.0**
	➢ DES and Bag House in crusher house	38	5.0
	➢ Fixed Water sprinklers	20	3.0
	➢ Mobile water sprinklers	10	4.0
	➢ Enclosures to belt conveyors	12.8	3.0
	➢ Asphalted internal roads	15	3.0
	➢ Rain gun	15	10
2	**Water pollution control measures**	**94**	**36**
	➢ Closed water Circuit , Thickener	60	20
	➢ Storm water drains	10	2.0
	➢ Rainwater Harvesting Pond	10	10
	➢ STP	05	2.5
	➢ Piezometer to monitor ground water level	9	1.5
3	**Green belt development**	**40**	**10.0**
4	**Solar Power Plant**	**100**	**20.0**

S. No	Activity	Capital Cost (Lakh)	Recurring expenses proposed/ annum (Lakh)
5	**Environment Management Cell**	**28**	**7**
6	**Environmental Monitoring**	**--**	**3.5**
7	**Budget for addressing environment related issues raised during public hearing**	**33**	**--**
Total		**385.8**	**104.5**

15.2.13: Public Hearing Details: PP submitted that the Public hearing notice was published in Nayi Duniya on 28.01.2024, in Kelo Pravah on 29.01.2024 and in The Times of India on 30.01.2024. The Public Consultation was conducted on 01.03.2024, at Middle School Ground, Vill - Bajarmuda, Tehsil – Tamnar, Dist – Raigarh, Chhattisgarh under the chairmanship of Ms. Santan Devi Jagde, Additional District Magistrate. The PH was attended by 900 people and 321 nos of written representations were received from and outside the district. The major issues raised during the PH were improvement in infrastructure, concern for drinking water, employment for the locals, air pollution control measures, road safety measures & concern about health of local people. PP earmarked an amount of 160 Lakh for addressing the issues raised during PH.

Following is the action plan along with the budget allocated for each activity by the PP for the issues raised during PH:

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
1.	Improvement of Infrastructure in nearby village	PP has proposed to adopt village Dholnara for improvement of infrastructure. Village development program under consultation with local panchayat and	**65.00 Lakhs** ➢ Development and Maintenance of Village Roads :- **30 Lakhs** ➢ Providing 200 Street Lights and maintenance:- **5**	**21.30 Lakhs** ➢ Development of Village Roads :- **12 Lakhs** ➢ Installing 40 street lights :- **Rs 0.7 lakhs,** Mainta	**21.90 Lakhs** ➢ Development Village Roads :- **12 Lakhs** ➢ Installing 40 street lights :- **Rs 0.7 lakhs,** Mainta	**12.50 Lakhs** ➢ Maintenance of Village Roads :- **2 Lakhs** ➢ Installing 40 street lights :- **Rs 0.7 lakhs,** Maint	**4.60 Lakhs** ➢ Maintenance of Village Roads :- **2 Lakhs** ➢ Installing 40 street lights :- **Rs 0.7 lakhs,** Maint	**4.70 Lakhs** ➢ Maintenance of Village Roads :- **2 Lakhs** ➢ Installing 40 street lights :- **Rs 0.7 lakhs,** Maint

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		district administration for need-based community development activities which would be in addition to the development plans being undertaken by state and central government.	**lakhs** ➢ Construction of 15 Nos of community toilets and maintenance :- 15 Lakhs ➢ Construction of 3 Community Halls and Maintainance :- 15 Lakhs	inance cost (40 lights) :- **Rs 0.1 lakhs** ➢ Construction of 5 community toilets: - **Rs 4 Lakhs**, Maintainace cost (5 toilets) :- **Rs 0.25 Lakhs** ➢ Construction of 1 community hall:- **Rs 4 Lakhs**, Maintainace cost (1 hall) :- **Rs 0.25 Lakhs**	inance cost (80 lights) :- **Rs 0.2 lakhs** ➢ Construction of 5 community toilets: - **Rs 4 Lakhs**, Maintainace cost (10 toilets) :- **Rs 0.50 Lakhs** ➢ Construction of 1 community hall:- **Rs 4 Lakhs**, Maintainace cost (2 hall) :- **Rs 0.50 Lakhs**	ainance cost (120 lights) :- **Rs 0.3 lakhs** ➢ Construction of 5 community toilets: - **Rs 4 Lakhs**, Maintainace cost (15 toilets) :- **Rs 0.75 Lakhs** ➢ Construction of 1 community hall:- **Rs 4 Lakhs**, Maintainace cost (3 hall) :- **Rs 0.75 Lakhs**	ainance cost (160 lights) :- **Rs 0.4 lakhs** ➢ Maintainace of 15 toilets :- **Rs 0.75 Lakhs** ➢ Maintainace of 3 halls :- **Rs 0.75 Lakhs**	ainance cost (200 lights) :- **Rs 0.5 lakhs** ➢ Maintainace cost (5 toilet) :- **Rs 0.75 Lakhs** ➢ Maintainace of 3 halls :- **Rs 0.75 Lakhs**

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
2.	Employment for the locals	Willing and employable youths will be identified in consultation with gram panchayat of Bajarmuda, Dholnara and Khamariya. They will be provided training for trades namely electrician, fitters, welders, painters, and civil construction work, etc. After successful completion of training, the youths will be offered	**25 Lakhs** Stipend – 17.0 Lakh (Rs. 17000/- stipend per year to 100 persons for 1 year) ITI Fee – 8.0 Lakhs (Rs. 8000/- yearly fee for 100 persons for 1 year)	**5 Lakhs**	**5 Lakhs**	**5 Lakhs**	**5 Lakhs**	**5 Lakhs**

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		employment in company in suitable grade.						
3.	Air Pollution Control Measures	Tree plantation (5000 trees) will be done along road side in nearby villages Bajarmuda, Dholnara and Khamariya and providing Water sprinkling on road for dust dispersion control in nearby villages in consultation with the authority. 50 no. of Air purifier will be	**33 Lakhs** ➢ Plantation of 5000 trees:- **25 Lakhs** ➢ Installation of 300 water sprinklers :- **3 Lakhs** ➢ Distribution of 50 no. of air purifiers **:- 5 Lakhs**	**6.48 Lakhs** ➢ Plantation of 1000 trees:- **5 Lakhs** ➢ Installation of 60 water sprinklers :- **0.6 Lakhs** ➢ Distribution of 10 no. of air purifiers**:- 0.8 Lakhs** Maintanance of 10 purifiers :- **0.08 lakhs**	**6.54 Lakhs** ➢ Plantation of 1000 trees:- **5 Lakhs** ➢ Installation of 60 water sprinklers :- **0.6 Lakhs** ➢ Distribution of 10 no. of air purifiers**:- 0.8 Lakhs** Maintanance of 20 purifiers :- **0.14 Lakhs**	**6.6 Lakhs** ➢ Plantation of 1000 trees:- **5 Lakhs** ➢ Installation of 60 water sprinklers :- **0.6 Lakhs** ➢ Distribution of 10 no. of air purifiers **:- 0.8 Lakhs** Maintanance of 30 purifiers :- **0.20 Lakhs**	**6.66 Lakhs** ➢ Plantation of 1000 trees:- **5 Lakhs** ➢ Installation of 60 water sprinklers :- **0.6 Lakhs** ➢ Distribution of 10 no. of air purifiers **:- 0.8 Lakhs** Maintanance of 40 purifiers :- **0.26 Lakhs**	**6.72 Lakhs** ➢ Plantation of 1000 trees:- **5 Lakhs** ➢ Installation of 60 water sprinklers :- **0.6 Lakhs** ➢ Distribution of 10 no. of air purifiers **:- 0.8 Lakhs** Maintanance of 50 purifiers :- **0.32 Lakhs**

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		distributed Govt School Bajarmuda and nearby health centres						
4.	Concern for Drinking water	Providing three Water filteration (RO) plant in village Bazarmuda and Dholnara	**12 Lakhs**	**3.6 Lakhs** Installation :- **3 Lakhs**, Maintenance :- **0.6 Lakhs**	**3.6 Lakhs** Installation :- **3 Lakhs**, Maintenance :- **0.6 Lakhs**	**3.6 Lakhs** Installation :- **3 Lakhs**, Maintenance :- **0.6 Lakhs**	**0.6 Lakhs** Maintenance :- **0.6 Lakhs**	**0.6 Lakhs** Maintenance :- **0.6 Lakhs**
5.	Road Safety Measures	Large size convex mirrors will be provided at turning points of the road connecting SH-1 to washery and regular monitoring of speed of vehicles will be done and raining on	**5 Lakhs**	**1.4 Lakhs**	**1.4 Lakhs**	**1.4 Lakhs**	**0.4 Lakhs**	**0.4 Lakhs**
			➢ Installing large size convex mirrors at turning points and speed breakers on village roads :- **3 Lakhs**	➢ Installing large size convex mirrors at turning points and speed breakers on village roads :- **1 Lakhs**	➢ Installing large size convex mirrors at turning points and speed breakers on village roads :- **1 Lakhs**	➢ Installing large size convex mirrors at turning points and speed breakers on village roads :- **1 Lakhs**		
			➢ Providing Training on Traffic	➢ Providing Training on Traffic	➢ Providing Training on Traffic	➢ Providing Training on Traffic	➢ Providing Training on Traffic	➢ Providing Training on Traffic

S. No.	Issue Raised during PH	Physical activity and action plan	Total Budget	Yearwise Breakup				
				2024-25	2025-26	2026-27	2027-28	2028-29
		Traffic awareness will be provided in nearby villages	Awareness :- **2 Lakhs**	Awareness :- **0.4 Lakhs**	Awareness :- **0.4 Lakhs**	Awareness :- **0.4 Lakhs**	Awareness :- **0.4 Lakhs**	Awareness :- **0.4 Lakhs**
6.	Concern about health of local people	Arrangement of 1 Modern Ambulance with Life Support system with necessary Medical Staff to Sub Health Centre, Dholesera and Health checkup and distribution of medicines in Villages Bazarmuda and Dholnara	**20 Lakhs** ➢ Arrangement of Ambulance :- **Rs 10 Lakhs** ➢ Conducting Health checkup:- **Rs. 7.5 Lakhs** ➢ Providing Medicines and other health facilities :-**Rs. 2.5 Lakhs**	**12 Lakhs** ➢ Arrangement of Ambulance :- **Rs 10 Lakhs** ➢ Conducting Health checkup:- **Rs. 1.5 Lakhs** ➢ Providing Medicines and other health facilities :-**Rs. 0.5 Lakhs**	**2 Lakhs** ➢ Conducting Health checkup:- **Rs. 1.5 Lakhs** ➢ Providing Medicines and other health facilities :-**Rs. 0.5 Lakhs**	**2 Lakhs** ➢ Conducting Health checkup:- **Rs. 1.5 Lakhs** ➢ Providing Medicines and other health facilities :-**Rs. 0.5 Lakhs**	**2 Lakhs** ➢ Conducting Health checkup:- **Rs. 1.5 Lakhs** ➢ Providing Medicines and other health facilities :-**Rs. 0.5 Lakhs**	**2 Lakhs** ➢ Conducting Health checkup:- **Rs. 1.5 Lakhs** ➢ Providing Medicines and other health facilities :-**Rs. 0.5 Lakhs**
Total			**160 Lakhs**	**49.78 Lakhs**	**40.44 Lakhs**	**31.10 Lakhs**	**19.26 Lakhs**	**19.42 Lakhs**

15.2.14: Plantation: PP submitted that Greenbelt has been already developed in 3.34 ha (33% of total area). Total no. of 8220 trees has been already present. Further 2000 no. of saplings will be planted.

15.2.15: Project Cost: The total capital cost of the project after expansion is Rs 80.12 Crores (Existing-Rs. 39.17 Cr + Expansion-Rs. 40.95 Cr) and the capital cost for environmental protection measures is proposed as Rs 3.86 Crores. The annual recurring cost towards the environmental protection measures is proposed as Rs 1.04 Crores. The total employment generation from the project after expansion will be 239.

15.2.16: Affidavit and Undertaking: PP has submitted an undertaking stating that there is no construction done at the project site w.r.t. the expansion part and there is no litigation on the project either at NGT or any other court of law. Total land in under possession of proponent. That there is no difference in the documents submitted and the presentation being made to the EAC. There are no data entry errors in the information uploaded in Parivesh. In case any deviation in data is found in any of the documents, the authorised signatory shall be held responsible and furthermore, the said proposal shall be rejected for the grant of EC.

15.2.17: ADS Information in chronology: Sarda Energy and Minerals Limited has made an online application vide proposal No- IA/CG/CMIN/473768/2024, dated 22.05.2024. The proposal was initially considered in 14th meeting of EAC (Coal) held on 5th – 7th August 2024 Proposal was deferred for want of additional information. The proponent submitted the ADS reply vide letter dated 30.08.2024 and uploaded on PARIVESH on 30.08.2024. Point-wise reply of ADS is given as below:

S.No.	Queries	Reply
(i)	Approved Wildlife Conservation & Management Plan and the distance map w.r.t. the concerned coal washery plant and PCCF certificate to be submitted on Parivesh Portal.	PP submitted that wildlife conservation plan with budgetary provision of Rs. 29.48 lakhs has been prepared and same was approved by Principal Chief Conservator of Forest, CG dated 01.08.2024. Copy of approval letter is submitted. Approved wildlife conservation plan is also submitted. Distance authentication map showing distance of nearest wildlife sanctuary and animal corridor has been submitted. 7 Schedule – I species has been sighted in the study area, viz. 1. Elephas maximus (Elephant), 2. Mellivora Capensis (Honey Badger), 3. Melursus ursinus (Sloth bear), 4. Panthera pardus (Panther), 5. Striped hyaena (Hyena), 6. Python molurus (Python), 7. Pavo Cristatus (Indian Peafowl)

S.No.	Queries	Reply
(ii)	Action taken report of the Certified compliance report obtained from RO, Raipur vide letter no. 18-D-25/2010 (Env)-46, dated 09.05.2024 must be submitted to the concerned RO, MoEF&CC, to obtain their comments and the same shall be further submitted to the EAC for further consideration.	PP submitted that action taken report w.r.t partially/non-compliance of conditions has been submitted to IRO, Raipur on 20.05.2024. Closure letter with comments of IRO, Raipur w.r.t ATR has been obtained vide File No-18-D-25/2010(Env)/121 dated 10.08.2024. Copy of closure letter has been submitted.
(iii)	Revised action plan to address the issues raised during public hearing as per the Ministry's O.M. dated 30/09/2020.	As per the observation raised, the budget for addressing PH issues has been increased from INR 120 lakhs to INR 160 lakhs. Revised action plan has been submitted**.**
(iv)	The EMP budget shall be revisited and the budget pertaining to mitigation measures and plantation must be increased. The revised EMP budget shall be submitted.	As per the observation budget for EMP has been increased from INR 2.60 Cr as capital cost and INR 0.84 Cr as recurring cost to INR 3.86 Cr as capital cost to INR 1.04 Cr as recurring cost. Revised EMP budget has been submitted.
(v)	Action plan for shifting to e-vehicles and CNG/ LNG operated vehicles in the coal washery shall be submitted.	PP submitted that our own private railway siding is already proposed which is likely to be operational by 2026. Hence all the transportation of coal will be through railway siding. NOC for taking up private railway siding has been obtained from Chhattisgarh East Railway Limited vide letter no. CERL/Raipur/SARDA/2022-23/740 dated 23.11.2022. Copy of NOC has been submitted. Employees will be encouraged to use electric vehicles. Charging stations will be installed within washery.
(vi)	Undertaking from the project proponent stating that no ground water will be utilized for the coal washery during its operation phase.	PP informed that out of the total daily water requirement i.e. 851 KLD, 841 KLD water to be used for washery operation, plantation and dust suppression will be sourced from mine sumps. Only 10 KLD water will be sourced from Ground water and will be used only for drinking purpose. Permission for dewatering of 1656 KLD

S.No.	Queries	Reply
		water from mine sump and withdrawal of 18 KLD ground water has been obtained from CGWA vide NOC No. CGWA/NOC/MIN/ORIG/2022/17116 dated 25.11.2022. Copy of NOC and Undertaking for using water from mine sump for industrial purpose has been submitted.
(vii)	There is a Government school namely Bajarmuda at a distance of 0.830 km from the project boundary in northern direction. Action plan for relocation/mitigation measures to be adopted for the same shall be furnished.	PP is committed to have minimum adverse impact on Bajarmuda Government school. Following mitigation measures have been taken to minimize the impact on Sensitive areas within the study area: - ➢ Bag filters will be provided to crushers for control of air emission. ➢ Greenbelt will be thickened along the northern boundary of plant to minimize the pollutant emission due to project. ➢ Village roads will be maintained and made pucca to have minimum dust emission. ➢ Only PUC certified trucks will be allowed for Transportation of raw materials. Trucks will be kept covered. ➢ No truck movement will be allowed during peak hours. Even during non-peak hours speed of trucks will be limited to 10 kmph near school. ➢ Regular monitoring of environmental parameters will be conducted twice a year by NABL accredited laboratory. *Note: The Govt School of Village - Bajarmuda lies within the Mine lease area of Operational "Gare Pelma Sector – III" Coal Mine of Chhattisgarh State Power Generation Company Ltd (CSPGCL).*

15.2.18: Written submissions by the proponent

Written submission made by PP are summarized as below:

S. No.	Points	Written submissions made
1.	PP should submit an undertaking regarding following points: ➢ Timeline for private railway siding for transportation. ➢ That, trucks used for transportation of raw coal, clean coal & midlings won't be older than 5 year. ➢ That, remaining plantation will be completed within (1000 Nos) within 30 days of grant of EC. ➢ That, PP will explore the possibility of additional plantation outside the plant premises along the roads and around sensitive receptors like schools and hospitals. ➢ That, PP will install three (3) nos RO water purification system of having capacity of 125 LPH each in villages Bajarmuda, Dholnara and Khamariya. ➢ That, PP will install solar plant of capacity 1 MW within plant premises.	An Undertaking regarding the said points is submitted.
2.	PP should submit greenbelt photographs having GPS coordinates.	PP informed that 3.34 ha land has been earmarked for greenbelt and 8220 trees are present within the project site. Additionally, 1000 nos trees will be planted within 30 days of grant of EC. Photographs of existing greenbelt are submitted.
3.	PP should submit revised action plan for addressing the issues raised during public hearing.	PP informed that an amount of INR 1.6 cr has been allotted for addressing the issues raised during public hearing. Action plan for addressing the issues has been submitted.
4	PP should submit the EMP budget details.	PP informed that they have allotted a budget of INR 385.8 lakhs as capital cost for Environment protection measures. Additionally, an amount of INR 104.5 lakhs will be spent per year as recurring cost for the maintenance.

S. No.	Points	Written submissions made
		Detailed EMP budget is submitted.
5	PP should submit the NOC and In-principle approval for private railway siding.	PP informed that NOC for setting private railway siding has been obtained from Chhattisgarh East Railway Limited vide letter no. CERL/Raipur/SARDA/2022-23/740 dated 23.11.2022. Copy of NOC is submitted. Further, PP informed that in-principle approval letter has been received from Divisional Office, South Eastern Railway Limited vide Letter No. P/GCT/EC/BUMA/SARDAE&M/22/11/04 dated 17.01.2023. Copy of in-principle approval is submitted.

Deliberations and Observation of the Committee:

15.2.19: The Committee noted the following:

i. The instant proposal is for brown-field project for grant of Environmental Clearance (EC) for Expansion of Coal Washery Plant from 0.96 MTPA to 5.2 MTPA in two phases (Phase I: - 0.96 to 1.8 MTPA and Phase II: - 1.8 MTPA to 5.2 MTPA) by Sarda Energy and Minerals Limited, located at Villages-Bajarmuda and Dholnara, Tehsil- Tamnar, District- Raigarh, State-Chhattisgarh.

ii. The EAC also took into consideration the project site through kml file on the Google Earth presented by the project proponent along with DSS of the project site on PARIVESH. The project area is covered under Survey of India Toposheet No. 64N8 and is bounded by geographical co-ordinates ranging from latitude 22°09'56.43"N to 22°10'10.01"N and longitude 83°28'09.92"E to 83°10'27.46"E. Also, the project does not fall under CPA/ SPA as per CEPI Assessment, 2018.

iii. The total project area is 10.12 ha and there is no additional land proposed in the instant proposal for expansion. Further, the project does not involve any forest land and the project is not located within 10 km of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. and there is no violation of WLP act. However, there is presence of Schedule – I species. PP submitted the approved Wildlife Conservation & Management Plan vide letter dated 01.08.2024 and the distance map w.r.t. the concerned coal washery plant by PCCF cum CWLW Chhattisgarh. The Committee observed that budget earmarked for the same as per the approved WLP is yet to be deposited.

iv. Terms of Reference was granted on 25.07.2024. Committee deliberated on the compliance of the conditions of the existing EC. The PP submitted that the Certified Compliance Report of the existing EC was obtained from Regional Office, Raipur vide letter no. 18-D-25/2010 (Env)-46, dated 09.05.2024 in the name of M/s. Sarda Energy and Minerals Limited. It is

observed that the compliances pertaining to the conditions of safety measures to be taken for storage of coal stock and plant layout, development of greenbelt and approved scheme of rainwater harvesting from the CGWA/SGWB have been either partially complied or not complied. PP submitted the closure report dated 10.08.2024 received from the IRO Raipur w.r.t the ATR to CCR dated 20.05.2024. The Committee deliberated on the closure report received from IRO and found it to be satisfactory.

v. The Public hearing was conducted on 01.03.2024 under the chairmanship of Ms Santan Devi Jagde, Additional District Magistrate. The advertisement for PH was publish in Nayi Duniya on 28.01.2024, in Kelo Pravah on 29.01.2024 and in The Times of India on 30.01.2024. The Public Hearing was attended by 900 no of persons and total 321 no of written comments were also received. The main issues raised during the PH involves Improvement of Infrastructure, Concern for Drinking Water, Employment for the locals, Air Pollution Control Measures, Road Safety Measures, Concern about health of local people. The budget earmarked to address the issues raised during PH is reported to be Rs. 1.60 Cr changed from Rs. 1.20 Cr as per the suggestions given by EAC in the previously held meeting. The changes made in the budget are observed to be incremental in the existing activities only.

vi. The total capital cost of the project after expansion is Rs 80.12 Crores (Existing-Rs. 39.17 Cr + Expansion- Rs. 40.95 Cr) and the capital cost for environmental protection measures is proposed as Rs 385.8 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs. 104.5 Lakhs. The EMP cost for both capital and recurring expenses has been increased as per the suggestions given by EAC in the previously held meeting.

vii. The Committee observed that the total employment generation from the project after expansion will be 239.

viii. The Committee deliberated on the plantation activities in the project area. The PP submitted that Greenbelt has been already developed in 3.34 ha (33% of total area). Total no. of 8220 trees are already present. Geo-tagged photos of the same has been submitted by the PP. Further, PP reported that 1000 nos of plants have been planted in the current monsoon session and the remaining 1000 no. of saplings will be planted. The PP has submitted a comprehensive plantation plan including eleven species to be planted during 2024-25 and the plantation map with funds earmarked (Rs. 20 Lakhs as a capital cost and Rs. 5 Lakhs per annum as recurring cost). PP also submitted an undertaking stating that the remaining plantation (1000 nos) will be completed within 30 days of the grant of EC.

ix. Total coal requirement after expansion will be 5.2 MTPA out of which 1.8 MTPA will be sourced from PP's own mine adjacent to washery and remaining 3.4 MTPA coal will be taken from Jindal Steel and Power Limited. The transportation of the same shall be done through road and rail networks.

x. There is no court case pending on the project.

xi. The Committee deliberated on the water requirement of the project and observed that total requirement of water during the construction stage will be 10 KLD, necessary permissions for the same has been obtained by the PP and at the operational stage will be 851 KLD. At the same time, the PP has constructed rainwater harvesting over 26900 m^2 area in the premises. However, no documents/evidence that detailed scheme for rainwater harvesting was prepared in consultation with CGWA/SGWB and same submitted to Regional Office of MoEF&CC as per the CCR obtained from RO, Raipur. The Committee observed in the IRO report that the PP has submitted the details of rain water harvesting to the RO office. At the same time

Committee is of the opinion that the PP shall increase the capacity of the rainwater harvesting and storage tank.

xii. The Committee deliberated on the generation of Solid and Hazardous waste and observed that solid waste being generated from the washery is of Midlings, which will be sold to power plants for steam generation. Other solid waste being generated is that of plastic, used computers, CPU, used batteries, etc., which shall be sold to the recyclers. Apart from this, the hazardous waste being generated is used oil which will be sold to authorized recycler/ vendors.

xiii. The Committee deliberated on the mode of transportation and observed that on suggestions given by the Committee in the previous meeting the PP has planned to install e-vehicle charging stations within the washery and the employees of the washery will be encouraged to use e-vehicles. Also, the PP reported that they have proposed their own private railway siding, which is likely to be operational by 2026. PP submitted that NOC vide letter no. CERL/Raipur/SARDA/2022-23/740, dated 23.11.2022 has been obtained from Chhattisgarh East Railway Limited in this regard. The Committee also suggested to not to use vehicles older than 5 – years to mitigate air pollution.

xiv. The Committee observed that there is a government school namely Bajarmuda at a distance of 0.83 Km from the project boundary in the northern direction and sought for the action plan for relocation or mitigation measures proposed to be adopted for protection of the same. PP submitted that the school is not proposed to be relocated, but rather mitigation measures have been taken to minimize the impact on the school by providing bag filters to crushers for control of air emission, greenbelt will be thickened along the northern boundary of the plant, possibilities of additional plantation around the school in consultation with the management will be explored, village road will be maintained and made pucca to have minimum dust emission, only PUC verified covered trucks will be allowed for transportation of raw material, truck movement will be restricted during peak hours and even during non-peak hours the speed of the trucks will be limited to 10 kmph near the school. Apart from this, PP reported that a monitoring committee will be constituted to take care of all the compliances and all the precautionary measures. Also, regular monitoring of environmental parameters will be conducted twice a year by NABL accredited laboratory.

xv. Committee also deliberated on one of the most sensitive issue raised during Public Hearing, i.e., concern for drinking water. The Committee observed that only 2 nos. of water filtration (RO) plants are proposed and found it to be of inadequate capacity. The Committee suggested the PP to increase the nos of ROs to meet the needs of the affected villagers. The PP submitted an undertaking stating that it will install 3 nos of RO water purification system of 125 LPH each in villages Bajarmuda, Dholnara and Khamariya.

xvi. The Committee also deliberated on another issue raised during the Public Hearing, i.e., road safety measures. The PP submitted that large convex mirrors will be provided at the turning points of the road connecting SH-1 to washery and regular monitoring of the speed of vehicles will be done and training of traffic awareness will be provided in the nearby villages. The Committee is of the opinion that the PP should have a traffic circulation plan designed by some reputed institute. The Committee also asked the PP to properly plan the trucks' parking so that it is not problematic for the nearby villagers.

xvii. The Committee further deliberated on the installation of solar power plant as proposed in the EMP budget submitted by the PP. The PP submitted an undertaking stating that it will install a solar power plant of capacity 1 MW within the plant premises.

xviii. The EAC noted that the Project Proponent has given an undertaking stating that there is no construction done at the project site w.r.t. the expansion part and there is no litigation on the project either at NGT or any other court of law. Total land in under possession of proponent. That there is no difference in the documents submitted and the presentation being made to the EAC. There are no data entry errors in the information uploaded in Parivesh. In case any deviation in data is found in any of the documents, the authorised signatory shall be held responsible and furthermore, the said proposal shall be rejected for the grant of EC.

xix. The Committee deliberated on the ADS reply submitted by the PP and observed the following:

- PP has submitted the wildlife conservation plan along with its approval by PCCF Chhattisgarh. PP has also submitted the Distance authentication map showing the distance of nearest wildlife sanctuary and animal corridor. Total 7 Schedule-I species has been found in the study area.
- PP has submitted the Closure letter no. File No-18-D-25/2010(Env)/121 dated 10.08.2024 with comments of IRO, Raipur on the ATR submitted by PP w.r.t. partially/non-compliance of conditions of IRO report dated 09.05.2024.
- PP has submitted the revised action plan along with revised budget of Rs. 160 lakhs as against earlier proposed Rs. 120 Lakhs for PH action plan as stated above.
- PP has also submitted revised EMP Budget of Rs. 385.8 Lakhs as capital cost and 104.5 Lakhs as annual Recurring cost.
- As regards to Action plan for shifting to e-vehicles and CNG/ LNG operated vehicles, PP submitted that their own private railway siding is already proposed which is likely to be operational by 2026. Hence, all the transportation of coal will be through railway siding. NOC for taking up private railway siding has been obtained from Chhattisgarh East Railway Limited vide letter no. CERL/Raipur/SARDA/2022-23/740 dated 23.11.2022. Copy of NOC has been submitted. PP further submitted that Employees will be encouraged to use electric vehicles. Charging stations will be installed within washery.
- PP has submitted the undertaking regarding using water from mine sump for industrial purpose and use of ground water for drinking purpose only.
- Regarding the mitigation measures to be adopted for the presence of the school, PP submitted that they are committed to have minimum adverse impact on Bajarmuda Government school. Following mitigation measures have been taken to minimize the impact on Sensitive areas within the study area: -
  i. Bag filters will be provided to crushers for control of air emission.
  ii. Greenbelt will be thickened along the northern boundary of plant to minimize the pollutant emission due to project.
  iii. Village roads will be maintained and made pucca to have minimum dust emission.
  iv. Only PUC certified trucks will be allowed for Transportation of raw materials. Trucks will be kept covered.

v. No truck movement will be allowed during peak hours. Even during non-peak hours speed of trucks will be limited to 10 kmph near school.

vi. Regular monitoring of environmental parameters will be conducted twice a year by NABL accredited laboratory.

xx. The Committee noted that the EIA reports are in compliance of the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components.

xxi. The Committee has deliberated on the baseline data and incremental GLC due to the proposed project due to the proposed project within NAAQS.

xxii. The Committee looked in to the videography of the public hearing proceedings, deliberated on the public hearing issues along with action plan submitted by the proponent to address the issues raised during the public hearing and found it satisfactory. The committee advised the PP to implement the PH action plan in a time bound manner.

xxiii. The EAC also deliberated on the written submission of the project proponent and found it satisfactory.

Recommendations of the Committee:

15.2.20: In view of the foregoing and after detailed deliberations, the committee ***recommended*** the instant proposal for grant of Ebvironmental Clearance under the provisions of EIA Notification, 2006, **subject to uploading of written submission on PARIVESH portal** and subject to the stipulation of following specific conditions and general conditions based on project specific requirements:

A. Specific conditions

i. PP shall deploy atleast 20% of overall fleet of trucks as electrical or CNG/LNG based trucks for transportation of raw coal, washed coal, midlings. Also, the vehicles to be used for washery operations and transportation shall not be older than 5 years.

ii. A traffic circulation plan must be designed by some reputed institute and the same shall be implemented.

iii. Project proponent shall deploy trucks having Gross Capacity of 55 ton and carrying capacity of 40 tons for road transportation of raw coal, clean coal and middling, rejects to reduce the fleet size. Transportation of run-of-mine (ROM) Coal, washed coal and rejects coal by road is permitted till 31/12/2026. The private railway siding of PP must be established by 31.12.2026 and the transportation of coal and rejects should take place through railways only, thereafter.

iv. Project proponent shall install a solar power plant of 1 MW capacity within plant premises by 31.03.2025.

v. Water spraying shall be done on regular basis inside and around the project area (within 2 km of the plant site) on a regular interval and a log book should be maintained for the same. The fog cannon must be installed at periphery of the Coal washery in order to suppress the dust.

vi. All the roads proposed to be constructed inside and around the periphery of the plant shall be concrete road only. No village road shall be used for transportation of coal and no road transport route shall be adopted, which is passing through any sensitive location such as

schools, hospitals etc.

vii. Greenbelt has been already developed in 3.34 ha (33% of total area). Total no. of 8220 trees has been already planted. Further 2000 no. of saplings shall be planted during 2024-25. Greenbelt shall be thickened along the northern boundary of plant to minimize the pollutant emission due to project on Bajarmuda school as committed. Greenbelt of 30-50 m width, consisting of at least 3 tiers around plant boundary shall be maintained. In addition to this, tree plantation (5000 trees) will be done in nearby villages Bajarmuda, Dholnara and Khamariya and the near by sensitive receptors school and hospitals during 2024-25.

viii. The Plant will operate on closed water circuit with a concept of 'Zero Liquid Discharge' (ZLD). 100% water will be recycled and no treated & untreated wastewater shall be discharged outside the boundaries of project area.

ix. Project proponent shall implement the protective measures as proposed in environment management plan (EMP) in a time-bound manner. The budget earmarked for the same is Rs 385.8 Lakhs (Capital) and Rs 104.5 Lakhs (recurring)/ annum and should be kept in separate accounts and audited annually. The implementation status along with the amount spent with documentary proof shall be submitted to the concerned Regional Office of the Ministry for the activities carried out during the previous year.

x. Wildlife conservation plan as approved by the competent authority shall be implemented. The final Wildlife conservation plan duly approved by the CWLW shall be submitted to RO, MoEF&CC within a time frame of one month from the date of grant of EC and the budget approved by the concerned authority shall be deposited in government account.

xi. Project proponent shall install a continuous ambient air quality monitoring station (AQMS) at suitable locations preferably the village side with the consultation of SPCB before commissioning of Plant operations. The real time data so generated shall be uploaded on company's website and it will be linked with CPCB &SPCB web portal. In addition, data should also be displayed digitally at entry and exit gate of Plant for public display.

xii. The workers shall be provided all the essential facilities/Personal Protective Equipments (PPE) during operation and maintenance at workplace.

xiii. Project proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly. Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly.

xiv. Project proponent shall use of Gas engine/ Cleaner fuel engine for use of machines or as power back up to reduce the pollution load on environment. Project proponent shall implement additional measures to control Air pollution.

xv. Project proponent shall implement the activities proposed to address the issues raised during the public hearing in a time bound manner as committed in EIA/EMP report inter-alia installation of 3 nos of water purification (RO) plants must be installed of 125 LPH capacity each in villages Bajarmuda, Dholnara and Khamariya. The budget earmarked to address the concerns raided during public hearing is Rs. 160 Lakhs (Capital) that should be kept in a separate accounts and audited annually. The implementation status/ action taken report along with the amount spent with documentary proof shall be submitted to the concerned Regional Office of the Ministry for the activities carried out during the previous year.

xvi. Project proponent shall monitor the heavy metal in the water samples at least twice/year, and install the piezometers for regular monitoring of groundwater level. Report shall be submitted along with six-monthly compliance reports to the concerned Regional Office of the Ministry.

xvii. Project proponent to undertake the recruitment of a full-fledged qualified manpower with Environmental Engineer/Env. Science degree background in Environment Management Cell etc., at coal washery plant for compliance of EC conditions.

xviii. Raw coal, washed coal and rejects shall be stored in covered storage facility. Fixed-type high-pressure sprinkler shall be installed in this storage yards.

xix. NoC from Central Ground Water Authority (CGWA)/ concerned local authority, as the case may be, shall be obtained before drawing the ground water for the project activities. State pollution control board/pollution control committees shall not issue the consent to operate (CTO) under Air (prevention and control of Pollution) Act and Water (Air (prevention and control of Pollution) Act till the project proponent shall obtain such permission.

xx. Project proponent shall construct a 20 ft height wind barrier with galvanized/metal sheet all around the boundary of the washery and install fixed-type water sprinkler all along the boundary wall.

xxi. Project proponent shall ensure that suitable parking area shall be provided for the parking of the trucks and necessary arrangements (drinking water facility/ rest room/ toilets etc.) shall be provided for the drivers & helpers.

xxii. Project proponent is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5th June 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report.

B. General conditions

I. Statutory compliance:

(i) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.

(ii) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.

(iii) Solid waste/hazardous waste generated in the washery needs to addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016.

(iv) Coal beneficiation practices shall be carried out under strict adherence to provisions of the Factories Act, 1957 and subordinate legislations made there under.

II. Air quality monitoring and preservation:

i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namelyparticulates, SO2and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc. carried out at least once in six months.

ii. Continuous ambient air quality monitoring stations as prescribed in the statue be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM_{10}, $PM_{2.5}$, SO_2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.

iii. Transportation of coal by road shall be carried out by covered trucks/conveyors. The transportation of clean coal and rejects shall be by rail with wagon loading through silo. Effective measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulates such as roads, belt conveyors, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled at source. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board

iv. All approach roads shall be black topped and internal roads shall be concreted. The roads shall be regularly cleaned. Coal transportation shall be carried out by covered trucks.

v. Vehicular emissions shall be kept under control and regularly monitored. The vehicles having 'PUC' certificate from authorized pollution testing centres shall be deployed for washery operations.

vi. Hoppers of the coal crushing unit and other washery units shall be fitted with high efficiency bag filters/mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of closed belt conveyor systems and from transportation roads.

vii. The raw coal, washed coal and coal wastes (rejects) shall be stacked properly at earmarked site (s) within stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored mineral does not catch fire.

viii. The temporary reject sites should appropriate planned and designed to avoid air and water pollution from such sites.

III. Water quality monitoring and preservation:

i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.

ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J- 20012/1/2006-lA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for compliance.

iii. Industrial waste water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time.

iv. The project proponent shall not alter major water channels around the site. Appropriate

embankment shall be provided along the side of the river/nallah flowing near or adjacent to the washery. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the riverfront side stabilized with plantation so as to withstand the peak water pressure preventing any chance of inundation.

v. Heavy metal content in raw coal and washed coal shall be analysed once in a year and records maintained thereof.

vi. The rejects should preferably be utilized in FBC power plant or disposed off through sale for its gainful utilization. If the coal washery rejects are to be disposed off, it should be done in a safe and sustainable manner with adequate compaction and post closure arrangement to avoid water pollution due to leachate from rejects and surface run of from reject dumping sites.

vii. An Integrated Surface Water Management Plan for the washery area up to its buffer zone considering the presence of any river/rivulet/pond/lake etc. with impact of coal washing activities on it, shall be prepared, submitted to MoEF&CC and implemented.

viii. Waste Water shall be effectively treated and recycled completely either for washery operations or maintenance of green belt around the plant.

ix. No ground water shall be used for coal washing unless otherwise permitted in writing by competent authority (CGWA) or MoEFCC. The make-up water requirement of washery should not exceed 1.5 m3/tonne of raw coal.

x. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.

xi. The project proponent shall take all precautionary measures to ensure riverine/ riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

IV. Noise and Vibration monitoring and prevention

i. The noise level survey shall be carried out as per the prescribed guide lines to assess noise exposure of the workers at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

ii. Adequate measures shall be taken for control of noise levels as per noise pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.

V. Coal beneficiation

i. Coal stacking plan shall be prepared separately for raw coal, clean coal, middling and rejects.

ii. Efforts should be made to reduce energy consumption by conservation, efficiency improvements and use of renewable energy.

VI. Green Belt

i. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

VII. Public hearing and Human health issues

i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & it's RO on six-monthly basis. The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any.

ii. Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.

iii. Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.

iv. The project proponent shall follow the mitigation measures provided in this Ministry's OM No. Z-11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.

VIII. Miscellaneous

i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's web site permanently.

ii. The copies of the environmental clearance shall be submitted by the project proponents tithe Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant

offices of the Government who in turn has to display the same for 30 days from the date of receipt.

iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

iv. The project proponent shall monitor the criteria pollutants level namely; PM_{10}, SO_2, NOx (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

vii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.

viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.

ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

x. No change in coal beneficiation process and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC) with such conditions mentioned therein. No change in the maximum quantum of raw material feed per annum against the approved washery capacity shall be made.

xi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

xiii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

xiv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed

by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Agenda No. 15.3

15.3: Pakri Barwadih Coal Mining Project (area 3319.42 Ha having capacity 18 MTPA) by M/s NTPC Mining Limited located at Villages: Barkagaon, Itij, Chiruadih, Urub, Chepa, Kalan, Nagri, Jugra, Sinduari, Churchu, Carahara, Sonbarsa, Pakri – Barwadih; District: Hazaribagh; State: Jharkhand – Regarding Amendment in EC

[Online Proposal No. IA/JH/CMIN/475123/2024; File No. J-11015/692/2007-IA-II(M)]
[Consultant: Min Mec Consultancy Private Limited NABET/EIA/2225/IA 0096 valid up to 29.03.2025]

15.3.1: The instant proposal is for amendment in Environment Clearance granted to M/s NTPC Limited vide letter no. J-11015/692/2007-IA-II(M) dated 19.05.2009, later transferred to M/s NTPC Mining Limited vide letter no. J-11015/692/2007-IA-II(M) dated 02.05.2024 for Pakri Barwadih Coal Mining Project (area 3319.42 Ha having capacity 18 MTPA) located at Villages: Barkagaon, Itij, Chiruadih, Urub, Chepa, Kalan, Nagri, Jugra, Sinduari, Churchu, Carahara, Sonbarsa, Pakri – Barwadih; District: Hazaribagh; State: Jharkhand.

Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

S. No.	Details of Letter No.	Details of EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation
1	J-11015/692/2007-IA.II(M)	**Fresh EC**	15	3319.42	19.05.2009	Production of 15 MTPA achieved during the year 2023-2024
2	-do-	**Amendment in EC** [Road transportation granted till 28.06.2018]	15	3319.42	29.06.2016	Implemented
3	-do-	**Amendment in EC** [Specific Condition nos (iii), (vi) & (ix) And General	15	3319.42	07.12.2017	Being implemented

S. No.	Details of Letter No.	Details of EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation
		Condition nos (ix) & (xiii)]				
4	-do-	**Amendment in EC** [Road transportation granted till 28.06.2020]	15	3319.42 Ha	14.08.2018	Implemented
5	-do-	**Amendment in EC** [Road transport granted till 28.06.2022 and auto extended to 28.06.2023 in line with Covid notification of MOEF&CC]	15 MTPA	3319.42 Ha	10.11.2020	Road transport granted till 28.06.2022 and auto extended to 28.06.2023 in line with Covid notification of MOEF&CC - Implemented
6	-do-	**Amendment in EC** [Road transport granted till 31.10.2023]	15 MTPA	3319.42 Ha	16.08.2023	Implemented
7	-do-	**Amendment in EC** [Road transport granted till 31.01.2024]	15 MTPA	3319.42 Ha	09.11.2023	Implemented
8	-do-	**Amendment in EC** [Road transport granted till 31.07.2024]	15 MTPA	3319.42 Ha	15.01.2024	Implemented
9	-do-	**PRC Enhancement (1st phase 20%) as per MoEF&CC guidelines dated 11/04/2022**	18 MTPA	3319.42 Ha	06.03.2024	Being implemented
10	-do-	**Transfer of EC** [Transfer from NTPC Ltd to NTPC Mining Ltd]	18 MTPA	3319.42 Ha	02.05.2024	Transfer from NTPC Ltd to NTPC Mining Ltd
11	-do-	**Amendment in EC**	18	3319.42	16.07.2024	Being

S. No.	Details of Letter No.	Details of EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of issuance	Status of implementation
		[Road transport granted till 31.10.2024]	MTPA	Ha		Implemented

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.3.2: The PP has made an online application vide proposal no. IA/JH/CMIN/475123/2024 dated 28.08.2024 for amendment in EC Specific Condition no. 2A(ix) accorded vide letter no. J-11015/692/2007-IA-II(M) dated 19.05.2009, seeking further amendment for extension of timeline regarding transportation of coal by road using State Highway/ Service Road till 31.12.2024 and after that 13 MTPA by belt conveyor and 5 MTPA by State Highway/ Service Road till 31.03.2026.

PP submitted the following details for the amendment sought along with the justification:

Specific/ General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition No.- 2A (ix)	The PP needs to complete the construction of closed belt conveyor system of a length of 13 km to Banadag railway station. The pp is permitted till 31.10.2024 to use Service road/State Highways for transportation of coal to Banadag railway siding.	The PP is permitted to use Service Road/ State Highways for transportation of 18 MTPA of coal to Banadag railway siding till 31.12.2024 and after that 13 MTPA by Belt conveyor and 5 MTPA by Service Road/State Highways till 31.03.2026 adopting all mitigative measure to control dust pollution.	Silo Rapid Loading System is still under construction and was getting delayed due to various land acquisition and local law and order issues. The delay in construction was mainly due to the unavailability of land. It is pertinent to submit that due to the continuous agitations of locals for fulfilment of demands beyond the acquisition policy etc., NTPC had to repeatedly write to the Deputy Commissioner, Hazaribagh, Jharkhand requesting for deployment of police personnel for taking possession of the notified land (for which the payment was already disbursed/ compensation was already deposited). Due to such protest and agitations, the required extent of land could be taken in possession only on 28.04.2023. After 28.04.2023, construction of Silo Rapid Loading System is in full swing and complete conveyor belt system is expected to be completed by 31.12.2024.

<table>
<tr><th>Specific/ General Condition No.</th><th>Details of Conditions as per EC</th><th>Amendment Sought</th><th>Justification</th></tr>
<tr><td></td><td></td><td></td><td>Hon’ble Supreme Court has extended the timeline for completion of belt conveyor system till 31.12.2024 vide its order dated 29.01.2024 in the matter of Misc. Appeal No. 1824 of 2023 in Civil Appeal No. 6249 of 2021 (NTPC Ltd v. Tripurari Singh and Others).

Presently, Pakri Barwadih Coal Mining Project (PBCMP) dispatches coal from mine at Pakri Barwadih to railway siding at Banadag in following modes/ways:

Part I:
From mine pit to crusher installed at mine pithead by mine trucks for the entire quantity proposed throughout the mine life.

Part II:
(a) From Crusher at mine pithead to Stacker/ Reclaimer area by 8 Km closed belt conveyor and therefrom by 13 Km closed belt conveyor up to TP-10 located at 500m from Banadag Railway Siding. From TP-10 to Banadag Railway Siding by road.
(b) From crusher at mine pithead to Banadag railway siding by road (30 Km).
(c) From Stacker/ Reclaimer area to Banadag Railway Siding by road (23 Km).

For connecting TP 10 to siding by conveyor, Silo Rapid Loading System is still under construction and likely to be complete by 31.12.2024. The completion status of the RLS work, as on 31.08.2024, is as follows:

<table>
<tr><td>Sl. No.</td><td>Description</td><td>Completion %</td></tr>
<tr><td>i</td><td>Civil works</td><td>99.39</td></tr>
<tr><td>ii</td><td>Structural Supply</td><td>100</td></tr>
<tr><td>iii</td><td>Electrical and Mechanical Supply</td><td>100</td></tr>
<tr><td>iv</td><td>Structural Erection</td><td>87</td></tr>
</table>
</td></tr>
</table>

Specific/ General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			The Expected Completion Schedule is as follows: i Civil works 30.09.2024 ii Structural work 10.10.2024 iii Mechanical works 20.10.2024 iv Electrical works 31.10.2024 v Final Commissioning 31.12.2024 As submitted, the initial EC accorded in 2009 was for 15 MTPA of Peak rated capacity (PRC), accordingly, Coal Handling Plant (CHP) & Rapid Loading Systems (RLS) of PBCMP was designed to transport coal up to 15 MTPA. Subsequent upon the revision of PRC, vide File no. J-11015/692/2007-IA-II(M) dated 16.07.2024, EC was granted to transport coal up to 18 MMT per annum till 31.10.2024. Due to design capability of present CHP & RLS System, which is of 15 MTPA, balance 3 MTPA shall be required to be transported through road after 31.12.2024, till the completion of capacity enhancement of existing coal conveying system, which may require approximately 24-month time. It is also pertinent to mention that, from commissioning till the achievement of its peak rated capacity, the present RLS system will approximately require three to four months of stabilisation period after 31.12.2024. Assuming the comprehensive coal conveying system operates at 90% of its rated capacity after the stabilisation period, there may be additional requirement of 2 MTPA required to be transported through road. Therefore, after 31.12.2024, approx. 5 MTPA out of 18 MTPA shall be required to be transported through road.

15.3.3: Certified Compliance Report and Action Taken thereof: The PP submitted that CCR from Regional office (RO), Ranchi was received on 19.06.2024 vide letter no. 103-425/376 and PP submitted ATR on the same on 26.08.2024.

With respect to the Condition for which amendment is sought, RO has given its observations and has mentioned that, *"during inspection on 30.05.2024 it was observed that coal transportation is still being done by road from Pakri Barwadih coal mine project to Banadag railway siding. It is observed that rapid loading system of the conveyor system is under construction near Banadag railway siding. PP informed that now full efforts are being made to complete the same before 31.12.2024."*

15.3.4: Detail of the court cases:

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
WP (C) 5732/2016	HC of Jharkhand	Writ Petition filed by Bhartiya Suraj Dal against State of Jharkhand and others regarding pollution and diversion of forest land without obtaining the consent of Gram Sabhas under the FRA Act 2006.	Next hearing scheduled on 20.09.2024.	Last hearing conducted on **07.08.2024.** Cases to be further heard on next date of hearing.
WP (C) 4036/2021	HC of Jharkhand	Writ Petition has been filed by NTPC against the State of Jharkhand and others against demand of transit fee on 100 % coal production under Jharkhand Forest Produce Transit (Regulation of Transport) Rules 2020 issued by State of Jharkhand.	Listed for hearing in first week of February 2024. No date showing for now. Next date is not given.	High Court of Jharkhand has ordered to pay Transit Fee on 40% Production till further order. Stay granted via order dated 10/01/22 and clubbed with other such cases.
WP (C) 1759/2023	HC of Jharkhand	Writ Petition filed by NTPC against the State of Jharkhand and	Next hearing date is not given	Hon'ble court vide order dated 06.09.2024 directed NTPC not to be

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
		others to stay the operation, implementation and execution of the letter No. 43, dated 03.01.2023 of Divisional Forest Officer (West), Hazaribagh by which the State of Jharkhand has demanded the payment of Transit Fee for the second time on the same load by stating that NTPC is liable to generate the challan for the second time when there is a change of mode of transportation.		charged twice for the same forest produce on the change of mode of transportation for transportation of any forest produce as transit fee. Hon'ble Court has stayed the order till next date of hearing held on 21/02/24.
WP (C) 3256/2023	HC of Jharkhand	Writ Petition filed by NTPC against the State of Jharkhand and others regarding quashing the letter No. 3426, dated 23.06.2023 of Divisional Forest Officer (West), Hazaribagh by which Forest Deptt. has denied Coal Transportation by Road.	Next hearing date is not given.	The Hon'ble High Court granted stay on the letter vide order dated 30.06.2024.

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
WP (C) 3614/2023	HC of Jharkhand	PIL filled by Shri Mantu Soni against State of Jharkhand and Others regarding FC granted to Pakri Barwadih Coal Mining Project on forged document (Consent letter of Van Prabandhan Samittee).	Next hearing is scheduled on 20.09.2024	➢ CA filled by NTPC on 18.06.2024. ➢ Rejoinder filled by applicant on 27.06.2024. ➢ Supplementary Counter Affidavit filed by NTPC on 07.08.2024. ➢ Reply of affidavit filed by applicant on 20.08.2024.
OA no 63/2023/EZ (158/2023/PB)	NGT, Kolkata	Filed by Shri Anup Kumar against State of Jharkhand and Others regarding illegal mining in Pakri Barwadih Coal Mining Project. Vide order dated 11.08.2023, NTPC and its MDO(TSMPL) has been made party by the Hon'ble court.	Next hearing is scheduled on 12.11.2024.	➢ Due to similar nature hearings are being held with Appeal No 20/2023 ➢ Last hearing conducted on 22.08.2024. Case o be further heard on 12.11.2024.

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
Appeal No 20/2023	NGT, Kolkata	Appeal filed by NTPC against State of Jharkhand & Others to stay on DFO's demand letter for payment of Penal NPV with interest in line with MOEF&CC amendment letter dated 25.05.2023 for amendment of condition no-8 of FC.	Next hearing is scheduled on 12.11.2024.	➢ 1st hearing done on 01.08.2023. Hon'ble NGT stayed on DFO's Demand letter. ➢ Last hearing conducted on 22.08.2024, stay continued till further order.
W.P.(PIL) 4358/2024	HC of Jharkhand	PIL filed by Shri Ravikant Singh Vs Union of India and others regarding Mining beyond lease and regarding FC granted to Pakri Barwadih Coal Mining Project on forged document (Consent letter of Van Prabandhan Samittee).	Next hearing scheduled on 20.09.2024	➢ First Hearing held on 28.08.2024. ➢ CA filed by NTPC on 02.09.2024.

15.3.4 Traffic assessment study

Traffic study report had been carried for assessment of impacts due to transportation of coal by road from Pakri Barwadih coal mining project to Banadag railway siding. The traffic study has conducted traffic and road surveys for assessment of carrying capacity on route, monitoring of air quality and noise levels along the route, air quality modelling for impact assessment of incremental ground level concentration of air pollutants, data collection regarding flora and opinion survey along the road and identification of villages, forests within 100 m along the route. Based on the existing traffic volume monitored, existing width of roads, traffic projections upto December 2024 and additional trucks from Pakri Barwadih coal mine, the carrying capacity has been calculated for December 2024. The resultant future traffic load will vary between 8.4% to 63.8% of the maximum capacity of the road. To

minimise air pollution at the mine and railway sidings, the PP has installed Wind breaker (20' high, 2 km length) along with 10 nos. fixed water sprinklers at Banadag Railway Siding. A mobile water sprinkler has been deployed for the roads. Currently all the trucks / tippers involved in transportation of coal are covered with tarpaulin & stamped. Only Trucks/Tippers with valid PUC certification & fitness certificate and using unadulterated diesel are allowed to ply. Safety measures include installation of speed bumps near settlements, awareness to drivers and local people, deployment of traffic marshals from villages and following a "no horn, low speed" protocol while passing through inhabited stretches and 24 x 7 Ambulance & Crane facility.

Observations and deliberation of the Committee:

15.3.5: The EAC noted the following:

i. MoEF&CC has granted EC for the Pakri Barwadih Coal Mining Project of M/s NTPC Limited vide letter no. J-11015/692/2007-IA.II(M) dated 19.05.2009 for capacity of 15 MTPA in an area of 3319.42 Ha. Subsequently, various amendments for the same were issued vide letters dated 29.06.2016, 07.12.2017, 14.08.2018, 10.11.2020, 16.08.2023, 09.11.2023 and 15.01.2024.

ii. Further the PRC enhancement for the project was issued vide letter dated 06.03.2024 for the capacity of 18 MTPA from 15 MTPA in the existing area of 3319.42 Ha and the same was transferred to M/s NTPC Mining Limited vide letter dated 02.05.2024. Subsequently, an amendment in condition pertaining to transportation of coal was again issued vide letter dated 16.07.2024.

iii. It is observed by the EAC that the project involves total 643.9 Ha of forestland. Stage – II FC has been obtained by the proponent.

iv. The above projects have been implemented and are already under operation.

v. Specific Condition no. – 2A (ix) of EC stipulated that the coal was to be transported from Coal Handling Plant (CHP) to railway siding by closed conveyor belt. The railway siding shall be provided with Silo Rapid Loading System. The timeline for this condition was extended till 31.10.2024, vide various amendments as stated above, subject to the order of Hon'ble Supreme Court w.r.t. Misc. Appeal (MA-001824 dated 18.08.2023) in the matter of Civil Appeal no 6249/2022 (NTPC vs Tripuri Singh Ors) filed by the Project Proponent.

   Now, the PP has submitted the proposal for amendment in Specific Condition no. 2A(ix) of EC dated 19.05.2009 (last amended vide EC dated 16.07.2024), regarding the construction of belt conveyor system of a length of 13 km to Banadag railway station and use or Service road/ State highways for transportation of 18 MTPA of coal to Banadag railway siding till 31.12.2024 in place of 31.10.2024 & after that 13 MTPA of coal by belt conveyor and 5 MTPA by Service road/ State highways till 31.03.2026 adopting all mitigative measures to control dust pollution.

   A drone video of the developments made in the construction of Coal Handling Plant (CHP) since last amendment granted was presented to the Committee. PP submitted that the construction of Silo Rapid Loading System is in full swing and the complete belt conveyor system is expected to be completed by 31.12.2024. PP mentioned that 99.39% of the civil works have been completed and 100% of structural and electrical and mechanical supply

works have been completed. Further, 87% of the structural erection work is completed. It is observed that momentum of the work has taken place and PP is committed to implement the entire works of belt conveyor system and silo loading by December 2024.

The Committee observed that there is good progress in the construction of the Coal Handling Plant (CHP) and the work is almost on the stage of completion. However, in order to make it operational after completion, it will take some time. In view of this, the Committee opined that PP may be allowed to transport coal through road till 31.12.2024 with all mitigative measures, restricted to the capacity of 15 MTPA only.

vi. The PP submitted that the conveyor belt being constructed is only for the capacity of 15 MTPA and for another 3 MTPA (i.e., 18 MTPA), engineering designing is under process to make the changes in the conveyor and siding capacity for 18 MTPA. The Committee is of the opinion that a time bound action plan for transportation of additional 3 MTPA coal approved as part of expansion EC of 18 MTPA should be submitted by the PP.

vii. The Committee deliberated on the air quality data of the concerned area and measures being taken for the same and observed that coal is being transported through covered trucks and trucks being used are with valid PUC and fitness certificate, continuous water sprinkling is being done on the coal transport roads, high throw water sprinklers are installed on both side of siding and 20 ft high wind breaker of 2 km length is erected along the Banadag Railway Siding. In view of this, the Committee opined that all the recommendations made in the Traffic Assessment Study Report shall be complied with inter alia, installation of CAAQMS in the villahges nearby coal transportation road; air pollution mitigation measures alson roads being used for transport and shift to e-/CNG/PNG modes of transport.

viii. The Committee also deliberated on the certified compliance report from RO and action taken report by the PP of the same and found that the CCR from RO Ranchi was received on 19.06.2024 vide letter no. 103-425/376 and PP submitted ATR on the same on 26.08.2024. There were few partially complied and non-complied conditions observed in the CCR from RO for which PP has submitted the action takn report. However, the Committee is of the opinion that a fresh CCR report for compliance of all the condition of EC must be submitted by the PP by 31.10.2024.

ix. The Committee also enquired about the status of court cases pending on the project. The PP submitted that there are total 6 nos. of cases pending at Hon'ble High Court of Jharkhand and total 2 nos. of cases pending at Hon'ble NGT (EZ), Kolkata. PP also displayed a copy of the Court Order during the presentation of the Court case in the matter of Misc. Appeal No. 1824 of 2023 in Civil Appeal No. 6249 of 2021 (NTPC Ltd v. Tripurari Singh and Others) regarding the extension of the timeline for completion of the closed conveyor belt system. PP submitted that the Hon'ble Supreme Court has extended the timeline for completion of the belt conveyor system till 31.12.2024, vide its order dated 29.01.2024 and the matter was disposed of.

x. The Committee also deliberated on the compliance of the conditions stipulated in amendment EC dated 16.07.2024. The PP submitted that monthly progress report of the construction of Coal Handling Plant (CHP) is being submitted to the Regional Office and the ICFRE report is in the stage of finalization. The Committee asked the PP to submit the same by 31.10.2024.

xi. The Committee also noted that the instant amendment proposal was earlier considered by the EAC in its meeting held on 5-7th July, 2024 and EAC has recommended for timeframe till 31/10/2024 in place of 31/12/2024 as sought by the PP. Now PP has again approached for the same amendment.

xii. The committee noted that Pakri Barwadih Coal Mining Project does not fall under ctitically polluted area and severely polluted area as per CEPI assessmewnt 2018.

Recommendations of the Committee:

15.3.6: After deliberations, the Committee **recommended** the proposal for amendment in EC granted vide file no. J-11015/692/2007-IA.II(M) dated 19.05.2009, as detailed below subject to stipulation of following additional specific conditions. Other terms and conditions prescribed in EC dated 19.05.2009 and its subsequent amendment shall remain unchanged.:

Reference in EC letter dated 19.05.2009	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition No.-2A (ix)	The PP needs to complete the construction of closed belt conveyor system of a length of 13 km to Banadag railway station. The PP is permitted till 31.10.2024 to use Service road/State Highways for transportation of coal to Banadag railway siding.	The PP is permitted to use Service Road/ State Highways for transportation of 18 MTPA of coal to Banadag railway siding till 31.12.2024 and after that 13 MTPA by Belt conveyor and 5 MTPA by Service Road/State Highways till 31.03.2026 adopting all mitigative measure to control dust pollution.	**Partially Agreed** With regard to the changes in specific condition 2A(ix), Committee is of the opinion to amend specific condition 2A(ix) as follows: "T*he PP is permitted to use Service Road/ State Highway for transportation of 15 MTPA of Coal to Banadag railway siding till 31.12.2024 adopting all the mitigative measure to control dust pollution."*

Additional Specific Conditions:

i. A time bound action plan for transportation of additional 3 MTPA coal as part of expansion of EC dated 06.03.2024 from the Coal Handling Plant (CHP) shall be submitted by 31.10.2024.

ii. Project proponent shall submit a fresh certified compliance report from the concerned Regional Office of the Ministry regarding the compliance of all the stipulated conditions in the exisiting ECs and its subsequent amendments to the Ministry by 31.10.2024.

iii. Audit report of ICFRE regarding the assessment of efficacy of plantations done by the PP shall be submitted by 31.10.2024.

iv. Ambient Air Quality (AAQ) and Noise quality data along the entire coal transportation route shall be monitored and the data shall be submitted along with the six monthly compliance to the concerned Regional Offcie and also kept on the web portal of the company.

v. All the recommendations made in the Traffic Assessment Study Report regarding coal transportation by road shall be strictly adhered with. PP shall install CAAQMS in the villages nearby the coal transportation road in consultation with the JSPCB. Compliance in this regard shall be submitted along with the six monthly compliance to the concerned Regional Office and also kept on the web portal of the company.

vi. Additional air pollution control measures should be taken along roads being used for transport of coal including e-/CNG/PNG vehicles.

In addition to the above, the EAC also recommended for a site visit by the sub-committee for on spot assessment of various environmental conditions.

Agenda No. 15.4

15.4: Proposal for amendment in Environment Clearance (EC) of Parsa East and Kanta Basan Pit Head Coal Washery (area 2682.856 Ha having capacity 18 MTPA) by M/s Rajasthan Rajya Vidyut Utpadan Nigam Limited located at Villages: Ghatbarra, Salhi, Kedmaforest, Kete, Mahadevpara, Para, Hariharpur; District: Surguja; State: Chhattisgarh – Regarding Amendment in EC

[Online Proposal No. IA/CG/CMIN/494543/2024; File No. J-11015/03/2008-IA-II(M)]
[Consultant: Vardan Environet LLP NABET/EIA/2326/RA0284 valid up to 04/05/2026]

15.4.1: The proposal is for amendment in Environment Clearance granted to M/s Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL) vide letter no. J-11015/03/2008-IA.II(M) dated 14.02.2022 and 12.07.2023 granted to Integrated project of Parsa East and Kanta Basan Pit Head Coal Washery (area 2682.856 Ha having capacity 18 MTPA) located in Villages: Ghatbarra, Salhi, Kedmaforest, Kete, Mahadevpara, Parsa, Hariharpur; District: Surguja; State: Chhattisgarh.

Details of all the prior ECs including the EC for which amendment is sought:

Sr. no.	Details of letter no.	EC/Expansion EC/Amendment in EC/validity Transfer/Transfer of EC	Capacity (MTPA)	Area (ha)	Date of issuance	Status of implementation
1	J-11015/03/2008-IA-II (M)	Environment Clearance (EC)	Coal Mining and Pit Head washery of 10	2711.034 Ha	21.12.2011	Implemented

Sr. no.	Details of letter no.	EC/Expansion EC/Amendment in EC/validity Transfer/Transfer of EC	Capacity (MTPA)	Area (ha)	Date of issuance	Status of implementation
			MTPA			
4	-do-	EC revalidation	10 MTPA	2711.034 Ha	25.07.2015	Implemented
6	-do-	Environmental Clearance Expansion	Coal Mining and Pit Head washery from 10 to 15 MTPA	2682.856 Ha	10.08.2018	Implemented
10	-do-	EC for expansion of Coal Washery	15 to 18 MTPA	2682.856 Ha	12.07.2023	At present following is the process being adopted at the PEKB mines & washery right from mining of coal & washery to dispatch to end users: • ROM Coal of 55000 Tonne/Day from mine is transported to In-pit conveyor at a distance of 0.8 Km to 3.39 Km (average). • ROM Coal is crushed at CHP from 100 mm to size -50 mm. • From CHP the crushed coal is transported to coal washery of 62000Tonne/Day capacity through conveyor belt

Sr. no.	Details of letter no.	EC/Expansion EC/Amendment in EC/validity Transfer/Transfer of EC	Capacity (MTPA)	Area (ha)	Date of issuance	Status of implementation
						with different routes of processing plant which is located at a distance of 1 Km. • Washed coal of 42600 Tonne/day is sent to Silo of 4000 Tonne /Hour capacity with the help of 02 Nos. of Stacker - Reclaimer of 4000 TPH capacity and other belt conveyor. • The same quantity of washed coal is loaded in rail wagons for transport to Power plant

Details of the proposal, as ascertained from the proposal documents and as revealed from the discussion held during the meeting, are given as under:

15.4.2: The PP has now made an online application vide proposal no. IA/CG/CMIN/494543/2024, dated 25.04.2024 for amendment of EC Specific Condition no. xii of EC dated 12.07.2023.

PP has submitted the following amendment along with the justification:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition no. xii	Raw coal washed coal and rejects	Kindly recommend amendment in Exemption of EC	➢ The Storage area of Washed Coal, and Reject area is spread in approx. 31.14 ha.

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
	shall be stored in covered silos or in dome shaped storage facility. Fixed type-high pressure sprinkle shall be installed in this storage yards.	specific condition no (xii) for 'Clearance Type' of the Environment Clearance dated 12.07.2023 of Parsa East and Kanta Basan (PEKB) Opencast Coal Mine & Washer	➢ At present, handling of washed coal is done by two (2) number of Stackers and Reclaimers with height of boom 30 meters. ➢ In order to comply with the EC condition and store coal in a covered silo or dome, a structure of height 30 meter is required to be constructed. Such a high dome structure of 30 m spread over 31.14 ha area is like adding on to a potential safety fire hazard and construction of it in mine active area is also technically unrenderable. ➢ Coal is by itself a bad conductor of heat and also possess spontaneous heating property. Together, if it is not ventilated, an occurrence of fire will happen for sure. Hence, covering the whole coal stock in a silo will lead to dows fiery situation. ➢ At present following is the process being adopted at the PEKB mines & washery right from mining of coal & washery to dispatch to end users: • ROM Coal of 55000 Tonne/Day from mine is transported to In-pit conveyor at a distance of 0.8 Km to 3.39 Km (average). • ROM Coal is crushed at CHP from 100 mm to size -50 mm. • From CHP the crushed coal is transported to coal washery of 62000Tonne/Day capacity through conveyor belt with different routes of processing plant which is located at a distance of 01 Km. • Washed coal of 42600 Tonne/day is sent to Silo of 4000Tonne/Hour capacity with

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			the help of 02 Nos. of Stacker Reclaimer of 4000 TPH capacity and other belt conveyor. • The same quantity of washed coal is loaded in rail wagons for transport to Power plant.

15.4.3: Detail of the court cases:

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
Civil Appeal no(s). 4395 of 2014	Hon'ble Supreme Court of India	Mr. Sudiep filed an appeal before the NGT Delhi, against order dated 28.03.2012 by the Forest Department, Chhattisgarh. Further against the judgment passed by NGT, RVUNL preferred a civil appeal (CA. no. 4395 of 2014) before the Hon'ble Supreme Court of India.	Last listed on 16.10.2023 – Disposed off	On 13.09.2022 both the matters were listed together and upon mentioning of Sudiep Shrivastava the Court issued notice to Ministry of Coal as a party in DK Soni matter. No direction was passed in FC matter.
Writ Petition No. 371 of 2019	Hon'ble Supreme Court of India	Writ Petition related to PEKB raising issues of: (i) Formation of JV for MDO Operation is against coal block de-allocation judgement (ii) washery rejects to private party is causing loss to RVUNL, and in turn, tothe public of Rajasthan (iii) Coal supplied by PEKB coal Block is at very high price than CIL	Last listed on 16.10.2023 – next date of hearing not yet final	The matter is tagged along with the CA No. 4395/2014 and on the last date of hearing i.e. 13.09.2022 Ministry of Coal is made a party for furnishing its response on the issue involved in the Writ Petition.

Case No.	Court	Brief	Next date of hearing	Decision of court and its compliance
		price (iv) EC dated 21st December 2011 is not being complied with.		
Appeal No. 185 of 2018	National Green Tribunal, New Delhi	The present appeal is filed challenging the Environment Clearance dated 10.08.2018 granted by MOEF for expansion of PEKB from 10 MTPA to 15 MTPA.	Last listed on 19.12.2022 – Disposed off	List after the decision of the Hon'ble Supreme Court in Civil Appeal No(s). 4395 of 2014. *Adjourned sine die.*
Writ Petition (C) No. 1346/2016	Hon'ble High Court of Chhattisgarh	• The present petition is filed to challenge the order dated 08.1.2016 passed by the District Level Forest Rights Committee (DLC) Sarguja, office of Collector (Tribal Welfare) Ambikapur, District Sarguja. • Matter is regarding Forest Rights of the Community over the forest land.	Last listed on 02.05.2024 – Next date of hearing not given	Pleadings are complete and the matter is at the stage of final hearing. No next date is fixed in the matter and shall come up for hearing in due course. Post completion of all pleadings, the court of Registrar-1 of Supreme Court has referred this matter to main bench on 23/11/2016 for final arguments. Presently case is pending before supreme courts after some hearings.

15.4.4: Written submissions of proponent:

Written submission made by PP are summarized as below:

S. No.	Raised Points	Reply
1.	Ambient Air Quality Monitoring reports and Continous Air Quality monitoring system data	The Ambient Air Quality (AAQ) levels of 10 locations ar summarized and Continous air quality reports for last 3 months are submitted.

S. No.	Raised Points	Reply
	for last 3 months.	
2.	Latest six-monthly compliance report submitted for EC dated 12.07.2023	Six monthly compliance report for the period October 2023 to March 2024 is submitted.
3.	Origin of the Specific condition xii: "Raw coal washed coal and rejects shall be stored in covered silos or in dome shaped storage facility. Fixed high-type pressure sprinkler shall be installed in this storage yards."	Environment Clearance (EC) of PEKB project was granted for Integrated Mine (ROM) and pit head coal washery for 15 MTPA F. No. J-11015/03/2008-IA-II (M) dated 10.08.2018 and said condition was not mentioned in this EC. After that project proponent applied for expansion for a capacity from 15 MTPA to 21 MTPA pit head coal washery. The EC was granted for 18 MTPA vide F. No. J-11015/03/2008-IA-II (M) dated 12.07.2023. The EIA report submitted for the capacity enhancement did not envisage any provision for covered storage. However, the condition was mentioned in the minutes of the 41st meeting of the Expert Appraisal Committee, held during 13 – 14 March 2023, Agenda No. 41.1. The copy of the minutes of the 41st EAC meeting are submitted.
4.	Mitigation measures for raw coal, washed coal and rejects storage area.	In raw coal, washed coal and reject storage areas adequate moisture will be maintained to ensure that dust is not getting air borne. Fix type sprinkling will be carried out in the open area to arrest fugitive dust. Further, greenbelt is being maintained around the storage areas.

Observations and deliberation of the Committee:

15.4.4: The EAC noted the following:

i. MoEF&CC has accorded EC for Parsa East and Kanta Basan Opencast Mine and Pit Head Coal Washery vide letter dated 21.12.2011 for the capacity of 10 MTPA in an area of 2711.034 Ha. Subsequently, EC dated 10.08.2018 was granted for expansion in capacity of coal washery from 10 MTPA to 15 MTPA with reduction in area to 2682.856 Ha. EC dated 10.08.2018 superseded all earlier granted EC's and its amendments in terms of Condition no. 12 of the said EC.

ii. Later another EC was granted to Integrated project of Parsa East and Kanta Basan Open Cast Coal Mine with expansion in Pit head Coal Washery from 15 MTPA to 18 MTPA in total mine lease area of 2682.856 ha vide letter dated 12.07.2023.

iii. Coal washery with a capacity of 15 MTPA has been implemented and the expansion of coal washery from 15 to 18 MTPA is under implementnation.

iv. Specific Condition no. xii of EC dated 12.07.2023, stipulated that, *"raw coal, washed coal and rejects shall be stored in covered silos or in dome-shaped storage facility. Fixed type high-pressure sprinkler shall be installed in this storage yards."* The PP justified that the construction of a structure like this is technically unrenderable, as the storage area is spread in approx. 31.14 Ha and the height required for the same is 30 meters. PP further justified that this could also lead to potential safety fire hazard aqs coal is a bad conductor of heat and also possess spontaneous heating property, which is not ventilated can lead to occurrence of fire which will lead to a fiery situation.

v. The Committee further deliberated on how storage is being handled right now and PP submitted that at present, the handling of washed coal is done by two nos stackers and reclaimers with a height of boom 30 meters. Regarding transportation of the same the PP submitted that, ROM coal from mine is transported to in-pit conveyor, which is crushed at CHP and then the crushed coal is transported to washery through conveyor belt with different routes. Washed coal is then sent to silo with the help of 2 nos of stackers and reclaimer and other belt conveyor and the same is then loaded in railway wagons for transport to the power plants.

vi. The Committee deliberated on the CCR of the washery and observed that the CTO for 18 MTPA washery is yet to be acquired, hence washery is still operational on 15 MTPA EC.

vii. The Committee deliberated on the air quality data of the concerned mines for the last 3 months and found it satisfactory based on the data submitted by the PP. The Committee observed that air quality monitoring devices were installed which are connected to the CPCB server and live AAQMS data was displayed in front of the Committee. The data exhibited diuring the meeting are found to be within the NAAQS.

viii. The EAC also deliberated on the written submission of the project proponent and found it satisfactory.

Recommendations of the Committee:

15.4.5: After detailed deliberations, the Committee **recommended** the proposal for amendment in EC granted vide file no. J-11015/03/2008-IA-II(M) dated 12.07.2023 as detailed below. Other terms and conditions prescribed in EC dated 12.07.2023 shall remain unchanged.:

Reference in EC letter dated 12.07.2023	Description as per approved EC	Amendment sought in EC	Justification/ Remarks
Specific Condition xii	Raw coal, washed coal and rejects shall be stored in covered silos or in dome-shaped storage facility. Fixed type high-pressure sprinkler shall be installed in this storage yards.	Exemption of EC specific condition no (xii) of Environment Clearance dated 12.07.2023 of Parsa East and Kanta Basan (PEKB) Opencast Coal Mine & Washery.	Agreed With regard to the changes in specific condition xii, Committee is of the opinion to amend specific condition xii as follows: "Raw coal, washed coal and rejects shall be stacked properly at earmarked site within storage yards fitted with wind breakers/shields. Fixed type high-pressure sprinkler shall be installed in this storage yards."

DAY-2: 19 SEPTEMBER, 2024 [THURSDAY]

Agenda No. 15.5

15.5: Chatti Bariatu Coal Mining Project (area 646.23 Ha having capacity 7 MTPA) by M/s NTPC Mining Limited located at Villages: Chatti Bariatu, Pagar, Jordag; District: Hazaribagh; State: Jharkhand – Regarding Amendment in EC

[Online Proposal No. IA/JH/CMIN/493289/2024; File No. J-11015/133/2007-IA.II(M)]
[Consultant: Min Mec Consultancy Private Limited NABET/EIA/2225/IA 0096 valid up to 29.03.2025]

15.5.1: The instant proposal is for amendment in Environment Clearance granted to M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M), dated 19.04.2010 for Chatti Bariatu Coal Mining Project (area 646.23 Ha having capacity 7 MTPA) and later re-validated vide letter no. J-11015/133/2007-IA.II(M) dated 03.03.2016. Amendments in this EC were accorded vide letter no. J-11015/133/2007-IA.II(M) dated 01.12.2020 & 05.01.2024. Later, this EC was transferred to NTPC Mining Limited vide letter dated 08.03.2024.

Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

S. No.	Details of Letter No.	EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (MTPA)	Date of issuance	Status of implementation
1	J-11015/133/2007-IA.II(M)	EC	7 MTPA	646.23 Ha	19.04.2010	Being Implemented
2	-do-	Revalidation of EC (due to re-allotment of coal block in 2015)	7 MTPA	646.23 Ha	03.03.2016	Being Implemented
3	-do-	Amendment in EC (Road transport permission granted till 30.11.2023)	7 MTPA	646.23 Ha	01.12.2020	Implemented
4	-do-	Amendment in EC (Road transport permission granted till 31.10.2024 by allowing the construction of closed conveyor till 31.10.2024 and siding by 31.03.2026)	7 MTPA	646.23 Ha	05.01.2024	Implemented
5	-do-	Transfer in EC (Transfer of EC from NTPC Ltd. to NTPC Mining Limited)	7 MTPA	646.23 Ha	08.03.2024	Transfer of EC from NTPC Ltd. NTPC Mining Limited.

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.5.2: Production Details: PP submitted the actual production details of the concerned mine and submitted that the mine became operational from 25.04.2022 onwards.

Details of the same are as follows:

Year	Actual Coal Production in MTPA	Planned Coal production in MTPA as per Environmental Clearance	Excess Production
2022-23	0.57	7	NIL
2023-24	3.3	7	NIL
2024-25 (till 31.08.2024)	1.65	7	NIL

CTO renewal has been obtained from the JSPCB and is valid up to 30.06.2027.

15.5.3: The PP has made an online application vide proposal no. IA/JH/CMIN/493289/2024 dated 04.09.2024 for amendment in EC Specific Condition no. 2A (ix) & (xi) accorded vide letter no. J-11015/133/2007-IA.II(M) dated 19.04.2010, seeking further amendment for extension of timeline to allow transportation of coal by road through covered tippers/ dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori Sidings for supply of coal to Barh STPP and to transport the coal by road to NKSTPP till 31.03.2027. In addition to this, another amendment sought by the PP is to allow the establishment of railway siding by March 2027.

PP submitted the following details for the amendment sought along with the justification:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition No.- 2A (ix) & (xi)	2A (ix): "Raw coal from CHP shall be transported by closed conveyors to the railway siding and from there to linked Barh STPS by rail. There shall be no road	(a) Change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori Sidings (over a distance of 26 km, 38 km, 95 km, 81 km, 92 km & 96 km,	**Delay in construction of Conveyor system** Pre-requisite to start the construction of CHP is the availability of encumbrance free land that is not available for the entire stretch of coal evacuation corridor of CB&KD. For construction of CHP, NTPC had awarded the contract to M/s L&T on 27.09.2019 immediately after obtaining the St-II forest clearance on 28.08.2019; However, approval of forest

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
	transportation of coal". 2A (xi): "Company's Railway siding shall be established within 3 years from date of grant of environmental clearance"	respectively) for supply of coal to Barh STPP and to transport of coal by road to NKSTPP (over a distance of 24 km) till 31.03.2027.	land transfer accorded by Govt of Jharkhand only on 23.12.2021. Subsequently Tree cutting permission was received on 08.03.2022. The schedule for construction of CHP is 24 months from the date of front handover. Land Acquisition and R&R issues along the CHP corridor at times have stalled the construction work. Construction work was delayed due to Covid-19 and law & order issue in the area and at times works was stalled by local villagers and even the contractor persons were manhandled. Unfortunately, one executive of a construction agency was shot dead on 19.02.2021 by miscreants. Communication to the Nominated Authority regarding the incident had been provided. In the EC amendments dated 05.01.2024 and 05.02.2024 for CB & KD CMP, respectively the time for conveyor construction was granted till 31.10.2024. However, due to difference in the rate of land compensation provided by State Govt to landowners of different villages, physical possession of land could not be completed. The conveyor falls in both Hazaribagh and Chatra District. The land compensation rate paid by Chatra District Administration is less than that paid by the Hazaribagh District Administration. Hence, the landowners in Chatra District demanded at par payment with Hazaribagh and did not allow the work to start. This matter was discussed many times at District Administration and State

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			Govt and also flagged at PMG portal. It was deliberated that it is not prudent to make different payments for the same project activity which may result in IR problems. Hence, it was decided to accommodate complete conveyor system in Hazaribagh District. Subsequently, re-engineering of the conveyor system has been done with the help of agency to accommodate conveyor system within the Hazaribagh District which further delayed the progress. At present, approx. **73%** of conveyor work is completed and the balance work is expected to be completed by Dec' 2025. In addition to the above, law and order situation in the area is hostile and the following incidents have impacted the construction of the conveyor system: • Firing of gunshots at NTPC and MDO officials by unidentified persons • Threatening calls to Head of the Project by extremist groups • Life threats to workmen engaged in construction activities by local villagers • Organization of Mahjutaan/Mahapanchayat by the local politicians by halting the project activities • Setting ablaze the machineries by unknown persons etc. Moreover, the tenure of General Lok Sabha Elections (2024) has resulted in lack of workforce and further, the working hours have also been reduced to almost six hours/day due to resistance of local Villagers.

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			Status of Railway line connecting conveyor The alternate railway alignment for the Shivpur – Hazaribagh line viz Shivpur – Kathautia was finalized subsequently, and survey work started by Railways only in 2022. DPR for the same is under finalization by Railways. This matter is being regularly followed with Railways, Dhanbad Division and ECR, Hajipur. NTPC has also requested Ministry of Power to co-ordinate with Ministry of Railways for expeditious construction of Railway siding. During the recent discussion with ECR, Hajipur it is informed that DPR finalization is expected by Oct' 2024. Considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027. ➢ ***Further, it is to mention here that, even if the conveyor construction is completed, the entire system will remain idle until completion of connecting railway system.***

15.5.4: Traffic Assessment Report: Traffic study report has been carried for assessment of impacts due to transportation of coal by road from Chatti Bariatu opencast coal mine project pit head to six railway sidings (Bachra – 38 km, Shivpur – 26 km , Katkamsandi – 95 km, Kusmahi – 81 km , Bira Toli – 92 km and Tori siding – 95 km) and North Karanpura Super Thermal Power Plant (24 km). The present traffic is 896 trucks to and fro towards North Karanpura STPP, Bachra siding and Katkamsandi siding. Additional 416 trucks will move to and fro towards the aforementioned six sidings and North Karanpra STPP. Thus, total 1312 trucks per day will move 19700 TPD of coal from mines. Based on the existing traffic volume monitored, existing width of roads, traffic projections

upto March 2027 and additional trucks of Chatti Bariatu coal mine, the carrying capacity has been calculated for March 2027 and two stretches of roads from near Jordag to near Bhadaikhap totalling around 2 km are not having adequate carrying capacity because width of road is only 5 m. Therefore, NTPC Mining Ltd. has constructed a new road bypassing village Bhadaikhap. In addition to this road, PP also needs to complete the construction of road from village Brinda to Shivpur siding. To minimise air pollution at the mine and railway sidings, the PP has installed Wind breaker, installed fixed water sprinkling system & Fixed type rain-guns and undertaken plantation at Katkamsandi Railway Siding. A PM_{10} analyser has also been installed at Katkamsandi. At Bachra siding mobile water sprinkler has been deployed and wind breakers have been installed all along the Bachra.

15.5.5: Details of Court Cases: There are no court cases pending on the said proposal.

15.5.6: Monitoring report received from Regional Office, Ranchi: The Ministry is in receipt of monitoring report from Regional Office, Ranchi on 24/09/2024 on the status of compliance of conditions imposed in the EC letter dated 19/04/2010, its revalidation dated 03.03.2016 and amendment in EC dated 05.01.2024 granted by MoEF&CC. As per the said report, following serious partial compliances and non-compliances have been reported by the Regional Office:

i. **Specific condition no.(iii), page no.3; Specific condition no.(xii), page no.6; Specific condition no.(xv), page no.7; additional condition, page no.20**: No reclamation of the closed portion of OB dump has been initiated. Therefore, the proponent is instructed to prepare time bound comprehensive plantation plan with native species for protection of the ecology of the surrounding area and post-mining ecological restoration plan and implement on priority

ii. **Specific condition no.(vi), page no.5:** The retaining wall is under construction. 250 m long retaining wall has already been constructed. Therefore the proponent is instructed to submit time-bound action plan w.r.t the construction of retaining wall to RO Office.

iii. **Specific condition no.(ix), page no.5, Additional condition no.1.1, page no.21:** Work for the construction of closed conveyor under progress has been observed. Therefore, the proponent is instructed to complete the work of construction of closed conveyors on priority and submit its progress along with half-yearly compliance report to RO Office.

iv. **Specific condition no.(xi), page no.6, Additional condition 1.5, page no.22**: Work for the construction of railway siding under progress has been observed. Therefore, the proponent is instructed to complete the work of construction of railway siding on priority and submit its progress along with half-yearly compliance report to RO Office.

v. **Specific condition no.(xiii), page no.7; Specific condition no.(xiv), page no.7; Specific condition no. (xxi), page no. 10; Specific condition no. (xxii), page no 10:** Construction of 50 KLD ETP has been observed under construction. No rainwater harvesting measures have been implemented at the project site. Therefore, the proponent, is instructed to complete the construction work of ETP and water harvesting structures on priority and submit its progress report to RO Office.

vi. **Specific condition no (xviii), page no.9, Additional condition 1.13, page no.24:** The proponent informed that the implementation of Wildlife Conservation Plan and Site-Specific Wildlife Management Plan has been entrusted to the State Forest Department. Therefore, the proponent is instructed to submit progress of implementation of Wildlife Conservation Plan and Site-Specific Wildlife Management Plan to RO Office.

vii. **Specific condition no. (xxiv), page no. 11:** The proponent informed that these details of environmental activities with expenditure shall be uploaded on the company's website and updated. Therefore, the proponent is instructed to upload details of environmental activities with expenditure on the company's website and submit status to RO Office.

viii. **Specific condition no (xxv), page no. 11:** The proponent informed that so far the land compensation amount has been paid Rs. 702.66 acres out of 1071.90 acres. A separate Corpus fund of Rs 5 crores will be created in future after displacement and settlement of the PAFs in R&R colony for maintenance of the R&R colony. However, till date no consent has been received from the villages for R&R colony. Alternate livelihood schemes shall be implemented for the persons not being absorbed for employment. Therefore the proponent is instructed to submit action plan for implementation of R&R on priority to RO Office.

ix. **Specific condition no. (xxvii), page no 12**: The proponent informed that land use pattern shall be prepared for the period 2025- 27 in 2025. Therefore, the proponent is instructed to carry out DS once in three years and the same shall be fumished to RO Office.

x. **General condition no.iii), page no.13; General condition no.iv), page no. 14; General condition no.xv), page no.16:** One Continuous Ambient Air Quality Monitoring Station (CAAQMS) to monitor ambient air quality within the mining lease area near Site Office at Pagar. The values on the display of CAAQMS are far lower values hence the proponent was instructed to calibrate the instrument immediately. The display board has not been working on the day of inspection. Therefore, the proponent is instructed to rectify the problem and resume the function of CAAQMS and display board urgently. The proponent is instructed to establish ambient air quality monitoring stations as imposed in the EC and submit details to RO Office.

xi. **General condition no.ix, page no.15:** The proponent informed that regular training on safety & health has been conducted. However, no details have been received in this Office. Further the proponent informed that the occupational health surveillance has been conducted regularly. However, no details have been received in this Office. Therefore the proponent is instructed to submit details of training and occupational health surveillance to RO Office.

xii. **General condition no.xii, page no.16**: No advertised copies have been received in this Office. Therefore, the proponent is instructed to submit advertised copies to RO Office.

xiii. **General condition no xviii), page no.17:** No environmental statements in the prescribed Form V for the year 2023-2024 have been observed when visited the website. Therefore, the proponent is instructed to submit environmental statement in the prescribed Form V for the

year 2023-2024 regularly to this Office and also upload all environmental statements in the prescribed Form V on the company's website.

xiv. **Additional page no. 18:** No copy of revalidation of EC No.J-11015/133/2007-IA II(M) dated 03/03/2016 and its compliance status report has been received in RO Office. Therefore, the proponent is instructed to submit copy of revalidation of EC No.J-11015/133/2007- IA.II(M) dated 03/03/2016 and its compliance status report to this Office for further action.

xv. **Additional condition, page no. 19. Additional condition no.1.4. page no.21, Additional condition no.1.6, page no.22, Additional condition no.1.11, page no.22:** The proponent informed that the expected timeline for completion of construction of alternate road before December, 2024. Therefore, the proponent is instructed to submit detailed plan for construction of alternate road along with timeline to RO Office.

xvi. **Additional condition no.1.3, page no 22**: The proponent informed that all the necessary permissions have been obtained from the Forest Department for the transportation of coal by road through the forest land However, no details of such permission have been received in this Office. Therefore, the proponent is instructed to submit such all details to RO Office.

xvii. **Additional condition no. 1.7, page no.23**: The trucks used for transportation of coal are optimally loaded and properly covered with tarpaulin to curb pollution. Further, the coal is being transported with all the necessary permission from the State Government. However, no details of such permission have been received in this Office. Therefore, the proponent is instructed to submit such all details to RO Office.

xviii. **Additional condition no.1.8, page no.23**: The proponent informed that for installment of fog cannons is under the tendering process and shall be completed within 2 or 3 months. At present, the proponent deployed mobile water tankers for dust suppression. Therefore, the proponent is instructed to install 10 fog cannons and submit its status to RO Office.

xix. **Additional condition no.1.9, page no.23:** No environmental laboratory has been established at the project site. Therefore the proponent is instructed to establish environmental laboratory and submit action plan for establishment of environmental laboratory to RO Office.

xx. **Additional condition no.1.10, page no 23**: No details of deploy of CNG/LNG/e-vehicles for workers/staff in/out of the mine have been received in this Office. Therefore, the proponent is instructed to submit action plan for deploying CNG/LNG/e-vehicles for workers/staff in/out of the mine to RO Office.

xxi. **Additional condition no. 1.14, page no.25**: The proponent has not submitted compliance of EC re-validated dated 03/03//2016 therewith half yearly compliance report to this Office. Therefore, the proponent is instructed to clarify for why was not submitting the compliance status of EC re- validated dated 03/03//2016 to RO Office.

xxii. **Additional condition no.1.15, page no.25:** The proponent informed that an e-mail request was sent to the Director of Institute of Forest Productivity, Ranchi, Jharkhand, to conduct the studies for evaluating the impact of air pollution generated by the mining activities on the forest up to a distance of about 10 km. Reply is awaited from the Institute of Forest Productivity. Therefore, the proponent is instructed to get study done by the reputed institution/university and submit copy of said study report to RO Office.

Observations and deliberation of the Committee:

15.5.7: The EAC noted the following:

i. MoEF&CC has granted EC for Chatti Bariatu Coal Mining Project of M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M), dated 19.04.2010 for capacity of 7 MTPA in an area of 646.23 Ha. Later this EC was revalidated vide letter dated 03.03.2016. Subsequently, amendments regarding permission for road transport, for the same were issued vide letters dated 01.12.2020 and 05.01.2024.

ii. Further, this EC was transferred from M/s NTPC Limited to M/s NTPC Mining Limited vide letter no. J-11015/133/2007-IA.II(M) dated 08.03.2024.

iii. It is observed that there is 128.92 Ha of forestland involved in the said project and stage – II FC is accorded on it vide letter dated 13.04.2017.

iv. The above project is partly implemented and the mine is already under operation.

v. Specific Condition no. 2A (ix) of EC stipulated that the raw coal from CHP shall be transported by closed conveyors to the railway siding and from there to linked Barh STPP by rail. There shall be no transportation of coal. The timeline for the same was extended until 31.10.2024 (for construction of closed conveyor) vide EC amendment dated 05.01.2024.

vi. Specific Condition no. 2A (xi) of EC stipulated that the company's railway siding shall be established within 3 years from date of grant of EC. The timeline for the same was extended until 31.03.2026 (for construction of siding) vide EC amendment dated 05.01.2024.

vii. Now, the PP has submitted the proposal for amendment in Specific Condition no. 2A(ix) & (xi) of EC vide letter dated 19.04.2010 (last amended vide EC letter dated 05.01.2024), regarding the change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori Sidings (over a distance of 26 km, 38 km, 95 km, 81 km, 92 km & 96 km, respectively) for supply of coal to Barh STPP and to transport of coal by road to NKSTPP (over a distance of 24 km) till 31.03.2027 instead of 31.10.2024 and 31.03.2026 respectively.

The Committee deliberated on the same observed that the length of conveyor has been declined and that of railway siding has been increased due to the non-availability of land. The PP also submitted that it is being re-engineered and terrain of the same is also being changed. The Committee also observed that there are major changes in transportation route vis-a-vis with transportation route envisaged under the EC dated 19/04/2010.

viii. PP submitted that in order to start with the construction of CHP, encumbrance free land is required which was not available for the entire stretch of coal evacuation corridor. Hence, contract for construction of CHP could be awarded only after the grant of Stage – II FC, approval of forestland transfer by Govt of Jharkhand and tree cutting permission, which were accorded on 28.08.2019, 23.12.2021 and 08.03.2022 respectively.
Thereafter, land acquisition and R&R issues along with the CHP corridor many a times has stalled the construction work and later COVID-19 and law and order issues of the area further delayed the same. Considering the same, EC amendment was accorded vide letters dated 01.12.2020 and 05.01.2024.

ix. PP also submitted that law and order situation in the area is hostile and several incidents like – firing of gunshots NTPC and MDO officials by unidentified persons, threatening calls to head of the project by extremist groups, life threats to workmen engaged in construction activities by local villagers, organization of Mahjutaan/Mahapanchayat by the local politicians by halting the project activities & setting ablaze the machineries by unknown persons etc, have impacted construction of conveyor system. Moreover, due to political instability there is lack of workforce and working hours are also reduced to 6 hours/ day due to resistance of local villagers.

x. In pursuance to status of railway line connecting the conveyor (specific condition no. 2A (xi)), PP submitted that survey work for the alternate railway alignment for Shivpur – Hazaribagh line viz Shivpur – Kathautia was started in 2022 only. Daily Progress Report for the same is under finalization by railways and the matter is being regularly followed-up with railways. PP further submitted that considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027.

xi. The Committee deliberated on the condition of the roads through which transportation of coal being done currently. The Committee observed that at some places road is passing through forest area. The Committee asked PP to submit a certificate from DFO certifying that no elephant corridor passes through the coal transportation road. Committee also asked the PP to submit a drone video of the roads through which coal is being transported.

xii. The Committee also deliberated on the air quality monitoring data of the coal transportation roads and observed that the air quality prediction models show levels of pollution almost near the permissible limits, hence high level of pollution, that too away from the coal transportation road. The Committee is of the opinion that this might exceed the annual permissible limits. The Committee therefore, has asked PP to submit a time bound action plan for the mitigation

measures to be adopted to control the high level of air pollution along with the budget proposed for the same.

xiii. The Committee also deliberated on the plantation activities done by the PP since the mine is operational and observed that plantation is developed only on the 8 Ha land area. Also, there is no road side plantation observed. PP submitted that plantation drives are being carried out and recently they have also launched the "Ek Ped Maa K Naam" campaign in the villages falling in the purview of lease area. The Committee is of the opinion that the PP must submit a plantation plan along the road side along with the estimated budget for the same.

xiv. The Committee observed that due to no entry during day time, at some places, transportation of coal by road will take place at night. The Committee deliberated on the noise pollution and air pollution mitigation measures to be adopted in this regard and asked the PP to submit air quality and noise level monitoring data of both during day and night time of the public roads being used for haulage. The air quality monitoring data presented by the PP was for locations not exactly on the road side due to which proper appraisal could not be done.

xv. The Committee also deliberated on the Traffic Assessment Study carried out by the PP and observed that issues such as air quality and noise level monitored data of both during day and night time of the public roads being proposed for road transportation, incremental impact on the environmental attributes due to road transportation and man-animal conflict during transportation of coal etc. have not been adequately addressed in the study report.

xvi. The Committee taken in to cognizance the partial compliances and non-compliances reported by the Regional Office of the Ministry in its monitoring report as mentioned at para no. 15.5.6.

xvii. The Committee observed that conveyor which is under construction for which the extension in timeline is being sought is the common conveyor for the adjoining Kerandari Coal Mine. Both mines are adjacent to each other and the issues are common. The latter is also placed in the same meeting for seeking amendment in the timeline same as that of the instant proposal (Chatti Bariatu Coal Mining Project).

Recommendations of the Committee:

15.5.8: In view of the foregoing and after detailed deliberations, the Committee **deferred** the proposal for amendment in EC granted by vide file no. J-11015/133/2007-IA.II(M) dated 19.04.2010 and sought for following additional information for further consideration:

i. Action taken report on the partial compliances and non-compliances reported by the Regional Office in its monitoring report shall be submitted by the proponent to the concerned RO, MoEF&CC to obtain their views/comments and the same shall be further submitted to the EAC for further consideration.
ii. Revised traffic assessment study report inter-alia covering the following shall be submitted:

a. Ambient Air Quality (AAQ) and Noise quality data along the entire coal transportation route i.e., from mine pit head to six railway sidings and North Karanpura TPP during day and night time.
b. Anticipated impact on all environmental attributes
c. Environmental Management Plan including monitoring program to address all concerns arising out of coal transportation by road

iii. Certificate from DFO shall be submitted stating that coal transport route does not intersect with wildlife corridors.
iv. Drone video of the entire coal transportation route by road shall be submitted.
v. No overburden dumping should be done outside the ML area.
vi. Action plan for reducing the coal transportation by road in a time bound manner.

In addition to the above, the EAC also recommended for a site visit by the sub-committee for on spot assessment of various environmental conditions.

Agenda No. 15.6

15.6: Kerandari Coal Mining Project (area 1173 Ha having capacity 6 MTPA) by M/s NTPC Mining Limited located at Villages: Pandu, Pagar, Basaria, Lochar, Baledori, Kabed, Tarhesa; District: Hazaribagh; State: Jharkhand – Regarding Amendment in EC

[Online Proposal No. IA/JH/CMIN/493281/2024; File No. J-11015/133/2007-IA.II(M)]
[Consultant: Min Mec Consultancy Private Limited NABET/EIA/2225/IA 0096 valid up to 29.03.2025]

15.6.1: The instant proposal is for amendment in Environment Clearance granted to M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M) dated 31.03.2010 for Kerandari Opencast Coal Mining Project (area 1173 Ha having capacity 6 MTPA). Amendment in this EC was accorded vide letter dated 05.02.2024. Later this EC was transferred to M/s NTPC Mining Limited vide letter dated 08.03.2024.

It is to be noted that allocation of Kerandari Coal Block along with 203 other coal blocks was cancelled by the Hon'ble Supreme Court vide Judgement dated 25.08.2014 read with Order dated 24.09.2014. Vide allotment order no. 103/29/2015/NA dated 08.09.2015, re-allocated the Kerandari 'A' coal block (area 1173 Ha having capacity of 6 MTPA) to M/s NTPC Limited. Thereafter, Revalidation/transfer of EC of the said block was granted to NTPC Limited vide letter dated 28.10.2015.

Details of all the ECs including its amendment are summarized as below:

S. No.	Details of Letter No.	EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (MTPA)	Date of issuance	Status of implementation
1	J-11015/133/2007-IA.II(M)	EC	6 MTPA	1173 Ha	31.03.2010	Being Implemented

S. No.	Details of Letter No.	EC/Expansion EC/ Amendment in EC/ Validity extension/ Transfer of EC	Capacity (MTPA)	Area (MTPA)	Date of issuance	Status of implementation
2	-do-	Revalidation/ Transfer of EC	6 MTPA	1173 Ha	28.10.2015	Being Implemented
2	-do-	Amendment in EC (Road transport granted till 31.10.2024)	6 MTPA	1173 Ha	05.02.2024	Being Implemented
3	-do-	Transfer of EC	6 MTPA	1173 Ha	08.03.2024	Transferred from M/s NTPC Ltd to M/s NTPC Mining Ltd

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.6.2: Production Details: PP submitted the actual production details of the concerned mine and submitted that the mine became operational from 05.04.2023 onwards.

Details of the same are as follows:

Year	Actual Coal Production in MTPA	Planned Coal production in MTPA as per Environmental Clearance	Excess Production
2023-2024	0.02	2	NIL
2024-25 (as on date 05.09.2024)	0.04	4	NIL

CTO renewal has been obtained from the SPCB and is valid up to 30.06.2025.

15.6.3: The PP has made an online application vide proposal no. IA/JH/CMIN/4932891/2024 dated 04.09.2024 for amendment in EC Specific Condition no. 2A (xi) & (xiv) accorded vide letter no. J-11015/133/2007-IA.II(M) dated 31.03.2010, seeking further amendment for extension of timeline to allow transportation of coal by road through covered tippers/ dumpers from mine to Shivpur, Bachra, Katkamsandi, Kusmahi, Biratoli & Tori railway sidings for supply of coal to Tanda STPP and to

transport the coal by road to NKSTPP till 31.03.2027. In addition to this, another amendment sought by the PP is to allow the establishment of railway siding by March 2027.

PP submitted the following details for the amendment sought along with the justification:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
Specific Condition No.-2A (xi) & (xiv)	EC Sp. Cond. No 2A(xi) Raw coal from CHP shall be transported by closed conveyors to the railway siding proposed at village Khadamdari and thereafter by rail to the linked Tanda/ Barh STPP. The conveyor-cum-rail corridor consisting of a stretch of 13.1 km of rail and 10.5 km of overhead closed conveyors and extend upto unloading part of the railway siding with Silo Loading facilities and from there to the linked Barh STPP/ Tanda by rail. There shall be no road	Change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kushmahi, Bira Toli & Tori railway sidings for supply of coal to Tanda STPP and transport of coal by road to NKSTPP till 31.03.2027	**Delay in construction of Conveyor system** Pre-requisite to start the construction of CHP is the availability of encumbrance free land that is not available for the entire stretch of coal evacuation corridor of CB&KD. For construction of CHP, NTPC had awarded the contract to M/s L&T on 27.09.2019 immediately after obtaining the St-II forest clearance on 28.08.2019; However, approval of forest land transfer accorded by Govt of Jharkhand only on 23.12.2021. Subsequently Tree cutting permission was received on 08.03.2022. The schedule for construction of CHP is 24 months from the date of front handover. Land Acquisition and R&R issues along the CHP corridor at times have stalled the construction work. Construction work was delayed due to Covid-19 and law & order issue in the area and at times works was stalled by local villagers and even the contractor persons were manhandled. Unfortunately, one executive of a construction agency was shot dead on 19.02.2021 by miscreants. Communication to the Nominated Authority regarding the incident had been provided. In the EC amendments dated 05.01.2024

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
	transportation of coal. EC Sp. Cond. No. 2A (xiv) Company's Railway Siding at village Khadambari shall be established within 3 years from date of grant of Environmental Clearance. The pp is permitted till 31.10.2024 to use Service road/State Highways for transportation of coal to Banadag railway siding.		and 05.02.2024 for CB & KD CMP, respectively the time for conveyor construction was granted till 31.10.2024. However, due to difference in the rate of land compensation provided by State Govt to landowners of different villages, physical possession of land could not be completed. The conveyor falls in both Hazaribagh and Chatra District, and the land is acquired under LA Act 1894. The land compensation rate paid by Chatra District Administration is less than that paid by the Hazaribagh District Administration. Hence, the landowners in Chatra District demanded at par payment with Hazaribagh and did not allow the work to start. This matter was discussed many times at District Administration and State Govt and also flagged at PMG portal. It was deliberated that it is not prudent to make different payments for the same project activity which may result in IR problems. Hence, it was decided to accommodate complete conveyor system in Hazaribagh District. Subsequently, re-engineering of the conveyor system has been done with the help of agency to accommodate conveyor system within the Hazaribagh District which further delayed the progress. At present, approx. **73%** of conveyor work is completed and the balance work is expected to be completed by Dec' 2025. In addition to the above, law and order situation in the area is hostile and the following incidents have impacted the construction of the conveyor system:

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			• Firing of gunshots at NTPC and MDO officials by unidentified persons • Threatening calls to Head of the Project by extremist groups • Life threats to workmen engaged in construction activities by local villagers • Organization of Mahjutaan/Mahapanchayat by the local politicians by halting the project • activities • Setting ablaze the machineries by unknown persons etc. Moreover, the tenure of General Lok Sabha Elections (2024) has resulted in lack of workforce and further, the working hours have also been reduced to almost six hours/day due to resistance of local Villagers. **Status of Railway line connecting conveyor** The alternate railway alignment for the Shivpur – Hazaribagh line viz Shivpur – Kathautia was finalized subsequently, and survey work started by Railways only in 2022. DPR for the same is under finalization by Railways. This matter is being regularly followed with Railways, Dhanbad Division and ECR, Hajipur. NTPC has also requested Ministry of Power to co-ordinate with Ministry of Railways for expeditious construction of Railway siding.

Specific/General Condition No.	Details of Conditions as per EC	Amendment Sought	Justification
			During the recent discussion with ECR, Hajipur it is informed that DPR finalization is expected by Oct' 2024. Considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027. ➢ ***Further, it is to mention here that, even if the conveyor construction is completed, the entire system will remain idle until completion of connecting railway system.***

15.6.4: Traffic Assessment Report: Traffic study report has been carried for assessment of impacts due to transportation of coal by road from Kerandari 'A' opencast coal mine project pit head to six railway sidings (Bachra – 40.5 km, Shivpur – 28.8 km, Katkamsandi – 97.6 km, Kusmahi -83.3 km, Bira Toli -94.6 km and Tori siding – 97.9 km) and North Karanpura Super Thermal Power Plant – 26.3 km. Based on the existing traffic volume monitored, existing width of roads, traffic projections upto March 2027 and additional trucks of Kerandari 'A' coal mine, the carrying capacity has been calculated for March 2027 and two stretches of roads from near Jordag to near Bhadaikhap totalling around 2 km are not having adequate carrying capacity because width of road is only 5 m. Therefore, NTPC Mining Ltd. has constructed a new road bypassing village Bhadaikhap. In addition to this road, PP also needs to complete the construction of road from village Brinda to Shivpur siding. To minimise air pollution at the mine and railway sidings, the PP has installed Wind breaker, installed fixed water sprinkling system & Fixed type rain-guns and undertaken plantation at Katkamsandi Railway Siding. A PM_{10} analyser has also been installed at Katkamsandi. At Bachra siding mobile water sprinkler has been deployed. Wind breakers have been installed all along the Bachra and Tori siding as well.

15.6.5: Details of Court Cases: There are no court cases pending on the said proposal.

15.6.6: Monitoring report received from Regional Office, Ranchi: on the status of compliance of conditions imposed in the EC letter dated 31/03/2010, transfer/ revalidation of EC dated 03.03.2016

and amendment in EC dated 05.02.2024 granted by MoEF&CC. As per the said report, following glaring partial compliances and non-compliances have been reported by the Regional Office:

i. **Status of EC, page no.2:** No copy of transfer revalidation of EC No.J-11015/120/2007-IA.II(M) dated 28/10/2015 and all copies of CTES/CTOs have been received in RO Office. Therefore the proponent is instructed to submit transfer / revalidation of EC No.J-11015/120/2007-IA II(M) dated 28/10/2015 and all copies of CTES/CTOS to RO Office.

ii. **Specific condition no.ii, page no.2:** The proponent informed that State Water Resources Department vide letter dated 19/3/2013 approved for the diversion of Baldeori nala, which is yet to be diverted. Therefore, the proponent is instructed to submit time bound plan for the diversion of Baldeori nala and construction of embankment, details of plantation, etc., to RO office.

iii. **Specific condition no.iv, page no.3; Specific condition no.xii, page no.7; Specific condition no.xxiii, page no.9; Specific condition no.xxi, v page no.10:** No reclamation of the closed portion of OB dump has been initiated. Therefore, the proponent is instructed to prepare time bound comprehensive plantation plan with native species for protection of the ecology of the surrounding area and post-mining ecological restoration plan. The proponent should submit the detailed plan in tabular format (year-wise for life of mine) for afforestation and green belt development in and around the mining lease. The proponent should submit the number of saplings to be planted, area to be covered under afforestation and green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this, the proponent should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Plantation plan should be prepared in such a way that 80% of the plantation to be carried out in first 5 years and for the remaining years the proposal for gap filling. The seedling of height not less than 2 meters to be selected and accordingly cost of plantation needs to be decided. In addition to this, plantation in the safety zone at lease boundary the plantation should be planned in such a way that it should be completed within 2 years only.

iv. **Specific condition no.viii, page no.5**: No retaining wall has been observed. Therefore, the proponent is instructed to submit the comprehensive action plan for the construction of retaining wall to RO Office.

v. **Specific condition no.xiii, page no.5, Additional condition no.1.1, page no.20**: Crushers are yet be constructed. The proponent informed that the optimum loaded tarpaulin covered trucks have used for transportation of coal. Mobile water tankers have been deployed for dust suppression along the transportation route. Therefore, the proponent is instructed to complete the construction of crushers on priority and submit detailed timeline for the construction crushers at CHP to RO Office.

vi. **Specific condition no xiv, page no.6, Additional condition no.1.6, page no.21; Additional condition no.1.8. page no.21:** Work for the construction of railway siding under progress has

been observed. The proponent informed that the amendment in EC has been obtained from MoEF&CC vide letter dated 05/01/2024 for completing the for construction of railway siding by March 2025 and construction of closed belt conveyor upto October, 2024. Therefore, the proponent is instructed to complete the work of construction of railway siding on priority and submit its progress report to RO Office.

vii. **Specific condition no.xvii, page no.8; Specific condition no xxi, page no.8:** No rainwater harvesting structures have been observed in the mine premise. The proponent informed that the rainwater harvesting structures shall be established within 2 or 3 months. The water requirement of the nearby villages shall be met in case the village wells go dry due to dewatering of mine. Therefore, the proponent is instructed to construct rainwater harvesting structures in consultation with CGWA/ State Water Resources Department and submit its detail to RO Office.

viii. **Specific condition no.xix, page no.8; Specific condition no.xxii, page no.9; General condition no.vi, page no. 15:** ETP without oil/grease traps on has been constructed. Therefore, the proponent is instructed to install oil/grease traps on priority and submit action taken report to RO Office.

ix. **Specific condition no.xx, page no.8:** No STP has been provided. Therefore the proponent is instructed to provide STP on priority basis and submit action taken report to RO Office.

x. **Specific condition no xxv, page no.10:** Wildlife Conservation Plan and Site-Specific Wildlife Management Plan have been prepared and approved by the State Chief Wildlife Warden. Copies of plans have been received in this Office. It was informed that for implementation of site- specific wildlife management plan Rs. 24.76 Crores was deposited in the ad-hoc CAMPA account. Therefore, the proponent is instructed to submit progress report of implementation of Wildlife Conservation Plan and Site-Specific Wildlife Management Plan to RO Office.

xi. **Specific condition no xxvi, page no.11**: The proponent earmarked separate budget for implementing environmental measures. The details of expenditure on environmental activities for FY 2023- 2024 have not been received in RO Office. The proponent informed that these details of activities with expenditure shall be uploaded on the company's website and updated. Therefore, the proponent is instructed to upload details of environmental activities with expenditure on the company's website and submit status to RO Office.

xii. **Specific condition no.xxvii, page no. 11:** Alternate livelihood schemes shall be implemented for the persons not being absorbed for employment. Therefore, the proponent is instructed to submit action plan for implementation of R&R on priority to RO Office.

xiii. **Specific condition no.xxxi, page no. 12:** The proponent informed that land use pattern shall be prepared for the period 2025-27 in 2025. Therefore, the proponent is instructed to carry out DS once in three years and the same shall be furnished to RO Office.

xiv. **General condition no.iii, page** no.13; General condition no.vili, page no. 15, General condition no.xv, page no. 17: No four ambient air quality monitoring stations have been established. However, one Continuous Ambient Air Quality Monitoring Station (CAAQMS near Site Office has been installed and. The values on the display of CAAQMS are far lower values hence the proponent was instructed to calibrate the instrument immediately. The display board has not been working on the day of inspection. Therefore, the proponent is instructed to rectify the problem and resume the 3 Page function of CAAQMS and display board urgently. The proponent is instructed to establish ambient air quality monitoring stations as imposed in the EC and submit details to RO Office.

xv. **General condition no.ix, page no. 16**: The proponent informed that regular training on safety & health has been conducted. However, no details have been received in this Office. Further the proponent informed that the occupational health surveillance has been conducted regularly. However, no details have been received in this Office. Therefore the proponent is instructed to submit details of training and occupational health surveillance to RO Office.

xvi. **General condition no.xii, page no.16**: No advertised copies have been received in this Office. Therefore, the proponent is instructed to submit advertised copies to RO Office.

xvii. **General condition no.xviii, page no. 18**: No environmental statements in the prescribed Form V for the year 2023-2024 have been observed when visited the website. Therefore, the proponent is instructed to submit environmental statement in the prescribed Form V for the year 2023-2024 regularly to RO Office and also upload all environmental statements in the prescribed Form V on the company's website Office.

xviii. **Additional condition no. 1.14, page no.23:** No copy of transfer / revalidation of EC No.J-11015/133/2007-IA.II(M) dated 28/10/2015 and its status of compliance has been received in this Office. Therefore the proponent is instructed to copy of copy of transfer / revalidation of EC No.J-11015/133/2007-IA.II(M) dated 28/10/2015 and its status of compliance to RO Office.

xix. **Additional condition no. 1.9, page no.21:** The proponent informed that for instalment of fog cannons is under the tendering process and shall be completed within 2 or 3 months. At present, the proponent deployed mobile water tankers for dust suppression. Therefore, the proponent is instructed to install 10 fog cannons and submit its status to RO Office.

xx. **Additional condition no. 1.11. page no.22**: The proponent informed that there are no CNG/LNG/recharge stations located near the mine site. BS VI tippers have been used for transportation of coal to minimize the emissions. No details of deploy of CNG/LNG/e-vehicles

for workers/staff in/out of the mine have been received in this Office. Therefore, the proponent is instructed to submit action plan for deploying CNG/LNG/e-vehicles for workers/staff in/out of the mine to RO Office.

xxi. **Additional Condition no. 1.12, page no. 22:** No details of engage the State Biodiversity Authority and local biodiversity committee for implementation of CSR activity for developing the local market have been received in this Office. Therefore, the proponent is instructed to submit progress of implementation of Wildlife Conservation Plan along with details of expenditure and details of engage the State Biodiversity Authority and local biodiversity committee for implementation of CSR activity for developing the local market to RO office.

xxii. **Additional condition no. 1.15, page no 23:** No Copy of study on evaluating the impact of air pollution generated by its activities on the forests upto a distance of about 10 km have been received in this Office. Therefore, the proponent is instructed to get study done by the reputed institution/ university and submit copy of said study report to RO office.

Observations and deliberation of the Committee:

15.6.7: The EAC noted the following:

i. MoEF&CC has granted EC for Kerandari Opencast Coal Mining Project of M/s NTPC Limited vide letter no. J-11015/133/2007-IA.II(M), dated 31.03.2010 for capacity of 6 MTPA in an area of 1173 Ha. Later this EC was revalidated/ transferred vide letter dated 28.10.2015 (since it was de-allocated vide the Judgement of Hon'ble Supreme Court and then further re-allocated vide allotment order MOC to M/s NTPC Limited). Further, amendment in EC was granted to permit the transportation of coal by road till 31.10.2024 vide letter dated 05.02.2024 and later this EC was transferred to M/s NTPC Mining Limited vide letter dated 08.03.2024.

ii. The above project is partly implemented and is already under operation.

iii. It is observed that the said project involves 243.32 Ha of forestland and stage – II on the same was accorded vide letter dated 28.08.2019.

iv. Specific Condition no. 2A (xi) of EC stipulated that the raw coal from CHP shall be transported by closed conveyors to the railway siding proposed at village Khadamdari and thereafter by rail to the linked Tanda/ Barh STPP. The conveyor-cum-rail corridor consisting of a stretch of 13.1 km of rail and 10.5 km of overhead closed conveyors and extend upto unloading part at the railway siding with Silo Loading facilities and from there to the linked Barh STPS/ Tanda by rail. There shall be no road transportation of coal. The timeline for the same was extended until 31.10.2024 (for construction of closed conveyor) vide EC amendment dated 05.02.2024.

v. Specific Condition no. 2A (xiv) of EC stipulated that the company's railway siding at village Khadambari shall be established within 3 years from date of grant of EC. The timeline for the same was extended until 31.03.2025 (for construction of railway siding) vide EC amendment dated 05.02.2024.

vi. Now, the PP has submitted the proposal for amendment in Specific Condition no. 2A(xi) & (xiv) of EC vide letter dated 31.03.2010 (last amended vide EC letter dated 05.02.2024), regarding change in mode of transportation of coal by road through covered tippers/dumpers from mine to Shivpur, Bachra, Katkamsandi, Kushmahi, Bira Toli & Tori railway sidings for supply of coal to Tanda STPP and transport of coal by road to NKSTPP till 31.03.2027 instead of 31.10.2024 and 31.03.2025 respectively.
The Committee deliberated on the same observed that the length of conveyor has been declined and that of railway siding has been increased due to the non-availability of land. The PP also submitted that it is being re-engineered and terrain of the same is also being changed.

vii. PP submitted that in order to start with the construction of CHP, encumbrance free land is required which was not available for the entire stretch of coal evacuation corridor. Hence, contract for construction of CHP could be awarded only after the grant of Stage – II FC, approval of forestland transfer by Govt of Jharkhand and tree cutting permission, which were accorded on 28.08.2019, 23.12.2021 and 08.03.2022 respectively.
Thereafter, land acquisition and R&R issues along with the CHP corridor many a times has stalled the construction work and later COVID-19 and law and order issues of the area further delayed the same. Considering the same, EC amendment was accorded vide letter dated 05.02.2024.

viii. PP also submitted that law and order situation in the area is hostile and several incidents like – firing of gunshots NTPC and MDO officials by unidentified persons, threatening calls to head of the project by extremist groups, life threats to workmen engaged in construction activities by local villagers, organization of Mahjutaan/ Mahapanchayat by the local politicians by halting the project activities & setting ablaze the machineries by unknown persons etc, have impacted construction of conveyor system. Moreover, due to political instability there is lack of workforce and working hours are also reduced to 6 hours/ day due to resistance of local villagers.

ix. In pursuance to status of railway line connecting the conveyor (specific condition no. 2A (xiv)), PP submitted that survey work for the alternate railway alignment for Shivpur – Hazaribagh line viz Shivpur – Kathautia was started in 2022 only. Daily Progress Report for the same is under finalization by railways and the matter is being regularly followed-up with railways, Dhanbad Division and ECR, Hajipur. PP further submitted that considering the Land Acquisition, Forest Clearance and other construction activities, it will take around 30 months from the date of DPR approval on best effort basis. Accordingly, the work is expected to be completed by March 2027.

x. The Committee deliberated on the condition of the roads through which transportation of coal being done currently. The Committee observed that at some places road is passing through forest area. The Committee asked PP to submit a certificate from DFO certifying that no elephant corridor passes through the coal transportation road. Committee also asked the PP to submit a drone video of the roads through which coal is being transported.

xi. The Committee also deliberated on the air quality monitoring data of the coal transportation roads and observed that the air quality prediction models show levels of pollution almost near the permissible limits, hence high level of pollution, that too away from the coal transportation road. The Committee is of the opinion that this might exceed the annual permissible limits. The Committee therefore, has asked PP to submit a time bound action plan for the mitigation measures to be adopted to control the high level of air pollution along with the budget proposed for the same.

xii. The Committee also deliberated on the plantation activities done by the PP since the mine is operational and observed that plantation developed till now is not adequate. Also, there is no road side plantation observed. PP submitted that plantation drives are being carried out and recently they have also launched the "Ek Ped Maa K Naam" campaign in the villages falling in the purview of lease area. The Committee is of the opinion that the PP must submit a plantation plan along the road side along with the estimated budget for the same.

xiii. The Committee observed that due to no entry during day time, at some places, transportation of coal by road will take place at night. The Committee deliberated on the noise pollution and air pollution mitigation measures to be adopted in this regard and asked the PP to submit air quality and noise level monitoring data of both during day and night time of the public roads being used for haulage. The air quality monitoring data presented by the PP was for locations not exactly on the road side due to which proper appraisal could not be done.

xiv. The Committee also observed that OB dumping is being done outside the ML area (in the adjoining mine lease area, i.e., Chatti Bariatu Mine lease) and is of the opinion that the same should be immediately stopped and should be restricted to ML area only.

xv. The Committee also deliberated on the Traffic Assessment Study carried out by the PP and observed that issues such as air quality and noise level monitored data of both during day and night time of the public roads being proposed for road transportation, incremental impact on the environmental attributes due to road transportation and man-animal conflict during transportation of coal etc. have not been adequately addressed in the study report.

xvi. The Committee taken in to cognizance the partial compliances and non-compliances reported by the Regional Office of the Ministry in its monitoring report as mentioned at para no.15.6.6.

xvii. The Committee observed that conveyor which is under construction for which the extension in timeline is being sought is the common conveyor for the adjoining Chatti Bariatu Coal Mining Project. Both mines are adjacent to each other and the issues are common. The latter is also

placed in the same meeting for seeking amendment in the timeline same as that of the instant proposal (Kerandari Coal Mining Project).

Recommendations of the Committee:

15.6.8: In view of the foregoing and after detailed deliberations, the Committee **deferred** the proposal for amendment in EC granted vide file no. -11015/133/2007-IA.II(M) dated 31.03.2010 and sought for following additional information for further consideration:

i. Action taken report on the partial compliances and non-compliances reported by the Regional Office in its monitoring report shall be submitted by the proponent to the concerned RO, MoEF&CC to obtain their views/comments and the same shall be further submitted to the EAC for further consideration.
ii. Revised traffic assessment study report inter-alia covering the following shall be submitted:
    a. Ambient Air Quality (AAQ) and Noise quality data along the entire coal transportation route i.e., from mine pit head to six railway sidings and North Karanpura TPP during day and night time.
    b. Anticipated impact on all environmental attributes
    c. Environmental Management Plan including monitoring program to address all concerns arising out of coal transportation by road
iii. Certificate from DFO shall be submitted stating that coal transport route does not intersect with wildlife corridors.
iv. Drone video of the entire coal transportation route by road shall be submitted.
v. No overburden dumping should be done outside the ML area.
vi. Action plan for reducing the coal transportation by road in a time bound manner.

In addition to the above, the EAC also recommended for a site visit by the sub-committee for on spot assessment of various environmental conditions.

Agenda No 15.7

15.7: Pathora West Coal Block (Sohagpur Coalfield) (area 554.0843 Ha having capacity 0.8 MTPA) by M/s Shri Bajrang Power and Ispat Limited located at Villages: Gitori, Ghunghuti, Patnarkala; District: Umaria; State: Madhya Pradesh – Prescribing of Terms of Reference – reg.

[Proposal No. IA/MP/CMIN/492431/2024; File No. IA-J-11015/63/2024-IA.II(M); Consultant: Ecomen Mining Pvt. Ltd. Lucknow; NABET/EIA/2022-25/SA 0219, Valid till 22.03.2025 as on 04.09.2024]

15.7.1: M/s. Shri Bajrang Power and Ispat Limited has made an online application for ToR vide proposal no. IA/MP/CMIN/492431/2024 dated 04.09.2024 along with the application in prescribed format Form-I (CAF, Part A and Part B), copy of pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at item no 1(a) Under Category "A" (> 500 Ha) of the schedule of the EIA Notification, 2006 and appraised at the Central Level.

Details of the proposal, as ascertained from the proposal documents and as revealed from the discussion held during the meeting, are given as under:

15.7.2: The Proposed Pathora West Coal Block (Sohagpur Coalfield)' with an area of 640.520 Ha and Project area 554.0843 Ha and targeted Production capacity of 0.80 MTPA (Peak-rated capacity of 1.2 MTPA) by M/s Shri Bajrang Power and Ispat Limited is located in the Villages of GhunGhuti, Githauri, and PatnarKalan, Tehsil Pali, District Umaria, and State Madhya Pradesh.

15.7.3: Environmental site settings:

The project area is covered under Survey of India Topo sheet No. F44D3 (64E3). and is bounded by the geographical coordinates with Latitude 23° 21' 0.3940" N to 23° 22' 10.1617" N and Longitude 81° 10' 22.3570" E to 81° 12' 24.7285" E. Project does not fall in the Critically Polluted Area (CPA)/Severely Polluted Area (SPA) as per CEPI Assessment, 2018.

Forest Area: The project involved total 140.8988 Ha of forest land. The details of the approval already obtained are as follows:

S. No.	Nature of Land involved	Area in Ha	Status of FC/remarks
i.	Non-Forest Land (A)	404.3965	-
ii.	Forest Land (B)	140.8988	Stage I FC applied for 149.6878 Ha area vide proposal no. FP/MP/MIN/QRY/464461/2024 dated 02.03.2024
iii.	Revenue Forest (C)	8.789	--
	Total Land (A+B+C)	**554.0843**	

Protected Area: PP submitted that the project is not located within 10 KM of any ESZ/ ESA national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc. In case any schedule-I species observed, conservation plan will be prepared for approval from PCCF/CWLW.

15.7.4: Mine lease: The mining block of Pathora West Coal Block, which lies in Sohagpur Coalfield and covers a mining leasehold area of about 554.0843 ha in Umaria District of Madhya Pradesh, has been allocated to M/s Shri Bajrang Power and Ispat Limited via Letter No. NA-104/29/2023-NA dated December 14, 2023, by the MoC, GoI. The original block area allotted to the company was 640.52 ha, but after scrutiny of mining plan by CCO, New Delhi, the project area reduced to 554.0843 Ha. Details of the mine lease submitted by the PP are as follows:

S. No	Govt. Order/Notifications as the case may be	Area(ha)
1.	Coal Block Area	640.520
2.	Project Area	554.0843
3.	Mining Lease Area	554.0843

15.7.5: Mining Plan: PP submitted that Mining Plan along with mine closure plan for Pathora West Coal Block (Sohagpur Coalfield) Project was approved by Ministry of Coal for the capacity 0.80 MTPA (Peak Rated Capacity 1.20 MTPA), area 554.0843 Ha area vide letter dated 28.08.2024.

i. Method of Mining to be adopted shall be underground. The Capacity of the mine applied for peak capacity as per approved mining plan is 1.2 MTPA.

ii. Excavation of Coal is through shovel/dumper combination/ Surface Miner. The waste/OB handling is with shovel/dumper combination/dragline etc.

iii. The estimated gross geological reserves of the Pathora Underground Coal Block are 90.1227 million tons. Out of this, the net geological reserves considered for underground mining are 81.1149 million tons. Mineable reserves are 72.4163 million tons and corresponding extractable reserve of the block is 37.155 million tons. The overall quality of the coal is G8. Gradient will be Incline 1 & 2 1:5 Shaft 1 & 2 Vertical

iv. 10 no. of coal seams with thickness ranging from 0.07m to 7.66 m are workable. Grade of coal is 5088 kcal/kg or G-8 Grade, Gradient will be Incline 1 & 2 1:5 Shaft 1 & 2 Vertical. There are ten workable seams, namely III TOP, III BOT, III COMP, IIA, II TOP, II BOT, II COMP, IB TOP, IB-BOT, and IB COMP.

v. Life of mine is 50 years as per mining plan.

vi. The project has no external OB dumps. One internal dump in an area of 0.8750 Ha with 101118.3545 m^3 of OB is envisaged in the project.

vii. Details of Land usage:

a. Present land-use and occupancy of pathora west underground coal block

Sl.No	Description	Area in Ha
1	**Private Land**	
	Agriculture (including residential houses)	360.5065
	Township	0.1210
2	**Government-non-Forest land**	
	Agriculture	5.0650
	Road	7.3592
	River/nala	14.5700
	Water Bodies	4.8040
	Grazing	8.7288
	Community/others	3.2420
3	**Forest Land**	
	Revenue forest	8.7890
	Reserve forest	140.8988
	Total	**554.0843**

b. Pre-mining Land Use

Sr. no.	Namer of the villages & Forest range	Private Land (in Ha)	Govt. Land (in Ha)	Forest Land (in Ha)	Total area (in Ha)
1.	Githouri	58.368	6.119	-	64.487
2.	Ghunghuti	287.4865	34.669	-	322.1555
3.	Patnarkala	25.655	0.888	-	26.543
4.	Forest Range Ghunghuti	-	-	140.8988	140.8988
				Total	**554.0843**

c. Post Mining

Sr. No	Description	Area in Ha
1	UG Entry	0.600
2	Top Soil Dump	0.8750
3	Diversion Or Below River or Nala or Canal	19.374
4	Settling pond	0.2815
5	Safety Zone	3.4305
6	Infrastructure area	19.500
7	Green Belt	6.0409
8	Undisturbed Area	503.9824
	Total	**554.0843**

i. **Details of transportation of Coal**: Transport of coal from the face will be by Shuttle Car (SC). SC will feed a feeder breaker. Feeder breaker will feed the crushed coal into a district gate belt and coal will be evacuated to the surface through series of trunk belts in below ground workings and main trunk belts in the Incline 2.

S. No	Parameter	Details of Transportation
i.	In pit	By Road cum Rail (RCR) mode
i.	Surface to siding	By Road cum Rail (RCR) mode
i.	Siding to loading	Existing
v.	Quantity being transported by Road/Rail/conveyer/ropeway	0.80

S. No	Parameter	Details of Transportation
v.	Proposed change in transportation means if any, give details	A two-lane road of about 104 meters in length will be constructed to connect NH 78 to the infrastructure area proposed near the incline mouth for transportation of coal. An area of 1.11 ha is proposed for the staking of coal near the incline mouth.

ii. There are 3 villages within the project area namely Ghun Ghuti, Githauri, and Patnar Kalan. Mining will be underground, hence shifting of villages is not applicable.

iii. Afforestation shall be done progressively covering an area of: 6.0409 ha at the end of mining comprising of 0.8750 ha of internal dump.

15.7.6: Baseline Studies: Baseline data generated from **1st March to 31st May 2024**. PP reported that the Laboratory involved in analysis of water, air, noise & soil quality data, etc. has been accredited by the NABL/ MoEF&CC bearing the Certificate of Accreditation with conformance of ISO 17025:2005 vide no. TC-7470 valid up to 03.10.2026.

15.7.7: Water requirement: PP submitted the estimated water requirement is 773 KLD. Industrial water requirements will be met from existing reservoirs, groundwater, and mine water sources. Potable water requirements will be met from groundwater sources with appropriate treatment.

S. No.	Purpose	Water Requirement (KLD)	Source
1	Mines operation (Machineries)	550	Underground Water
2	Dust Suppression (Surface)	70	
3	Plantation	81	
4	Vehicles Washings & Workshops	20	
5	Domestic Purpose including surrounding villages	52	Borewell
	Total	**773**	

15.7.8: Solid and hazardous Waste generation: The details of solid and hazardous waste generation along with its mode of treatment/disposal submitted by the PP is furnished as below:

Sl No	Type of Waste	Source	Quantity (TPA)	Mode of Treatment	Disposal	Remarks
1	Rejection/ overburden	During Mining incline drivages and	804104.8569 cum	The solid waste produced during these drivages will	The solid waste produced during these drivages will	The liquid waste, like used engine oil, gear oil,

Sl No	Type of Waste	Source	Quantity (TPA)	Mode of Treatment	Disposal	Remarks
		shaft sinking in the sub-soil and in hard rocks and also from drivages of cross-cuts in hard rock		be separately stacked on the surface and used in embankment for preparation of bank heads, filling of low-lying areas, development of the land/road for infrastructure, and development of greenery.	be separately stacked on the surface and used in embankment for preparation of bank heads, filling of low-lying areas, development of the land/road for infrastructure, and development of greenery.	brake oils, and other lubricants, will be stored in separate tins, drums, and cans and sent to the main stores for disposal by to the authorized recyclers.

15.7.9: R&R Plan: Being Underground Mine, R & R not applicable.

15.7.10: Project Cost: PP submitted the estimated project cost to be Rs. 613.73 Crores. EMP cost shall be Rs. 30.0 Crores and recurring cost shall be Rs. 5.1 Crores.

15.7.11: Geenbelt: The mine area of the project is 554.0843 ha, out of which plantation will be done in a phased manner in an area of 6.0409 ha.

15.7.11: Benefit of the project: Proposed project will provide employment opportunities in the region & local infrastructure including ancillary development and supporting other infrastructure by Project CSR & CER Activity by Shri Bajrang Power and Ispat Limited in the local region.

15.7.12: Legal Issues/ Violation: PP submitted that there is no legal issue/violation w.r.t Environment (Protection) Act, Air (P&CP) Act, Water (P&CP), Act, Van (Sanrakshan Evam Samvardhan) Adhiniyam, Wildlife Protection Act, MMDR Act, and Factories Act. Further, there is no court case against the proposed project.

Observations and deliberations of the EAC

15.7.13: The Committee noted the following:

i. Proposal is a green-field project for grant of Terms of Reference (ToR) to Pathora West Coal Block (Sohagpur Coalfield) (area 554.0843 Ha) having capacity 0.8 MTPA (Peak-rated capacity of 1.2 MTPA) by M/s Shri Bajrang Power and Ispat Limited located at Villages: Gitori, Ghunghuti, Patnarkala; District: Umaria; State: Madhya Pradesh.

ii. Total mine lease area is 554.0843 ha. Project does not fall in the Critically Polluted Area (CPA)/Severely Polluted Area (SPA) as per CEPI Assessment, 2018. Out of 554.0843 ha mine lease area, 149.6878 ha (Forest Land: 140.8988 ha + Revenue Forest: 8.789 ha) area is forest area.

iii. Project is not located within 10 KM of any ESZ/ ESA national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/tiger corridor/elephant corridor etc.

iv. Mining Plan along with mine closure plan for Pathora West Coal Block (Sohagpur Coalfield) Project was approved by competent authority for 0.80 MTPA (Peak Rated Capacity 1.20 MTPA) within 554.0843 Ha mining lease area of 640.520 ha coal block area vide letter no. MINEMPMP043/APP00289/2024, dated 28.08.2024.

v. Method of mining shall be underground. The Capacity of the mine applied for peak capacity as per approved mining plan is 0.80 MTPA (Peak-rated capacity of 1.2 MTPA). The life of mine is 50 years as per approved mining plan.

vi. The estimated gross geological reserves of the Pathora Underground Coal Block are 90.1227 million tons. Out of this, the net geological reserves considered for underground mining are 81.1149 million tons. Mineable reserves are 72.4163 million tons and corresponding extractable reserve of the block is 37.155 million tons. The overall quality of the coal is G8.

vii. There are 3 no of villages within the mining lease area namely GhunGhuti, Githauri, and PatnarKalan. Mining will be underground and hence, no any villages will be shifted in due course of mining and no R&R in involved in the proposed project.

viii. Proposal does not involves diversion of River, Nallah, High-Tension/ Transmission Line within the project boundary.

ix. The total estimated project cost is Rs. 613.75 Cr. The capital cost for environmental management of the proposed project is estimated to be Rs. 30.0 Crores and Rs. 5.1 Crores will be required as annual recurring expenses.

x. No any litigations, Court/NGT, violation cases are pending against the proposed project.

Recommendations of the Committee

15.7.14: EAC after detailed deliberations, under the provision of EIA Notification 2006 and as amended, **recommended** the proposal for grant of Terms of Reference (ToR), as applicable to the project, with Public Consultation and following Specific ToR to M/s **Shri Bajrang Power and Ispat Limited** in addition to generic ToR given at Annexure –II for underground mines for preparation of EIA/EMP report for Pathora West Coal Block (Sohagpur Coalfield) (area 554.0843 Ha having capacity 0.8 MTPA) by M/s Shri Bajrang Power and Ispat Limited located at Villages: Gitori, Ghunghuti, Patnarkala; District: Umaria; State: Madhya Pradesh.

Specific ToRs:

i. Project proponent has to prepare the EIA-EMP report based on the valid baseline data and thereafter conduct the Public Consultation (including public hearing), through concerned SPCB in the concerned Districts as per the provisions/procedure contained in the EIA Notification, 2006 (as amended)and OM issued by the MoEF&CC in this regard.

ii. Project Proponent shall submit the detailed activities proposed with year-wise budgetary provisions (Capital and recurring) as per the Ministry's OM dated 30.09.2020, to address the concerns raised during the Public consultation including the public hearing. Activities proposed shall be part of the EMP.

iii. Project proponent shall submit the EIA/EMP report after the plagiarism check using authenticated plagiarism software.

iv. Project proponent has to Plot the wind rose diagram using the typical meteorological year (TMY) data for the period considered for the study. The monitoring units shall be deployed in the field based on the coverage area ratio and direction of the wind. A mathematical model shall be developed for the local site rather than using the standard model available in software for both air & water quality modelling.

v. Impact of underground mining on the environment including underground mine air quality needs to be done by a reputed Government institute. The action plan on recommendation of study with budgetary provision needs to be submitted.

vi. PP has to submit two (02) alternate locations of mine incline and present the environmental details of such sites at time of EC appraisal.

vii. Mine seepage will be monitored and seepage water control measures/management plan shall be developed to ensure the safety of the workers during the underground mining.

viii. Assess the temporal and spatial data for 10 years for surrounding area to show and identify the changes in land use/land cover.

ix. As the project involves groundwater intersection a Hydrological study shall be carried out by reputed Government Institute. Further, PP shall comply with the Ministry's OM dated 23.05.2019 and provide necessary details/studies in the EIA/EMP Report.

x. Project proponent shall submit the drone video & photographs of mined area, fresh lease area to be mined and existing and proposed transportation route. The height and speed of the drone shall be so maintained to give legible images/videos. Necessary titles should be included for better understanding.

xi. Project proponent should submit the detailed plan in tabular format (year-wise for life of mine) for concurrent afforestation and green belt development in three tiers by using the native species in and around the mining lease. The PP should submit the number of saplings to be planted, area to be covered under afforestation & green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this PP should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Plantation plan should be prepared in such a way that 80% of the plantation to be carried out in first 5 years and for the remaining years the proposal for gap filling. The seedling of height not less than 2 meters to be selected and accordingly

cost of plantation needs to be decided.

xii. Project proponent should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle need to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.

xiii. Pond rejuvenation plan and plan for water recharge within and outside ML/surrounding area needs to be prepared. The capital and recurring expenditure to be incurred needs to be submitted.

xiv. PP has to avoid the use of forest land towards North-east (NE) and South-west (SW) part of the mining lease (ML) area.

xv. Project proponent should clearly bring out the details of the manpower to be engaged for this project with their roles /responsibilities/designations. In addition to this PP should mention the number and designation of person to be engaged under Environment Management Cell for implementation of environmental management plan (EMP). The capital and recurring expenditure to be incurred needs to be submitted.

xvi. Project proponent should clearly bring out that what is the specific diesel consumption ~ (Litres/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. The year-wise target for reduction in the specific diesel consumption needs to be submitted. PP shall also explore the possibility and submit strategy of using e-vehicles/cleaner fuel (LNG/CNG) based mining machinery and trucks for mining operations and transportation of men and material and submit a time bound action plan.

xvii. Project proponent should clearly show the transport route of the mineral and protection and mitigative measures to be adopted while transporting of the mineral. The impact from the centre line of the road/conveyor on either side should be brought out clearly. Based on the above study the compensation to be paid in the event of damage to the crop and land on either side of the road/conveyor needs to be mentioned.

xviii. All the certificates viz. Involvement of Forest land, distance from the protected area, and list of flora & fauna should be duly authenticated by the Forest Department. The Certificate should bear the name, designation, official seal of the person signing the certificate and dispatch number.

xix. Analyse terrestrial/aquatic biodiversity and wildlife studies of the surrounding area and prepare wildlife management plan for the surrounding area. PP has to submit a Certificate from concerned DFO about existence of wildlife corridor adjacent to project site with adequate management plan.

xx. A detailed Wild Life Conservation/Management plan for Schedule 1 species shall be prepared for the conservation of the species. PP shall ensure that a conservation plan shall be prepared and approved by the CWLW. PP shall obtain the authenticated list of schedule-1 species from the concerned department.

xxi. Project proponent shall submit the action plan to adhere to the Plastic Waste Management Rules 2016 and to adhere Ministry's OM dated 18/07/2022.

xxii. Project proponent shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of the Environment Management Plan vis-à-vis reduction in

concentration of emission for each APCEs.

xxiii. It should be ensured that only NABET-accredited consultants shall be engaged for the preparation of EIA/EMP Reports. PP shall ensure that the accreditation of the consultant is valid during the collection of baseline data, preparation of EIA/EMP report and the appraisal process. The PP and consultant should submit an undertaking the information and data provided in the EIA Report and submitted to the Ministry are factually correct and the PP and consultant are fully accountable for the same.

xxiv. Project proponent shall submit the photographs 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 analyse the samples.

xxv. A Social Impact Assessment Study shall also be carried out and an action plan on its recommendations may also be submitted with budgetary provisions.

xxvi. Details of solar power facility proposed to be installed as energy conservation measures shall be submitted.

xxvii. Project proponent shall align its activities to one/few of the Sustainable Development Goals (SDG) and start working on the mission of net zero emission by 2050. PP shall update the same to the EAC.

xxviii. Project proponent should provide in the EIA Report details of the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after the grant of EC.

xxix. Project proponent shall submit the applications for obtaining NOC for the diversion of Road/River/Nallah/Electric lines, if any, passing through the block area to the concerned authority and details shall be provided in EIA Report. No diversion of River/nalah permitted at this stage.

xxx. Project proponent shall also submit an action plan pursuant to MoEF&CC OM dated 29.10.2014.

xxxi. Project proponent shall provide the details of wastewater treatment facilities to be installed within its capacity, timeline and budget. The EIA report should also include details of STP/ETP to be provided for treatment of domestic and industrial waste water.

xxxii. Heavy metals including other parameters in surface water quality shall be analysed and provided in EIA Report.

xxxiii. Project proponent shall assess the environmental impact on schools present inside/surrounding areas and explore possibility for their maximum protection or relocation. A mitigation measures shall be adopted against pollutions around the schools within the lease area in order to safeguard the interest and health of the students. A plan in this regard needs to be submitted.

xxxiv. Project proponent shall provide the action plan for the safety of the local people and their cattle from the mining activities by providing fencing and natural wind barrier between the mine infrastructure and settlements etc. shall be a part of such action plan. PP shall ensure to provide right of way to local people and EMP should have provision for the same.

xxxv. Project proponent shall submit time bound action plan to reduce the post-mining void and submit the rejuvenation plan for the ponds within/surrounding the lease area so that it can be used by local people.

xxxvi. Project proponent shall submit a plan to reduce the overburden (OB) generated during underground mining of coal and its deposition outside mining lease (ML) area.

xxxvii. Project proponent shall provide the details of the bore wells in the mine lease area and compensation to be paid in case bore wells fails in future due to mining activities.

xxxviii. Project proponent shall provide the details of the facilities to be provided to mine workers.

xxxix. Project proponent shall submit a plan for skill development of the Project affected family (PAF) and nearby community so that they are capable enough to get employment/self-employed.

xl. Project proponent shall explore use of porta- magazine for explosives, if any.

xli. Project proponent shall prepare disaster management plan considering the risk involved in the proposed underground mining.

xlii. Project proponent is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5thJune 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report.

Agenda No. 15.8

15.8: Gondkhari Underground Coal Mine (Kamptee Coalfield) (area 862 Ha having targeted capacity 2 MTPA) by M/s Adani Power Maharashtra Limited located at Villages: Waddhamana, Gondkhari, Pendhari, Kalameshwar, Nagpur (rural); District: Nagpur; State: Maharashtra – Amendment in EC –reg.

[Online Proposal No. IA/MH/CMIN/495430/2024; File No. J-11011/46/2022-IA.II(M)]
[Consultant: Vardan Environet LLP NABET/EIA/2326/RA0284 valid up to 04/05/2026]

15.8.1: The instant proposal is for amendment in Environment Clearance granted to M/s Adani Power Maharashtra Limited vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 for Gondkhari Underground Coal Mine (area 862 Ha having targeted capacity 2 MTPA) regarding change in infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft.

Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

Sl. No.	Details of Letter No	EC/Expansion EC/Amendment in EC/Validity extension/Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of Issuance	Status of Implementation
1.	IA-J-11011/46/2022-IA. II(M)	Environmental Clearance	2/3 (Normative/ Peak)	862	02.02.2024	Project activity is yet to commence at the site.

Details of proposal, as ascertained from the documents and as revealed from the discussion held during the meeting, are given as under:

15.8.2: The PP has made an online application vide proposal no. IA/MH/CMIN/495430/2024 dated 05.09.2024 for amendment in "EC Miscellaneous Condition no. 9.9" and "EC particulars s. no. 2 (iii) – Clearance type" accorded vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024.

Specific/General Condition no.	Details of Conditions as per EC	Amendment Sought	Justification
9. Miscellaneous	9.9 – No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Change in infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft.	**1. Change in location of land:** a. Air return shaft land was shifted from Khasra No. 236 private land to Khasra No. 274 private land due to issues in land availability. b. Incline land was shifted from Khasra No. 104, 106, 109 & 110 private land to Khasra No. 96 due to flatten the incline gradient and issues in land availability. c. The location of the Incline mouth and associated infrastructure is proposed to be shifted with a view to make the gradient of the Incline milder/flatter (from 12° to 8°) for deploying tyre mounted trackless equipment for men/material transport. The location of the ventilation shaft has also been changed slightly accordingly. However, there are no other changes in UG layout of any seam. d. The above modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine. **2.** Due to the aforementioned changes, the proposed area earmarked for infrastructure use is changed **from 18.00**

Specific/General Condition no.	Details of Conditions as per EC	Amendment Sought	Justification
			Ha to 21.31 Ha. It is noteworthy to mention here that the increased acreage shall however be used for greenbelt development only.
EC Particulars 2. The particulars of the proposal are as below :	(iii) Clearance Type : Mining EC Under 5 Ha	Mine lease area is 862 ha, which is more than 5 ha.	Mine lease area is 862 ha, which is more than 5 ha.

Salient features of the proposed amendment:

15.8.3: A. PP sought following amendment in the EC:

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
Shift of Air Return Shaft	Falls in Khasra No. 236 (private land)	Will be shifted to Khasra No. 274 (private land) due to issues in land availability.	**<u>Justification given by PP:</u>** The slight changes proposed will further add to safer men/material transport and with a view to enhance conducive work environment for the workers deployed in the mine. The location of the Incline mouth and associated infrastructure has been shifted with a view to make the gradient of the Incline milder/flatter (from 12° to 8°) for deploying tyre mounted trackless equipment for men/material transport. The location of the ventilation shaft has also	Considering the letter received from Ministry of Coal, with respect to change in infrastructure location for mine entries through incline and air return shaft as mentioned by PP in the proposal submitted shall only be allowed. For any other expansion or modification, PP shall take prior approval of Ministry of Environment, Forest and Climate Change (MoEF&CC).
Shift of Incline Land due to technical requirement of flatter gradient incline.	Falls in Khasra No. 104, 106, 109 & 110 (private land)	Will be shifted to Khasra No. 96 (private land) due to flatten the incline gradient and issues in land availability.		

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
			been changed slightly accordingly. However, there are no other changes in UG layout of any seam. This modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine. **<u>View of Ministry of Coal on the above changes:</u>** Ministry of Coal vide letter no. CCO-MPMC01(110)/1/2024-MPMC dated 06.08.2024, has mentioned that the ***<u>"Mine entries are part of mine infrastructure and the same is evident from Coal Mines (Special Provisions) Act, 2015, where compensation is payable to mine entries under infrastructure. So, the changes proposed in the location of mine entries will come under the provisions of "minor changes" under para 1.3B of the OM dated 29.05.2020 of Ministry of Coal regarding Mining Plan and Mine Closure</u>***	

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
			Guidelines. Also, the related necessary changes in the mine layout and sequence of mining may be taken as "minor changes" and may be allowed without any modification of Mining Plan. Accordingly, it was confirmed that the shaft and incline are integral parts of the mine infrastructure and their relocation falls within the minor changes category as per the guidelines."	

Due to the shift of Air Return Shaft and inclined mouth, the land use changes during mining and post closure is furnished as below:

As per Approved Mine Plan					Changes envisaged in the approved mining plan				
Type	**Land use (proposed)**	**Land use (end of mine life)**	**Agriculture**	**Total**	**Type**	**Land use (proposed)**	**Land use (end of mine life)**	**Agriculture**	**Total**
Road & Infrastructure Area	13.845	13.845	13.845	**13.845**	Road & Infrastructure Area	13.845	13.845	13.845	**13.845**
Settling Pond	0.08	0.08	0.08	**0.08**	Settling Pond	0.08	0.08	0.08	**0.08**
Embankment	0.075	0.075	0.075	**0.075**	Embankment	0.075	0.075	0.075	**0.075**
Green Belt	2.0	2.0	2.0	**2.0**	Green Belt	5.3	5.3	5.3	**5.3**
UG Entry	2.0	2.0	2.0	**2.0**	UG Entry	2.0	2.0	2.0	**2.0**
Undisturbed/ Mining Right for UG	844	844		**844**	Undisturbed/ Mining Right for UG	840.7	840.7		**840.7**
Grand Total	**862**	**862**	**18.0**	**862**	**Grand Total**	**862**	**862**	**21.3**	**862**

15.8.4 B. PP sought the following corrigendum in the EC letter dated 02.02.2024:

Para No	As per EC dated 02/02/2024	Amendment Sought
2	The particulars of the proposal are as below: (iii) Clearance Type : Mining EC Under 5 Ha	Mine lease area is 862 ha, which is more than 5 ha. (iii) Clearance Type: Fresh EC

15.8.5: Details of court cases:

Case No.	Court	Brief	Next date of hearing
APPEAL NO. 145 OF 2024 (WZ)	NGT (Western Zone Bench, Pune)	EC on which amendment is being sought has been challenged before Hon'ble NGT (WZ), Pune on the grounds to quash and set aside the environmental public hearing held on 13/07/2023 by MPCB.	16.10.2024

Observations and deliberation of the Committee:

15.8.6: The EAC noted the following:

i. MoEF&CC has granted EC for Gondkhari Underground Coal Mine of M/s Adani Power Maharashtra Limited vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 for targeted capacity of 2 MTPA and peak capacity of 3 MTPA in an area of 862 Ha.

ii. It is observed that the said project involves 87.351 Ha of forestland and the Stage – I FC has been accorded on the same on 02.01.2024.

iii. The above mentioned project is yet to be implemented.

iv. Miscellaneous Condition no. 9.9 of EC stipulated that, "No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC)."

Now, the PP has submitted the proposal to seek amendment in this particular condition to amend the same and allow the PP to "change the infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft." Justification provided for the same by the PP is that due to issues in land availability, air return shaft and incline had to be shifted and there was also a technical requirement of a flatter gradient incline to be developed for safe working.

PP further submitted that changes in acreage are also proposed. Area for infrastructure was earlier proposed to be 18 Ha, which is now being increased by 3.31 Ha, i.e. total area proposed for acreage will be 21.31 Ha. PP also submitted that the increased area proposed will be used for greenbelt development only.

v. The Committee observed that the said proposal was earlier deliberated in 13th EAC held on 1st-2nd July 2024, where along with the board approval letter dated 11.04.2024, PP submitted that the modifications in the mine plan proposed to be made are of minor nature (as per clause 1.3 (B) of OM dated 29.05.2020 of MOC) and the same need not to be approved from MOC. The Member Secretary confirmed the same from MOC and it was informed that it does not falls under the purview of minor changes as per the guidelines of MOC. Hence, the proposal was returned in the present form.

vi. Now the PP has again submitted the proposal for amendment along with the letter of MOC, dated 06.08.2024, wherein it is submitted that a meeting was held at MOC on 29.07.2024 under the chairmanship of Additional Secretary and Nominated Authority, regarding this particular issue for the said project. The MOC in this letter has mentioned that the *"Mine entries are part of mine infrastructure and the same is evident from Coal Mines (Special Provisions) Act, 2015, where compensation is payable to mine entries under infrastructure. So, the changes proposed in the location of mine entries will come under the provisions of "minor changes" under para 1.3B of the OM dated 29.05.2020 of Ministry of Coal regarding Mining Plan and Mine Closure Guidelines. Also, the related necessary changes in the mine layout and sequence of mining may be taken as "minor changes" and may be allowed without any modification of Mining Plan. Accordingly, it was confirmed that the shaft and incline are integral parts of the mine infrastructure and their relocation falls within the minor changes category as per the guidelines."*

The Committee deliberated on the same and observed MOC has conducted a separate meeting under the chairmanship of Additional Secretary and Nominated Authority, in order to give clarification instant matter under consideration and has issued a specific report for the same stating that such changes may be taken as minor changes and may be allowed without modification of Mining Plan.

vii. The Committee further deliberated on the impact of making such changes on the environment. In this regard, PP informed that that there is less than 50 m difference in the distance between old land and the newly proposed land and no such impact will be there on the environment for making such changes. The Committee also observed that the area increased for infrastructure (i.e., 3.31 Ha) will be used for greenbelt development.

viii. The Committee also observed that, the proposed shift being made for air return shaft and incline land is from private land to private land only with a view to make the gradient of the Incline milder/flatter (from 12° to 8°). This modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine.

ix. Apart from this, another amendment sought by the PP is rectification in the EC Particulars, S. no. (iii) Clearance Type, which is mentioned as "Mining EC under 5 Ha" instead of "Fresh EC". The Committee observed that some part of the EC letter are system generated and due to technical error it is wrongly mentioned as Mining EC under 5 Ha". This should be as "Fresh EC" rather.

x. The Committee also deliberated on the litigations pertaining to the said project and observed that the EC on which amendment is sought has been challenged at the NGT – Pune and the case has been registered as *Brijkishore Hargovind Agarwal vs UOI* on 24.07.2024 as Appeal No. 145/2024. The said EC has been challenged before Hon'ble NGT (WZ), Pune on the grounds to quash and set aside the environmental public hearing held on 13/07/2023 by MPCB.PP is advised to abide by the Order of Hon'ble NGT.

Recommendations of the Committee:

15.8.7: After deliberations, the Committee **recommended** the proposal for amendment in EC granted vide file no. - IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 with respect to Change in infrastructure location for mine entries through incline and air return shaft as mentioned at paragraph no. 15.8.3 subject to stipulation of following additional specific condition. Other terms and conditions prescribed in EC dated 02/02/2024 shall remain unchanged.

i. The project proponent shall abide by all orders and judicial pronouncements, made from time to time by the Hon'ble National Green Tribunal (NGT), Western Zone, Pune in Appeal No. 145 of 2024.

ii. Additional Green belt shall be developed by the project proponent in an area of 5.51 Ha around the periphery of Infrastructure area as committed in accordance with the CPCB guidelines and in consultation with Local Forest Department. Compliance status in this regard shall be submitted to the concerned Regional Office of the Ministry along with the six monthly compliance report.

In addition to the above, the Committee also recommended corrigendum in the EC dated 02/02/2024 as given below:

Para No	As per EC dated 02/02/2024	Amendment Sought
2	(iii) Clearance Type : Mining EC Under 5 Ha	(iii) Clearance Type: Fresh EC

Additional agenda with the permission of the Chair

15.9 Utkal-E Coal Block (2 Million TPA over 729.48 Ha) of M/s. National Aluminium Company Limited (NALCO) located in Talcher Coalfields, in villages Nandichhod (Gopiballvpur), Gopinath

Jungle, Kosala, Korada, Kundajhari Jungle, and Durgapur Jungle, Tehsil Chhendipeda, District Angul, Odisha – **Transfer of Environmental Clearance – reg.**

[Online Proposal No. IA/OR/CMIN/495414/2024; File No. IA-J-11015/31/2007-IA-II-(M) Consultant: JM EnviroNet Pvt. Ltd - NABET/EIA/23-26/RA 0308; Valid till 07th August, 2026]

15.9.1 M/s. National Aluminium Company Limited (NALCO) has made an online application vide proposal No: IA/OR/CMIN/495414/2024 dated 12/09/2024 along with Form 7, Common Application Form (CAF) & allotment order of Ministry of Coal and sought for transfer of Environment Clearance (EC) dated 10/12/2009 for the project cited above under the provisions of EIA Notification, 2006.

15.9.2 Brief on the EC transfer proposal

i. MoEF&CC accorded Environment Clearance to M/s. National Aluminium Company Limited (NALCO) under the provisions of EIA Notification, 2006 for their Utkal-E Coal Block (2 Million TPA over 729.48 Ha) located in Talcher Coalfields, in villages Nandichhod (Gopiballvpur), Gopinath Jungle, Kosala, Korada, Kundajhari Jungle, and Durgapur Jungle, Tehsil Chhendipeda, District Angul, Odisha vide letter no. IA-J-11015/31/2007-IA-II-(M) dated 10/12/2007. Subsequently, MoEF&CC issued corrigendum to M/s. NALCO on 26/12/2013 stating that date of grant of EC shall be read as 10/12/2009 instead of 10/12/2007. **As per the EC dated 10/12/2009, the project involves 729.48 Ha of total land, wherein 526.06 Ha covered in Mine lease area and 203.42 Ha outside the mine lease area, which is earmarked for infrastructure. In entire project area, total 228.14 Ha (171.51 Ha + 56.63 Ha) of forest land involved. The forest land involvement within the lease area and outside lease are reported to be 171.51 Ha and 56.63 Ha respectively.** Further, as per the said EC, the **life of mine at the rate capacity of 2 MTPA is 36 years and mining plan was approved by Ministry of Coal on 31/07/2006. Public hearing was held on 30/05/2008.**

ii. The Hon'ble Supreme Court vide its judgement dated 25/08/2014 read with the order dated 24/09/2014 in P (CRL) No 120/2012 has cancelled the allocation of 204 coal blocks and issued directions with regard to allocation of such coal blocks. Further, as per Ministry of Coal notification – The Coal Mines (Special Provisions) Ordinance 2014, the above coal block got cancelled. Thereafter, Ministry of Coal vide allotment order dated 02/05/2016 allotted the Utkal-E Coal Block to NALCO under Coal Mines (Special Provisions) Act, 2015. Mine lease deed was signed between NALCO and Government of Odisha on 20/01/2023. As per the said mine lease deed, the lease area was reduced to **523.036 Ha** from **729.48 Ha**. Further, the area of 203.42 Ha outside ML Area for infrastructure was not re-allocated to NALCO by the State Government.

iii. MoEF&CC vide notification dated 23/03/2015 amended the EIA Notification, 2006 stating that *"Where an allocation of coal block is cancelled in any legal proceeding; or by the Government in accordance with law, the environmental clearance granted in respect of such coal block may be transferred, subject to the same validity period as was initially granted, to any legal person to whom such block is subsequently allocated, and in such case, obtaining of "no objection" from either the holder of environment clearance or from the regulatory*

authority concerned shall not be necessary and no reference shall be made to the Expert Appraisal committee or the State Level Expert Appraisal Committee concerned."

iv. The Member Secretary – Coal apprised the EAC that Coal mining EC transfer proposals involving forest areas where forest land is proposed to be surrendered and stage I FC is yet to be obtained shall be referred to the sectoral EAC for consideration on case to case basis based on merits involved as per the minutes of the meeting held on 03/09/2019 between Secretary, Coal and Secretary, EF&CC.

v. In pursuance to the above, M/s. NALCO submitted a proposal for transfer of EC dated 10/12/2009. The said proposal was considered by the EAC – Coal in its 44th meeting held on 09/05/2023 wherein EAC opined that PP needs to submit the followings:

(i) Stage-I FC of remaining forest land i.e 15.3321 Ha involved in mine lease area to be diverted for non-forestry activities or

(ii) Submit Revise Mine plan with Map excluding the area for which Stage-I FC has not been granted.

The Committee finally recommended to MoEF&CC to opt either of above options. Finding no other alternative in the matter, finally the project proponent informed the committee that the application for transfer of EC for Utkal-E project will be withdrawn by them due to involvement of pending FC for forest area of 15.3321 ha, which will take considerable time. PP vide letter dated 17.05.2023 requested MoEF&CC for withdrawal of current application of EC transfer. Based on request of PP, EAC finally recommended MoEF&CC that instant application may be returned. Accordingly, the proposal was returned in present form.

vi. NALCO filed fresh application vide proposal No: IA/OR/CMIN/495414/2024 dated 12/09/2024 along with Form 7, Common Application Form (CAF) & allotment order of Ministry of Coal and sought for transfer of Environment Clearance (EC) dated 10/12/2009 for the project cited above under the provisions of EIA Notification, 2006 along with Stage I FC.

15.9.3 Brief on the present transfer proposal

i. Implementation status of the EC dated 10/12/2009

Production capacity	Life of mine	Consent to Establish	Consent to Operate	Present status of the project
2 MTPA	36 years	13/08/2021	31/08/2024 and is valid up to 31/03/2025	Not yet commenced the mining activity.

ii. Details EC accorded on 10/12/2009 vis-à-vis transfer proposal

		As per EC dated 10/12/2009			As per present transfer proposal		
S.No.	Particulars	Within Mine	Outside Mine	Total (Ha)	Within Mine lease (Ha)	Outside Mine	Total (Ha)

		lease (Ha)	lease (Ha)			lease (Ha)	
a.	Coal Mining	2 MTPA			2 MTPA		
b.	Land Area	526.06	203.42	729.48	353.8578	0	353.8578
c.	Forest land involved	171.51*	56.63	228.14	169.1779	0	169.1779

Note: *171.51 Ha – Out of 171.51 Ha, 2.33 Ha of land was under Durgapur Reserved Forest. NALCO applied to State Govt regarding deletion of 2.33 ha Durgapur Reserved Forest land (to be used as forest road to evacuate the coal from adjacent Utkal D Block). The same was approved by MoC, GOI. Within the above, the forest land was revised to 169.18 ha.

Status of Forest Clearance for diversion of 169.1779 Ha under Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980.

a. **Stage II Forest clearance for diversion of an area of 169.1779 ha** area in favor of M/s. NALCO was obtained from MoEF&CC (Forest Conservation Division) vide letter No 8-07/2020-FC dated 27/10/2022. Subsequently, corrigendum in FC was issued on 09/11/2022 by mentioning the diverted land area as 156.1779 ha instead of 169.1779 ha.
b. **Stage I Forest clearance over an area of 13 ha** in favor of M/s. National Aluminum Company Limited was obtained from MoEF&CC (Forest Conservation Division) vide letter No FP/OR/MIN/QRY/456337/2023 dated 20/08/2024.

iii. Project proponent has requested the Ministry to transfer the EC dated 10/12/2009 for the reduced area of 523.036 Ha in place of 729.48 Ha subject to the same validity period as was initially granted on 10/12/2009.

iv. PP informed that adjacent to Utkal E coal block there is Utkal D coal block of NALCO. Utkal-D Coal block was allocated to NALCO on 02.05.2016 by the Ministry of Coal (MoC), GOI as per Coal Mines (Special Provision) Act, 2015. Earlier EC was granted for the 2.0 million TPA production in favour of M/s. Orissa Mining Corporation Ltd. After grant of lease in favor M/s. NALCO, EC was also transferred from M/s. Odisha Mining Corporation Ltd to M/s. NALCO. It has been decided to combine Utkal – D and Utkal E Coal Mines for conserving of about 20 million tonnes of Coal getting locked up in the common barrier. Grant order for Mining Lease for Utkal D & E Combined has been issued by the State Govt vide letter dated 18.11.2023 over an area of 824.316 ha for the lease period up to 24.03.2051. Mining Plan and Mine Closure Plan for Combined Utkal D and Utkal E coal mines has been approved by Ministry of Coal on 10.05.2024. In view of this, M/s. NALCO will be applying for amalgamation in EC seeking single EC letter for Utkal D and E coal Block admeasuring combined area of Utkal D and Utkal E coal mines 824.316 ha with targeted Coal production capacity of 4.0 million TPA at Village: Nandichhod (Gopiballavpur), Gopinathpur Jungle, Kosala, Kundajhari Jungle, Korada, Raijharan, Similisahi, Tehsil: Chhendipada District: Angul, Odisha. After the EC transfer of Utkal E coal block, the application for amalgamation in ECs will be submitted.

15.9.4 Observations and deliberations of the Committee

The Committee noted the following:

i. Proposal is for transfer of EC dated 10/12/2009 in the name of NALCO for the reduced area of 523.036 Ha in place of 729.48 Ha.
ii. In the instant case, an area of 203.42 ha outside the lease area and
iii. Instant proposal has been referred to EAC by the Ministry in accordance with the minutes of the meeting held on 03/09/2019 between Secretary, Coal and Secretary, EF&CC.
iv. Consequent upon the aforementioned transfer of EC, the project proponent will be submitting separate application for Utkal D and E coal Block admeasuring combined area of Utkal D and Utkal E coal mines 824.316 ha with targeted Coal production capacity of 4.0 million TPA at Village: Nandichhod (Gopiballavpur), Gopinathpur Jungle, Kosala, Kundajhari Jungle, Korada, Raijharan, Similisahi, Tehsil: Chhendipada District: Angul, Odisha.
v. Mining Plan and Mine Closure Plan for Combined Utkal D and Utkal E coal mines has already been approved from Ministry of Coal on 10.05.2024.

15.9.5 Recommendations of the Committee

In view of the foregoing and after deliberations the Committee recommended for the transfer of EC dated 10/12/2009 in the name of M/s. National Aluminium Company Limited (NALCO) for a production capacity of 2 MTPA in the ML area of 523.036 Ha subject to the following conditions in addition to the terms and conditions prescribed in the EC letter dated 10/12/2009.

i. The safety distance of at least 15 m shall be maintained all along the forest boundary.
ii. The project proponent shall develop green belt all along the mine boundary with broad leaved, native tree species.
iii. Controlled blasting techniques using NONEL and down the hole initiation shall be adopted while working near the forest boundary and habitations.
vi. The project proponent shall abide by all the terms and conditions as per the Mining Plan and Mine Closure Plan approved by the Ministry of Coal on 10.05.2024.

15.10 Expansion of Bhubaneswari OCP for increase in Mine lease area from 638.341 Ha to 658.724 Ha [638.341ha+20.383ha (forest area)] keeping existing production capacity 30 MTPA by M/s Mahanadi Coalfields Ltd. located in the villagesJilinda, Hensmul (Sharasahi), Hensmul (Talasahi), Naraharipur, Khandualbhal, Kandhal, Madanmohanpur, Langijoda and Anadipur, Tehsil Talcher Sadar, District Angul (Odisha)– **Deliberations by the EAC – reg.**

Site visit was conducted by the sub-committee of EAC during 7/7/2024 to 10/07/2024 for the project mentioned above. The site visit report of the sub-committee (enclosed as **Annexure V of MoM)** was deliberated by the EAC. After deliberations, the Committee recommended that the report may be sent to the project proponent for incorporating the observations of sub-committee in the final EIA/EMP report to be submitted to the Ministry for appraisal of the project mentioned above.

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ANNEXURE-I

Generic ToR for coal washery

i. Siting of washery is critical considering to its environmental impacts. Preference should be given to the site located at pit head; in case such a site is not available,the site should be as close to the pit head as possible and coal should be transported from mine to the washer preferably through closed conveyer belt to avoid air pollution.

ii. The washery shall not be located in eco-sensitive zones areas.

iii. The washery should have a closed system and zero discharge. The storm drainage should be treated in settling ponds before discharging into rivers/streams/water bodies.

iv. A thick Green belt of about 50 m width should be developed surrounding the washery.

v. A brief description of the plant along with a layout, the specific technology used and the source of coal should be provided.

vi. The EIA-EMP Repot should cover the impacts and management plan for the project of the capacity for which EC is sought and the impacts of specific activities, including the technology used and coal used, on the environment of the area (within 10km radius), and the environmental quality of air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts for the rated capacity. Cumulative impacts for air and water should be a part of ElA in case coal mine, TPP and other washeries are located within 10km radius. The ElA should also include mitigative measures needed to minimize adverse environmental impacts.

vii. A Study Area Map of the core zone as well as the 10km area of buffer zone showing major industries/mines and other polluting sources should be submitted. These maps shall also indicate the migratory corridors of fauna, if any and areas of endangered fauna; plants of medicinal and economic importance; any ecologically sensitive areas within the 10 km buffer zone; the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc. along with the comments of the Chief Wildlife Warden of the State Govt.

viii. Data of one-season (non-monsoon) primary- base-line data on environmental quality of air (PM10, PM2.5, SOx and NOx, noise, water (surface and groundwater), soil be submitted.

ix. The wet washery should generally utilize mine water only. In case mine water is not available, the option of storage of rain water and its use should be examined. Use of surface water and ground water should be avoided.

x. Detailed water balance should be provided. The break-up of water requirement as per different activities in the mining operations vis-a-vis washery should be given. If the source of water is from surface water and/or ground water, the same may be justified besides obtaining approval of the Competent Authority for its drawl.

xi. The entire sequence of mineral production, transportation, handling, transfer and storage of

mineral and waste, if any, and their impacts on air quality should be shown in a flow chart with specific points where fugitive emissions can arise and specific pollution control/mitigative measures proposed to be put in place. The washed coal and rejects should be transport by train as far as possible. Road transport of washed coal and rejects should generally be avoided. In case, the TPP is within 10km radius, it should be through conveyer belt. If transport by rail is not feasible because of the topography of the area, the option for transport by road be examined in detail and its impacts along with the mitigation measures should be clearly brought out in ElA/EMP report.

xii. Details of various facilities proposed to be provided in terms of parking, rest areas, canteen etc. to the personnel involved in mineral transportation, workshop and effluents/pollution load from these activities should be provided.

xiii. Impacts of CHP, if any, on air and water quality should also be spelt out along with Action Plan.

xiv. O.M. No. J-ll0I3/25/2014-IA.I dated 11th August, 2014 to be followed with regard to CSR activities.

xv. Details of Public Hearing, Notice(s) issued in newspapers, proceedings/minutes of Public Hearing, points raised by the general public and response/commitments made by the proponent along with the Action Plan and budgetary provisions be submitted in tabular form. If the Public Hearing is in the regional language, an authenticated English translation of the same should be provided. Status of any litigations/ court cases filed/pending, if any, against the project should be mentioned in EIA.

xvi. Analysis of samples indicating the following be submitted: Characteristics of coal prior to washing (this includes grade of coal, other characteristics of ash, S and heavy levels of metals such as Hg, As, Pb, Cr etc). Characteristics and quantum of coal after washing. Characteristics and quantum of coal rejects.

xvii. Details of management/disposal/use of coal rejects should be provided. The rejects should be used in TPP located close to the washery as far as possible. If TPP is within a reasonable distance (10 km), transportation should be by conveyor belt. If it is far away, the transportation should be by rail as far as possible.

xviii. Copies of MOU/Agreement with linkages (for stand-alone washery) for the capacity for which EC is being sought should be submitted.

Corporate Environment Responsibility:

a) The Company must have a well laiddown Environment Policy approved by the Board of Directors.

b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/ deviation/ violation of the environmental or forest norms/ conditions.

c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

e) A detailed action Plan for Corporate Social Responsibility for the project affected people and people living in and around the project area should be provided.

f) Permission of drawl of water shall be pre-requisite for consideration of EC.

g) Wastewater /effluent should confirm to the effluent standards as prescribed under Environment (Protection) Act, 1986

h) Details of washed coal, middling and rejects along with the MoU with the end-users should be submitted.

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ANNEXURE-II

GENERIC TOR FOR AN OPEN CAST COAL MINE PROJECT

(i) An EIA-EMP Report shall be prepared for MTPA rated capacity in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.

(ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for MTPA of coal production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.

(iii) A toposheet specifying locations of the State, District and Project site should be provided.

(iv) A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given.

(v) Land use map (1: 50,000 scale) based on a recent satellite imagery of the study area mayalso be provided with explanatory note on the land use.

(vi) Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.

(vii) A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.

(viii) A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channeling of

the water courses, etc., approach roads, major haul roads, etc should be indicated.

(ix) In case of any proposed diversion of nallah/canal/river, the proposed route of diversion/modification of drainage and their realignment, construction of embankment etc. should also be shown on the map as per the approval of Irrigation and flood control Department of the concerned state.

(x) Similarly, if the project involves diversion of any road/railway line passing through the ML/project area, the proposed route of diversion and its realignment should be shown in the map along with the status of the approval of the competent authority.

(xi) Break up of lease/project area as per different land uses and their stage of acquisition should be provided.

LAND USE DETAILS FOR OPEN CAST PROJECT should be given as per the following table:

Sl. No.	Land use	Within MLarea (ha)	OutsideMLarea (ha)	Total
1.	Agriculturalland			
2.	Forestland			
3.	Wasteland			
4.	Grazingland			
5.	Surfacewaterbodies			
6.	Settlements			
7.	Others(specify)			
	TOTAL			

(xii) Break-up of lease/project area as per mining plan should be provided.

(xiii) Impact of changes in the land use due to the project if the land is predominantly agricultural land/forest land/grazing land, should be provided.

(xiv) One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr,As,etc), noise, water (surface and groundwater), soil - along with one-seasonmet data coinciding with the same season for AAQ collection period should beprovided.

(xv) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station

should be in the upwind/upstream/non-impact/non- polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.

(xvi) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.

(xvii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.

(xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis- à-vis the potential impacts should be provided.

(xix) Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.

(xx) Detailed water balance should be provided. The break-up of water requirement for the various mine operations should be given separately.

(xxi) Source of water for use in mine, sanction of the Competent Authority in the State Govt..and impacts vis-à-vis the competing users in the upstream and downstream of the project site. should be given.

(xxii) Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining

trend of groundwater availability and/or if the area falls within dark/grey zone.

(xxiii) Impact of blasting, noise and vibrations should be given.

(xxiv) Impacts of mining on the AAQ and predictions based on modeling using the ISCST-3 (Revised) or latest model should be provided.

(xxv) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.

(xxvi) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.

(xxvii) Details of waste OB and topsoil generated as per the approved calendar programme, and their management shown in figures as well explanatory notes tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use should be given. OB dump heights and terracing based on slope stability studies with a max of 28o angle as the ultimate slope should be given. Sections of final dumps (both longitudinal and cross section) with relation to the adjacent area should be shown.

(xxviii) Efforts be made for maximizing progressive internal dumping of O.B., sequential mining, external dump on coal bearing area and later rehandling into the mine void. --to reduce land degradation.

(xxix) Impact of change in land use due to mining operations and plan for restoration of the mined area to its original land use should be provided.

(xxx) Progressive Green belt and ecological restoration /afforestation plan (both in text, figures and in the tabular form as per the format of MOEFCC given below) and selection of species (native) based on original survey/land-use should be given.

Table1:Stage-wise Land use and Reclamation Area (ha)

S.N.	LanduseCategory	Present (1st Year)	5th Year	10th Year	20th Year	24th Year(end o fminelife)*
1.	Backfilled Area Reclaimed with plantation)					
2.	Excavated Area (not reclaimed)/void					

3.	External OB dump Reclaimed with plantation)					
4.	Reclaimed Top soil dump					
5.	Green Built Area					
6.	Undisturbed area (brought Under plantation)					
7.	Roads (avenue plantation)					
8.	Area around buildings and Infrastructure					
	TOTAL					

*As a representative example

Table2: Stage Wise Cumulative Plantation

S.No.	YEAR*	Green Belt		External Dump		Backfilled Area		Others (Undisturbed Area/etc)		TOTAL	
1.	1st year										
2.	3rd year										
3.	5th year										
4.	10th year										
5.	15th year										
6.	20th year										
7.	25th year										
8.	30th year										
9.	34th year (end of minelife)										
10.	34-37th Year (Post-mining)										

*As a representative example

(xxxi) Conceptual Final Mine Closure Plan and post-mining land use and restoration of land/habitat to the pre- mining status should be provided.

A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisios. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.

Table3:Post-Mining Land use Pattern of ML/Project Area (ha)

S.N.	Land useduring Mining	LandUse(ha)				
		Plantation	Water Body	Public Use	Undisturbed	TOTAL
1.	External OB Dump					
2.	Topsoil Dump					
3.	Excavation					
4.	Roads					
5.	Built up area					
6.	Green Belt					
7.	Undisturbed Area					
	TOTAL					

(xxxii) Flow chart of water balance should be provided. Treatment of effluents from workshop, township, domestic waste water,mine water discharge, etc. should be provided. Details of STP in colony and ETP in mine should be given. Recycling of water to the max. possible extent should be done.

(xxxiii) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower in the mine should be given.

(xxxiv) Risk Assessment and Disaster Preparedness and Management Plan should be provided.

(xxxv) Integration of the Env. Management Plan with measures for minimizing use of natural resources-water, land, energy, etc. should be carried out.

(xxxvi) Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.

(xxxvii) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ ST, BPL families) found in the study area and broad plan for resettlement of the displaced population,

site for the resettlement colony, alternate livelihood concerns/ employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.

(xxxviii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.

(xxxix) Corporate Environment Responsibility:

a. The Company must have a well-laid down Environment Policy approved by the Board of Directors.

b. The Environment Policy must prescribe for standard operating process/ procedures to bring into focus any infringements/ deviation/violation of the environmental or forest norms/ conditions.

c. The hierarchical system or Administrative Order of the company todeal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d. To have proper checks and balances, the company should have a well laid-down system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

(xl) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/ minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.

(xli)Inbuilt mechanism of self-monitoring of compliance of environmental regulations should be indicated.

(xlii)Status of any litigations/court cases filed/ pending on the project should b eprovided.

(xliii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content, Sand heavy metals including levels of Hg, As, Pb, Cr etc.

(xliv)Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept.(if req.), etc. wherever applicable.

FOREST CLEARANCE: Details on the Forest Clearance should be given as per the format given:

TOTALML/PROJECTAREA(ha)	TOTALFORESTLAND(ha)	Date of FC	Extent of forest land	Balance area for which FC is yet to be obtained	Status of Appl for. Diversion of forestland
		If more than, provide details of Each FC			

e-KYC CAF DSS e-Processing e-Payments e-Compliance KYA PARIVESH CPC GREEN Nature Protects if She is Protected

ANNEXURE-III

GENERIC TORs FOR AN UNDER GROUND COAL MINE PROJECT

(i) An EIA-EMP Report shall be prepared for MTPA rated capacity in an ML/project area of …..ha based on the generic structure specified in Appendix-III of the EIA Notification,2006.

(ii) An EIA-EMP Report would be prepared for MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for MTPA of coal production based on approved project/Mining Plan for MTPA.

(iii) Baseline data collection can be for any season (three months) except monsoon.

(iv) A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given.

(v) Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.

(vi) A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.

(vii) A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.

(viii) Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on

the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified.

S. N	ML/ProjectLanduse	Areaunder Surface Rights(ha)	AreaUnder Mining Rights(ha)	AreaunderBoth(ha)
1.	Agriculturalland			
2.	ForestLand			
3.	GrazingLand			
4.	Settlements			
5.	Others(specify)			

Area under Surface Rights

S.N.	Details	Area(ha)
1.	Buildings	
2.	Infrastructure	
3.	Roads	
4.	Others(specify)	
	TOTAL	

(ix) Study on the existing flora and fauna in the study area (10 km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area,or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.

(x) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and section should be included.TheProgressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of

mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.

(xi) Details of mining methods, technology, equipment to be used,etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.

(xii) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing though the ML and adjoining the lease/ project and the impact on the existing users and impacts of mining operations there on.

(xiii) One-season (other than monsoon) primary base line data on environmental quality-air (PM10, PM2.5, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided.

(xiv) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non- polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.

(xv) Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.

(xvi) Study on subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.

(xvii) Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.

(xviii)Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.

(xix) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions

should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.

(xx) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.

(xxi) Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.

(xxii) The number and efficiency of mobile/static water sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.

(xxiii) Impacts of CHP, if any on air and water quality should be given. A flow chart showing water balance along with the details of zero discharge should be provided.

(xxiv) Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.

(xxv) Greenbelt development should be undertaken particularly around the transport route and CHP. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.

(xxvi) Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.

(xxvii) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.

(xxviii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.

(xxix) **Corporate Environment Responsibility:**

a) The Company must have a well laid down Environment Policy approved bythe

Boardof Directors.

b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.

c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

(xxx) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.

(xxxi) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.

(xxxii) Status of any litigations/ court cases filed/pending on the project should be provided.

(xxxiii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content, S and heavy metals including levels of Hg, As, Pb, Cr etc.

(xxxiv) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

Details on the Forest Clearance should be given as per the format given:

Total ML /Project Area (ha)	Total Forest Land(ha)	Date of FC	Extent ofForest Land	Balance area For which FC is yet to be obtained	Status of appl. For diversion of forest land
		If more than one provide details of Each FC			

****

ANNEXURE-IV

GENERIC TORs FOR AN OPENCAST-CUM UNDERGROUND COAL MINE PROJECT

(i) An EIA-EMP Report would be prepared for a combined peak capacity of.....MTPA for OC-cum-UG project which consists of....MTPA in an ML/project area of ha for OC and....MTPA for UG in an ML/project area of ha based on the generic structure specified in Appendix III of the EIA Notification 2006.

(ii) An EIA-EMP Report would be prepared for MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modelling for MTPA of coal production based on approved project/ Mining Plan for MTPA. Base line data collection can be for any season (three months) except monsoon.

(iii) The ToRs prescribed for both open cast and underground mining are applicable for opencast–cum underground mining.

ANNEXURE-V

Expert Appraisal Sub-Committee visit report for -Expansion of Bhubaneswari OCP for increase in Mine lease area from 638.341 Ha to 658.724 Ha [638.341ha+20.383ha (forest area)] keeping existing production capacity 30 MTPA by M/s Mahanadi Coalfields Ltd. located in the villages Jilinda, Hensmul (Sharasahi), Hensmul (Talasahi), Naraharipur, Khandualbhal, Kandhal, Madanmohanpur, Langijoda and Anadipur, Tehsil Talcher Sadar, District Angul (Odisha)

As per MoEFCC office order Number J-11015/280/2013-IA-II(M) dt. 26/6/2024, a sub-committee was formed to visit the Bhubneshwari OCP for the on-the-spot assessment of the environmental issues. Accordingly, following committee members visited the site during 7/7/2024 to 10/7/2024. During the visit the representatives of PP and CMPDI were present.

1. Shri Inder Pal Singh Matharu- Chairman
2. Dr S Chandrashekhar- Member
3. Shri U J Kahalekar-Member
4. Mr. Sandeep Nandi-Scientist B, Regional Office, Bhubneshwar, MoEFCC

The committee submits the report as below:

1. The proposal is for Terms of Reference for expansion of Bhubaneswari OCP for increase in Mine lease area from 638.341 Ha to 658.724 Ha [638.341ha+20.383ha (forest area)] with existing production capacity 30 MTPA by M/s Mahanadi Coalfields Ltd. The proposal was considered in its fifth meeting held on 21 and 22 December 2023 and 12 to 14 February 2024. EAC after detailed deliberations on the proposal recommended the proposal for grant of ToR with additional TOR and Standard ToR.
2. The chronology for EC granted is as below

Sl. No.	Capacity	ML area in Ha	Date of EC	Remarks
1.	EC of 10.0 Mty	658.724	06-06-2003	EIA notification, 1994
2.	EC of 20.0 Mty	658.724	30-11-2012	EIA notification, 2006
3.	EC of 25.0 Mty	638.341	19-02-2014	Under 7 (ii) clause of EIA notification, 2006 (25% increment under special dispensation)

4.	EC of 28.0 Mty	638.341	16-02-2018	Under 7 (ii) clause of EIA notification, 2006 (40% increment under special dispensation)
5.	EC of 28.0 Mty	638.341	02-05-2022	Amendment in EC
6.	EC of 30.0 Mty	638.341	25-07-2022 & 10-11-23	EC under OM vide no.F.No.IA3-22/10/2022-IA.III, dated 07.05.2022 (50% increment under special dispensation)

3. Out of 638.341 Ha area, 112.521 Ha is the forest area for which stage II FC has already been granted by forest department vide letter 8-18/2002/89-FC, Dt-06.12.2004. Application for additional forest land of 20.383 Ha for the proposed expansion has been uploaded by PP vide proposal no. FP/OR/MIN/155017/2022 on 30.04.2022. The proposal is yet to be sanctioned.
4. The presentation was given by PP regarding compliance of earlier EC conditions and conditions of ToR. Following points are observed, which need clarifications and compliance.
   a) Out of proposed ML area of 658.724 Ha, the proposed unfilled void area is 266.013 Ha. The proposed void area seems to be much large. The studies shall be carried out regarding reduction in void area.
   b) The sub-committee showed dissatisfaction about progress of plantation. It is reported that the remaining life of mine is only of 4 years. It observes that the progress of mine closure plan is not satisfactory and there is much poor plantation. The immediate response is very much needed about this. The appropriate budget provision for the same shall be made in EMP.
   c) The total area covered by 3 tier green belt shall not be less than 100 Ha. It is reported that 25.08Ha Green belt outside ML was developed through Odisha Forest Development Corporation & Biological reclamation on 45Ha of internal dump comprising native species has been done. Further, 3 tier green belt comprising mix of native species shall be developed along the major approach roads.
   d) The details of 638.341 Ha ML area such as, area in which mining is completed, balance area in which mining is being carried out and to be carried out, backfilled area, area in which plantation is carried out are

required. Also, the details of availability of coal as per approved mining plans and coal extracted in relevance with area are required.

e) The sub-committee visited the site of CAAMS. One CAAMS is not in working condition, while the location of other CAAMS (which is in working condition) is not relevant to CPCB guidelines. Additional three number of CAAMS shall be installed at places where the PM10/PM2.5 values of baseline data exceeds the values of Annual average concentration limits. The budget provision for the same is needed.

f) The dedicated corridor for coal transportations needs repair. The road condition is not satisfactory. The provision of budget shall be made for the same.

g) The LNG/CNG based mining machineries and trucks are not observed. From energy conservation point of view, PP shall make adequate budgetary provision for solar energy.

h) The transportation of coal through silo of 10 MTy is in working condition. Additionally, the silo work of additional 15MTy is almost completed. However, the functioning of the same is not yet started due to rail connectivity. It functioning of the 15 MTy shall be started as early as possible.

i) Along with the impact of all coal mines in cluster and other industries on coal evacuation system and different environmental parameters, the collective EIA-EMP of all mines in cluster shall also cover the aspect of afforestation and plantation details.

j) A representation of nearby villagers met to sub-committee members. In the proposed EMP, due consideration shall be given to socioeconomic and environmental problems of these villagers.

k) Public consultation was advised. Accordingly, as stated in Specific Condition (viii) & representation of villagers, PP shall submit plan for drinking water supply through dedicated pipeline for nearby villagers.

l) As per General ToR conditions (xxxvii), details of waste OB & Top soil generated, progressive development of mining and mine closure plan, green belt development, backfilling program and conceptual post mining land use plan shall be given.

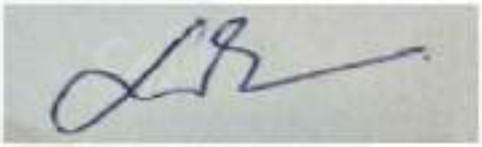
m) As assured in Half Yearly progress report of September 2023, the land after mining should be restored for agriculture or Forestry purpose during mine closure stage. The information of the same shall be given.

5. After receipt of forest clearance and compliance of standard ToR conditions, Additional ToR conditions and suggestions of sub-committee

of EAC, the proposal of EC may be examined by EAC. The PP has to submit the assured action plan and adequate budgetary provisions for different items as mentioned in EMP. The observations of sub-committee may be intimated to Project Proponent for necessary action.

Signatures:

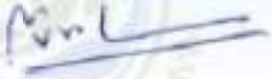
1. Shri Inder Pal Singh Matharu- Chairman



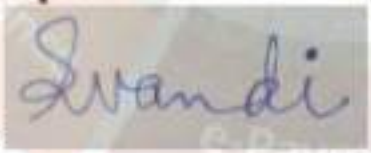
2. Dr S Chandrashekhar- Member



3. Shri U J Kahalekar- Member



4. Mr. Sandeep Nandi- Scientist B, Regional Office, Bhubneshwar, MoEFCC



ANNEXURE-VI

LIST OF PARTICIPANTS OF EAC (COAL) IN 15h MEETING HELD ON 18-19th SEPTEMBER, 2024 THROUGH VIRTUAL MODE

S. No.	Name & Address	Role	18.09.2024	19.09.2024
1.	Dr. Sharad Singh Negi (I.F.S. Retd.)	Chairman	Present	Present
3.	Shri Inder Pal Singh Matharu, IFS (Retd.)	Member	Present	Present
3.	Shri Lalit Kapur	Member	Present	Present
4.	Dr. Umesh Jagannathrao Kahalekar	Member	Present	Present
5.	Dr. Santosh Kumar Hampannavar	Member	Present	Present
6.	Shri Savalge Chandrasekhar	Member	Present	Present
7.	Shri K. B. Biswas	Member	Present	Present
8.	Prof. Shyam Shanker Singh	Member	Present	Present
9.	Dr. Vinod Agrawal	Member	Present	Present
10.	Dr Nazimuddin, Scientist - F	Representative of Central Pollution Control Board	Absent	Present
11.	Shri Mahi Pal Singh, Chief Engineer	Representative of Central Electricity Authority (CEA)	Present	Present
13.	Shri Harmeet Sahaney	Representative of Indian Meteorological Department (IMD)	Absent	Absent
13.	Prof. R M Bhattacharjee	Representative of IIT/ISM Dhanbad	Present	Present
14.	Shri Sundar Ramanathan	Member Secretary	Present	Present
MOEF&CC				
1.	Sh. Rajesh Prasad Rastogi	Scientist 'D'	Present	Present

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APPROVAL OF CHAIRMAN EAC

Re: Zero Draft MOM of 15th EAC (Coal) held during 18-19th Sept. 2024

SH sharadnegi1957@gmail.com <sharadnegi1957@gmail.com>
Sat, 28 Sep 2024 10:09:29 PM +0530

To "Sundar Ramanathan" <r.sundar@nic.in>

Cc "RAJESH PRASAD RASTOGI" <rp.rastogi@gov.in>, "mathanu0204" <mathanu0204@gmail.com>, "lkapoor2000" <lkapoor2000@yahoo.com>, "ukahalekar" <ukahalekar@rediffmail.com>, "santosh kumar777" <santoshkumar777@yahoo.com>, "savalgec" <savalgec@gmail.com>, "biswaskirti" <biswaskirti@gmail.com>, "vinodudz" <vinodudz@yahoo.com>, "rmbhattacharjee" <rmbhattacharjee@iitism.ac.in>, "Nazimuddin" <nazim.cpcb@nic.in>, "mpsingh.cea" <mpsingh.cea@nic.in>, "singhss.ggu" <singhss.ggu@gmail.com>, "Harmeet Singh" <harmeet.sawhney@ind.gov.in>

Approved final MoM of 15 th EAC coal mining as proposed

On Saturday, September 28, 2024, Sundar Ramanathan <r.sundar@nic.in> wrote:

[redacted]

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Dr S S Negi
Vice Chairman, Rural Development and Migration Commission, Uttarakhand
former Director General Forest and Special Secretary Govt of India
Address: 178 Subhash Road Dehradun
Mob 09411173194

T.C.



Ax. L

सत्यमेव जयते

File No.: IA-J-11011/46/2022-IA. II(M)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **21/10/2024**

To,

Sh. Shanto Mukherjee
M/s ADANI POWER MAHARASHTRA LIMITED
Adani Power Maharashtra Limited Adani Corporate House Shantigram, Near Vaishno Devi Circle, S.G. Highway, Khodiyar, Ahmedabad , AHMADABAD, GUJARAT, , 382421
E-mail: gondkhari@adani.com

Subject: **Gondkhari Underground Coal Mine (Kamptee Coalfield) (area 862 Ha having targeted capacity 2 MTPA) by M/s Adani Power Maharashtra Limited located at Villages: Waddhamana, Gondkhari, Pendhari, Kalameshwar, Nagpur (rural); District: Nagpur; State: Maharashtra – Grant of Amendment in Environmental Clearance – regarding**

Sir/Madam,

This is with reference to your online application vide proposal No. IA/MH/CMIN/495430/2024 dated 05/09/2024 along with CAF (Part A, B and C) seeking amendment in Environment Clearance accorded by the Ministry vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024, under the provisions of the EIA Notification, 2006 for the project mentioned above.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24A0102MH5264337A
(ii) File No.	IA-J-11011/46/2022-IA. II(M)
(iii) Clearance Type	Amendment in EC
(iv) Category	A
(v) Schedule No./ Project Activity	1(a) Mining of minerals
(vi) Sector	Coal Mining
(vii) Name of Project	Proposed Gondkhari Underground Coal Mine (Kamptee Coalfield) of area 862.00 Ha, Targeted capacity – 2.0 MTPA, at Village – Gondkhari, Tehsil – Kalmeshwar, Dist. – Nagpur, State – Maharashtra - 440023
(viii) Location of Project (District, State)	NAGPUR, MAHARASHTRA
(ix) Issuing Authority	MoEF&CC
(x) EC Date	02/02/2024
(xii) Applicability of General Conditions	NO

T.C.

(xiii) Status of implementation of the project Yet to commence the acitivity at the site

3. The proposal was considered by EAC (Coal) in its meeting held during 18-19th September, 2024. The project activity is listed at schedule no. 1(a) - Mining of minerals under Category "A" of the schedule of the EIA Notification, 2006. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed at https://parivesh.nic.in.

4. Earlier, the Environment clearance for the project was granted under EIA Notification, 2006 vide Ministry's letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 for a capacity of 2 MTPA in an area of 862 Ha. Details of all the prior ECs including the EC for which amendment is sought are summarized as below:

S. No.	Details of Letter No	EC/Expansion EC/Amendment in EC/Validity extension/Transfer of EC	Capacity (MTPA)	Area (Ha)	Date of Issuance	Status of Implementation
1.	IA-J-11011/46/2022-IA. II(M)	Environmental Clearance	2/3 (Normative/Peak)	862	02.02.2024	Project activity is yet to commence at the site.

5. The PP has submitted for amendment in "EC Miscellaneous Condition no. 9.9" and "EC particulars s. no. 2 (iii) – Clearance type" accorded vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024. PP has submitted the following amendment along with justification:

Specific/General Condition no.	Details of Conditions as per EC	Amendment Sought	Justification
9. Miscellaneous	9.9 – No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Change in infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft.	**1. Change in location of land:** a. Air return shaft land was shifted from Khasra No. 236 private land to Khasra No. 274 private land due to issues in land availability. b. Incline land was shifted from Khasra No. 104, 106, 109 & 110 private land to Khasra No. 96 due to flatten the incline gradient and issues in land availability. c. The location of the Incline mouth and associated infrastructure is proposed to be shifted with a view to make the gradient of the Incline milder/flatter (from 12° to 8°) for deploying tyre mounted trackless equipment for men/material transport. The location of the ventilation shaft has also been changed slightly accordingly. However, there are no other changes in UG layout of any seam. d. The above modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine.
EC Particulars 2. The particulars of the proposal are as below :	(iii) Clearance Type : Mining EC Under 5 Ha	Mine lease area is 862 ha, which is more than 5 ha.	Mine lease area is 862 ha, which is more than 5 ha.

6. Salient features of the proposed amendment:

A. PP sought following amendment in the EC:

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
Shift of Air Return Shaft	Falls in Khasra No. 236 (private land)	Will be shifted to Khasra No. 274 (private land) due to issues in land availability.	**Justification given by PP:** The slight changes proposed will further add to safer men/material transport and with a view to enhance conducive work environment for the workers deployed in the mine. The location of the Incline mouth and associated infrastructure has been shifted with a view to make the gradient of the Incline milder/flatter (from 12° to 8°) for deploying tyre mounted trackless equipment for men/material transport. The location of the ventilation shaft has also been changed slightly accordingly. However, there are no other changes in UG layout of any seam. This modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine. **View of Ministry of Coal on the above changes:** Ministry of Coal vide letter no. CCO-MPMC01(110)/1/2024-MPMC dated 06.08.2024, has mentioned that the ***"Mine entries are part of mine infrastructure and the same is evident from Coal Mines (Special Provisions) Act, 2015, where compensation is payable to mine entries under infrastructure. So, the changes proposed in the location of mine entries will come under the provisions of "minor changes" under para 1.3B of the OM dated 29.05.2020 of Ministry of Coal regarding Mining Plan and Mine Closure Guidelines. Also, the related necessary changes in the mine layout and sequence of mining may be taken as "minor changes" and may be allowed without any modification of***	Considering the letter received from Ministry of Coal, with respect to change in infrastructure location for mine entries through incline and air return shaft as mentioned by PP in the proposal submitted shall only be allowed. For any other expansion or modification, PP shall take prior approval of Ministry of Environment, Forest and Climate Change (MoEF&CC).
Shift of Incline Land due to technical requirement of flatter gradient incline.	Falls in Khasra No. 104, 106, 109 & 110 (private land)	Will be shifted to Khasra No. 96 (private land) due to flatten the incline gradient and issues in land availability.		

Details	As per EC dated 02.02.2024	Amendment Sought	Remarks	View of EAC of MoEF&CC
			Mining Plan. Accordingly, it was confirmed that the shaft and incline are integral parts of the mine infrastructure and their relocation falls within the minor changes category as per the guidelines."	

Due to the shift of Air Return Shaft and inclined mouth, the land use changes during mining and post closure is furnished as below:

As per Approved Mine Plan					Changes envisaged in the approved mining plan				
Type	**Land use (proposed)**	**Land use (end of mine life)**	**Agriculture**	**Total**	**Type**	**Land use (proposed)**	**Land use (end of mine life)**	**Agriculture**	**Total**
Road & Infrastructure Area	13.845	13.845	13.845	**13.845**	Road & Infrastructure Area	13.845	13.845	13.845	**13.845**
Settling Pond	0.08	0.08	0.08	**0.08**	Settling Pond	0.08	0.08	0.08	**0.08**
Embankment	0.075	0.075	0.075	**0.075**	Embankment	0.075	0.075	0.075	**0.075**
Green Belt	2.0	2.0	2.0	**2.0**	Green Belt	5.3	5.3	5.3	**5.3**
UG Entry	2.0	2.0	2.0	**2.0**	UG Entry	2.0	2.0	2.0	**2.0**
Undisturbed/ Mining Right for UG	844	844		**844**	Undisturbed/ Mining Right for UG	840.7	840.7		**840.7**
Grand Total	**862**	**862**	**18.0**	**862**	**Grand Total**	**862**	**862**	**21.3**	**862**

B. PP sought the following corrigendum in the EC letter dated 02.02.2024:

Para No	As per EC dated 02/02/2024	Amendment Sought
2	(iii) Clearance Type : Mining EC Under 5 Ha	(iii) Clearance Type: Fresh EC

7. Details of court cases:

Case No.	Court	Brief	Next date of hearing
APPEAL NO. 145 OF 2024 (WZ)	NGT (Western Zone Bench, Pune)	EC on which amendment is being sought has been challenged before Hon'ble NGT (WZ), Pune on the grounds to quash and set aside the environmental public hearing held on 13/07/2023 by MPCB.	16.10.2024

Deliberations of the Committee

8. The Committee deliberated on various aspects of the proposal submitted and the presentation made by PP. After detailed deliberation, the Committee noted the following:

i. MoEF&CC has granted EC for Gondkhari Underground Coal Mine of M/s Adani Power Maharashtra Limited vide letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 for targeted capacity of 2 MTPA and peak capacity of 3 MTPA in an area of 862 Ha.

ii. It is observed that the said project involves 87.351 Ha of forestland and the Stage – I FC has been accorded on the same on 02.01.2024.

iii. The above mentioned project is yet to be implemented.

iv. Miscellaneous Condition no. 9.9 of EC stipulated that, "No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC)."
Now, the PP has submitted the proposal to seek amendment in this particular condition to amend the same and allow the PP to "change the infrastructure location within mine lease area, mainly mine entries through inclines and ventilation shaft." Justification provided for the same by the PP is that due to issues in land availability, air return shaft and incline had to be shifted and there was also a technical requirement of a flatter gradient incline to be developed for safe working.
PP further submitted that changes in acreage are also proposed. Area for infrastructure was earlier proposed to be 18 Ha, which is now being increased by 3.31 Ha, i.e. total area proposed for acreage will be 21.31 Ha. PP also submitted that the increased area proposed will be used for greenbelt development only.

v. The Committee observed that the said proposal was earlier deliberated in 13th EAC held on 1st-2nd July 2024, where along with the board approval letter dated 11.04.2024, PP submitted that the modifications in the mine plan proposed to be made are of minor nature (as per clause 1.3 (B) of OM dated 29.05.2020 of MOC) and the same need not to be approved from MOC. The Member Secretary confirmed the same from MOC and it was informed that it does not falls under the purview of minor changes as per the guidelines of MOC. Hence, the proposal was returned in the present form.

vi. Now the PP has again submitted the proposal for amendment along with the letter of MOC, dated 06.08.2024, wherein it is submitted that a meeting was held at MOC on 29.07.2024 under the chairmanship of Additional Secretary and Nominated Authority, regarding this particular issue for the said project. The MOC in this letter has mentioned that the "Mine entries are part of mine infrastructure and the same is evident from Coal Mines (Special Provisions) Act, 2015, where compensation is payable to mine entries under infrastructure. So, the changes proposed in the location of mine entries will come under the provisions of "minor changes" under para 1.3B of the OM dated 29.05.2020 of Ministry of Coal regarding Mining Plan and Mine Closure Guidelines. Also, the related necessary changes in the mine layout and sequence of mining may be taken as "minor changes" and may be allowed without any modification of Mining Plan. Accordingly, it was confirmed that the shaft and incline are integral parts of the mine infrastructure and their relocation falls within the minor changes category as per the guidelines."
The Committee deliberated on the same and observed MOC has conducted a separate meeting under the chairmanship of Additional Secretary and Nominated Authority, in order to give clarification instant matter under consideration and has issued a specific report for the same stating that such changes may be taken as minor changes and may be allowed without modification of Mining Plan.

vii. The Committee further deliberated on the impact of making such changes on the environment. In this regard, PP informed that that there is less than 50 m difference in the distance between old land and the newly proposed land and no such impact will be there on the environment for making such changes. The Committee also observed that the area increased for infrastructure (i.e., 3.31 Ha) will be used for greenbelt development.

viii. The Committee also observed that, the proposed shift being made for air return shaft and incline land is from private land to private land only with a view to make the gradient of the Incline milder/flatter (from 12° to 8°). This modification will enable the deployment of safer and advanced mode of men/material transport system with FSVs/ Men transport in the mine.

ix. Apart from this, another amendment sought by the PP is rectification in the EC Particulars, S. no. (iii) Clearance Type, which is mentioned as "Mining EC under 5 Ha" instead of "Fresh EC". The Committee observed that some part of the EC letter are system generated and due to technical error it is wrongly mentioned as Mining EC under 5 Ha". This should be as "Fresh EC" rather.

x. The Committee also deliberated on the litigations pertaining to the said project and observed that the EC on which amendment is sought has been challenged at the NGT – Pune and the case has been registered as Brijkishore Hargovind Agarwal vs UOI on 24.07.2024 as Appeal No. 145/2024. The said EC has been challenged before Hon'ble NGT (WZ), Pune on the grounds to quash and set aside the environmental public hearing held on 13/07/2023 by MPCB.PP is advised to abide by the Order of Hon'ble NGT.

Recommendations of the Committee

9. After deliberations, the Committee **recommended** the proposal for amendment in EC granted vide file no. - IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 with respect to Change in infrastructure location for mine entries through incline and air return shaft as mentioned above at **para 6 A** subject to stipulation of additional specific condition (**Annexure-I**). Other terms and conditions prescribed in EC dated 02/02/2024 shall remain unchanged. In addition to the above, the Committee also recommended corrigendum in the EC dated 02/02/2024 as given above at **Para 6B**.

Decision of MoEF&CC

10. The undersigned is directed to inform that Ministry of Environment, Forest and Climate Change 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 (Coal) hereby decided for grant of amendment in the EC dated 02.02.2024; as detailed in **para 6A** above subject to the compliance of the additional terms & conditions / specific conditions at **Annexure 1**.

11. All other terms and conditions mentioned in the Environment Clearance letter no. IA-J-11011/46/2022-IA. II(M), dated 02.02.2024 shall remain unchanged.

12. The project proponent shall obtain fresh Environment Clearance in case of change in scope of the project, if any.

13. This issues with the approval of the Competent Authority.

Yours faithfully,

(Sundar Ramanathan)
Scientist 'E'/Additonal Director
Tel: 011- 20819378

Email- r.sundar@nic.in

Copy To

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Department of environment, Government of Maharashtra-15th Floor, New Admin Bldg, Madam Cama Road, Mantralaya, Mumbai-32 (Maharashtra)
3. The Deputy Director General of Forests (C), Regional Office, Ministry of Environment, Forest and Climate Change, Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur- 440001,
4. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
5. The Chairman, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4th Floors, Sion, Matunga Scheme Road No 8, Opp. Cine Planet Cinema, Near Sion circle, Sion (E) Mumbai-2.
6. The Member Secretary, Central Ground Water Authority (CGWA),18/11Jamnagar House, Man Singh Road, New Delhi-11001.
7. The Regional Director, Central Ground Water Board, Central Region, N.S. Building, Civil Lines, Nagpur 440001 Maharashtra
8. District Collector, Nagpur, Government of Maharashtra
9. PARIVESH Portal

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Additional Specific Conditions

S. No	EC Conditions
1.1	The project proponent shall abide by all orders and judicial pronouncements, made from time to time by the Hon'ble National Green Tribunal (NGT), Western Zone, Pune in Appeal No. 145 of 2024.
1.2	Additional Green belt shall be developed by the project proponent in an area of 5.51 Ha around the periphery of Infrastructure area as committed in accordance with the CPCB guidelines and in consultation with Local Forest Department. Compliance status in this regard shall be submitted to the concerned Regional Office of the Ministry along with the six monthly compliance report.

e-KYC CAF DSS e-Processing e-Payments e-Compliance KYA PARIVESH Nature Protects if She is Protected CPC GREEN

T.C.