BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 749 OF 2024

IN THE MATTER OF:

Ajay Kumar Singh …Applicant

Versus

State Level Environmental Impact
Assessment Authority, Uttar Pradesh & Ors. …Respondents

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RESPONDENT NO. 2
M/S A.V. BIO MEDICAL WASTE SERVICES
THROUGH

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Date: 22.02.2025
Place: New Delhi

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
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Assessment Authority, Uttar Pradesh & Ors. …Respondents

REPLY ON BEHALF OF THE RESPONDENT NO. 2/ PROJECT PROPONENT, M/S AV BIO MEDICAL WASTE SERVICES TO THE APPEAL PREFERED BY THE APPELLANT UNDER SECTION 16 OF THE NATIONAL GREEN TRIBUNAL ACT, 2010

MOST RESPECTFULLY SHEWETH

1. That at the outset, it is submitted that the present Application is an abuse of the process of this Hon'ble Tribunal and the same deserves to be dismissed with heavy costs. It is further submitted that the Appellants have not approached this Hon'ble Tribunal with clean hands and have misrepresented several vital facts before this Hon'ble Tribunal.

PRELIMINARY OBJECTIONS:

2. That he present Original Application is not maintainable as the same is barred by limitation. It is submitted that the Original Application is preferred under Sections 14, 15 and 18(1) of the National Green Tribunal Act, 2010 and the limitation provided

under Section 14(3) of the Act is six months. Section 14(3) reads as under:

Section 14(3): No Application for adjudication of dispute under this section shall be entertained by the tribunal unless it is made within a period of 6 months from the date on which the cause of action for such dispute first arose.

The Applicant has challenged the grant of Environmental Clearance dated 01/07/2023 and the challenge to the same was beyond the limitation when the present Original Application was preferred.

Hence, the present Original Application is barred by limitation and liable to be dismissed on this ground alone.

It is worthwhile to note that no relief is sought under Section 15 of the National Green Tribunal Act, 2010.

3. That the Original Application is not maintainable as the grant of Environmental Clearance can only be challenged in Appeal under Section 16 (h) of the National Green Tribunal Act, 2010.

4. That the present Original Application is not maintainable as the Applicant has not invoked the remedy provided under Rule 16 of the Common Bio-Medical Waste Management Rules, 2016. Rule 16 of the Common Bio-Medical Waste Management Rules, 2016 is reproduced hereinbelow for ready reference:

Rule 16: Appeal –

(1) Any person aggrieved by an order made by the prescribed authority under these rules may, within a period of 30 days from

the date on which the order is communicated to him, prefer an appeal in Form V to the Secretary (Environment) of the State Government or Union Territory administration.

5. That the present Original Application is not maintainable as the Applicant has not shown as to how he falls under Section 18(2) of the National Green Tribunal Act, 2010. It is submitted that the Applicant cannot be said to be an aggrieved person or has sustained any injury, hence, the present Original Application is not maintainable and liable to be dismissed. Section 18(2) of the National Green Tribunal Act, 2010 is reproduced herein below for ready reference:

18. Application or appeal to Tribunal.

Without prejudice to the provisions contained in section 16, an application for grant of relief or compensation or settlement of dispute may be made to the Tribunal by –

(a) the person, who has sustained the injury; or

(b) the owner of the property to which the damage has been caused; or

(c) where death has resulted from the environmental damage, by all or any of the legal representatives of the deceased; or

(d) any agent duly authorised by such person or owner of such property or all or any of the legal representatives of the deceased, as the case may be; or

(e) any person aggrieved, including any representative body or organisation; or

(f) the Central Government or a State Government or a Union territory Administration or the Central Pollution Control Board or a State Pollution Control Board or a

Pollution Control Committee or a local authority, or any environmental authority constituted or established under the Environment (Protection) Act, 1986 or any other law for the time being in force.

6. That the Applicant has deliberately not cited the Para 6 of the Revised Guidelines for Common Bio Medical Waste Treatment facilities, which promotes that the CBMWF should be preferably developed in the notified industrial area without the requirement of the buffer zone. Para 6 of the revised guidelines which provides for the Location Criterion is reproduced herein below:

PARA 6: LOCATION CRITERIA

In the context of these guidelines, buffer zone represents a separation distance between the source of pollution in CBWTF and the receptor - following the principle that the degree of impact reduces with increased distance. The following parameters may be considered for ascertaining buffer distance on case-to-case basis:

(i) potential for spread of infection from wastes stored in the premises.
(ii) applicable standards for pollution control and the relative efficiency of the existing incinerators and emission control systems,
(iii) potential of fugitive dust emission from incinerators,
(iv) potential for discharge of wastewater
(v) the potential for odour production,
(vi) the potential for noise pollution
(vii) the risk posed to human health and safety due to exposure to emissions from incinerator
(viii) the risk of fire and
(ix) Significance of the residual impacts such as bottom ash and fly ash.

As far as possible, the CBWTF shall be located near to its area of operation in order to minimize the transportation distance in waste collection, thus enhancing its operational flexibility as

well as for ensuring compliance to the time limit for treatment and disposal of bio-medical waste as stipulated under the BMWM Rules (i.e., within 48 hours). Also, the location of the CBWTF should be in conformity to the CRZ Norms and other provisions notified under the Environment (Protection) Act, 1986. The location shall be decided in consultation with the State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC). The location criteria for development of a CBWTF are as follows:
(a) A CBWTF shall preferably be developed in a notified industrial area without any requirement of buffer zone ***(or)***

(b) A CBWTF can be located at a place reasonably far away from notified residential and sensitive areas and should have a buffer distance of preferably 500 m so that it shall have minimal impact on these areas. In case of non-availability of such a land, the buffer zone distance from the notified residential area may be reduced to less than 500 m by SPCB/PCC without referring the matter to CPCB by prescribing additional control measures such as (i) adoption of best available technologies (BAT) by the proponent of CBWTF; (ii) prescribing stringent standards for operation of the CBWTF by the SPCB/PCC; (iii) adoption of zero liquid discharge by the CBWTF and (iv) in case of any complaints from the public, then CBWTF should prove that the facility is not causing any adverse impact on environment and habitation in the vicinity. If SPCB/PCC is not in a position to resolve the issue relating to buffer zone while selecting the site for CBWTFs, in such a case, SPCBs/PCCs may refer the matter to CPCB.

(c) The CBWTF can also be developed as an integral part of the Hazardous Waste Treatment Storage and Disposal Facility (TSDF) subject to obtaining of necessary approvals from the authorities concerned including 'environmental clearance' as per Environmental Impact Assessment 2006 and further amendments notified under the Environment (Protection) Act, 1986, provided there is no CBWTF exist within 150 KM distance from the existing TSDF.

This Hon'ble Tribunal in Common Bio Medical Waste Treatment Facility Operators Association Vs. Maharashtra Pollution

Control Board (OA No. 51 of 20222 (WZ) [2023 SCC Online NGT 2022] has held:

> ***"9.*** *During argument made by the learned counsel for the applicant, it appeared that he wanted to communicate that the MPCB should not be allowed to have more than one facility within the coverage area of 75 KM as the same would affect commercial viability of other units. We are not impressed by the said argument made by the learned counsel for the applicants because Rules do not provide that there cannot be more than one CBMWTFs installed within the area of 75 KM. In our opinion, the said criteria appear to have minimum one such facility therefore, if there are more than one facility does not mean that it would amount to violation of the said Rules. It appears that the intention of the legislature is that minimum one CBMWTF should be established within 75 KM area."*

7. That the Applicant has misread the import of definition of Hazardous Waste as defined in Section 2(e) of the Environment Protection Act, 1986.

Section 2(e) of the Environment Protection Act, 1986 is reproduced hereunder for ready reference:

Section 2(e): hazardous substance means any substance or preparation which by reason of its chemical or physio-chemical properties or handling who is liable to cause harm to human beings, other living creatures, plants micro-organism property or the environment;

It is submitted that the definition is to classify the substance which is hazardous in nature for which specific guidelines are stipulated for CBWTF by CPCB which is to be implemented prior to establishment of the CBWTF unit. For the purposes of CBMWTF, the hazard is the bio-waste which is generated by the healthcare units and the CBWTF facility is engaged into treating

such hazardous waste and not the generation of hazardous waste. So as far as Hazardous Unit is concerned it includes as whole unit i.e. incinerator, autoclave, ETP, considering all as whole unit.

8. That it is correct that in the modified directions dated 07.03.2016 by Central Pollution Control Board, the Common Bio-Medical Waste Treatment Facility is placed in Red Category, however, at the same time CBWTF is designated in a special category being part of pollution control facilities:

"ii. *There are specific remarks in respect of some of the industrial sectors. These sectors are either merged with other relevant sectors or deleted due to duplication. The overall details are as follows:*

Sr. No	Original S.No.	Industry / Sector	Original Category	Remarks
1	14	*Common treatment and disposal facilities (CETP, TSDF, Ewaste recycling, CBMWTF, effluent conveyance project, incinerator, solvent / acid recovery plant, MSW sanitary land fill site)*	R	*All such facilities are classified as Red but special category projects as these are parts of pollution control facilities.*

9. That the Applicant has relied upon the Revised Guidelines for Common Bio-Medical Waste Treatment and Disposal Facilities being made by the Central Pollution Control Board. It is submitted that these guidelines are not mandatory and does not have the force of law but only directory in nature.

The Bio-Medical Waste Management Rules, 2016 were made Central Government in exercise of the powers conferred under Sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986).

It is submitted that Rule 6 casts duty on the authorities (specified in column (2) of Schedule-III) to perform their duties and Rule 9(3) directs the prescribed authorities to comply responsibilities stipulated in Schedule III.

Rules 6 and 9(3) alongwith Sr. No. 3 of Schedule III are reproduced herein below for ready reference:

6. Duties of authorities-
The Authority specified in column (2) of Schedule-III shall perform the duties as specified in column (3) thereof in accordance with the provisions of these rules.

9. Prescribed authority
(3) The prescribed authorities shall comply with the responsibilities as stipulated in Schedule III of these rules.

SCHEDULE III
List of Prescribed Authorities and the Corresponding Duties

S.No.	***Authority***	***Corresponding Duties***
4.	*Central Pollution Control Board*	***(i) Prepare Guidelines on bio-medical waste Management and submit to the Ministry of***

		Environment, Forest and Climate Change. ***(ii) Co-ordination of activities of State Pollution Control Boards or Pollution Control Committees on bio-medical waste.*** *(iii) Conduct training courses for authorities dealing with management of bio-medical waste.* *(iv) Lay down standards for new technologies for treatment and disposal of bio-medical waste (Rule 7) and prescribe specifications for treatment and disposal of bio-medical wastes (Rule 7).* *(v) Lay down Criteria for establishing common bio-medical waste treatment facilities in the Country.* *(vi) Random inspection or monitoring of health care facilities and common bio-medical waste treatment facilities.* *(vii) Review and analysis of data submitted by the State Pollution Control Boards on bio-medical waste and submission of compiled information in the form of annual report along with its observations to Ministry of Environment, Forest and Climate Change.* *(viii) Inspection and monitoring of health care facilities other than*

		Medical Inspection (MI) rooms, sick bays on board ships or submarines, station medical centres and field hospitals in forward locations operated by the Director General, Armed Forces Medical Services (Rule-9). *(ix) Undertake or support research or operational research regarding bio-medical waste.*

Therefore, S. No. 4 of the Schedule III only casts duty upon the Central Pollution Control Board to Prepare Guidelines on bio-medical waste Management and submit to the Ministry of Environment, Forest and Climate Change. It is submitted that such guidelines may be considered by the Central Government and whenever required may implement the same by issuing appropriate notification or rules.

In the present case although the Central Pollution Controls Board has framed the guidelines, but the same are either not sent to the Central Government or not implemented by the Central Government. Hence, the Revised Guidelines for Common Bio-Medical Waste Treatment and Disposal Facilities can only be used for reference purposes only and are not binding.

10. That the contention of the Appellant that the Uttar Pradesh State Industrial Development Corporation Limited (hereinafter referred as "UPSIDC") blatantly violated the Operating Manual Guideline No. 2.05, while allocation of the land in question, is

of no consequence and devoid of any merits as Para 2.05 of the Operating Manual uses the word 'may'. It is submitted that the Operating Manual itself has given discretion to UPSIDC for allocation of plots even for setting up of the hazardous project. Para 2.05 of the Operating Manual is reproduced herein below for ready reference:

*2.05 The application for allotment of plots / sheds **may** be rejected by Regional Manager / Area Manager on the following grounds*

(i) if the proposed project to be set up is hazardous as categorised by Uttar Pradesh pollution Control Board

It is submitted that the said fact can be ascertained from the reply dated 01.04.2024 to the RTI Application preferred by the Appellant before the Respondent No. 7. The relevant portion of the said reply dated 01.04.2024 is reproduced hereunder for ready reference:

> "यूपीसीडा के ऑपरेटिंग मैन्युअल – 2011 व 2023 के अनुसार किसी भी भूखंड का आवंटन/ हस्तांतरण परीक्षण करने के उपरांत ही किया जाता है । ऑपरेटिंग मैन्युअल – 2023 के प्रस्तर 2.05 Rejection of Application के अंतर्गत निहित प्रावधानों में आवेदन निरस्त किया जा सकता है परंतु अनिवार्यता नहीं है।"

11. That for the efficacious adjudication of the present matter, the vital facts pertaining to the present case are elaborated hereunder as Preliminary Submissions.

PRELIMINARY SUBMISSIONS:

12. That the answering Respondent seeks to operate a Common Bio-Medical Waste Treatment Facility (hereinafter referred to as 'CBWTF' for the sake of brevity) as provided for in the Bio-Medical Waste Management Rules, 2016 and aims to render the services for disposal of bio-medical waste in accordance with the Rules made by the Government of India and in consonance with the guidelines formulated by the Central Pollution Control Board.

13. That the CBWTF unit is proposed to be developed with an approximate project cost of INR 5.39 Cr and the following equipment shall be installed for effective treatment of bio-medical waste:

S. No.	Equipment	Capacity
1.	2 Incinerator (1 standby)	300 kg/ Hr (Each)
2.	2 Autoclave	1000 Ltr/ batch (Each)
3.	Shredder	150 Kg/ Hr
4.	Chemical Disinfection tank	1500 Ltr
5.	Effluent Treatment Plant (Zero Liquid Discharge)	10 KLD

14. That for the establishment of CBWTF at Plot No. A-2/ 36, Sector – 15, Gorakhpur Industrial Development Authority, Gorakhpur, Uttar Pradesh, the answering Respondent on 04.04.2023 applied for Terms of Reference (ToR) to the State Expert Appraisal

Committee ('SEAC') vide proposal number SIA/UP/INFRA2/423582/2023.

A true copy of the proposal number SIA/UP/INFRA2/423582/ 2023 dated 04.04.2023 for fresh Terms of Reference is annexed herewith and marked as **ANNEXURE No. R2/1.**

15. That the Respondent No. 1 on 06.04.2023 issued Terms of Reference to the answering Respondent for the purpose of preparing environment impact assessment report and environment management plan for obtaining prior environment clearance.

A true copy of the Terms of Reference dated 06.04.2023 bearing File No. 7762 issued to the answering Respondent is annexed herewith and marked as **ANNEXURE No. R2/2**.

16. That the Final Environmental Impact Assessment/ Environment Management Plan Report was prepared by the Environment Management Division of M/s Glycols Limited and was submitted before the Respondent No. 1 on 08.05.2023 for consideration in grant of Environmental Clearance to the answering Respondent.

A true copy of the Final Environmental Impact Assessment/ Environment Management Plan Report is annexed herewith and marked as **ANNEXURE No. R2/3.**

17. That the case of the answering Respondent was considered by the State Expert Appraisal Committee in its 761st meeting dated 07.06.2023 wherein it recommended grant of environmental

clearance to the answering Respondent for establishment of Common Bio-Medical Waste Treatment Facility.

18. That the grant of environmental clearance to the answering Respondent was then considered by the Respondent No. 1 in it's 744th meeting dated 16.06.2023 and the Respondent No. 1 agreed with the recommendations of the State Expert Appraisal Committee for grant of environmental clearance to the answering Respondent.

19. That the Respondent No. 1 on 01.07.2023 granted Environmental Clearance to the answering Respondent bearing EC Identification No. EC23B057UP110682.

A true copy of the environmental clearance dated 01.07.2023 bearing EC Identification No. EC23B057UP110682 issued by the Respondent No. 1 is annexed herewith and marked as **ANNEXURE No. R2/4.**

20. That the Ministry of Environment, Forests & Climate Change vide Gazette Notification No. 643 and 644 dated 12.11.2024 have exempted the industries who have obtained Environmental Clearance from obtaining Consent to Establish under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act, 1974. It is submitted that in view of the afore-mentioned Gazette Notifications, the answering Respondent is no longer required to obtain a separate CTE from the Respondent No. 5 as it had

already been granted Environmental Clearance from the Respondent No. 1 on 01.07.2023.

A true copy of the Gazette Notification No. 643 dated 12.11.2024 issued by the Ministry of Environment, Forests & Climate Change is annexed herewith and marked as **ANNEXURE R2/5.**

A true copy of the Gazette Notification No. 644 dated 12.11.2024 issued by the Ministry of Environment, Forests & Climate Change is annexed herewith and marked as **ANNEXURE R2/6.**

21. That the CBWTF is proposed to be established in a notified industrial area i.e. Gorakhpur Industrial Development Authority (GIDA), Gorakhpur, Uttar Pradesh and as such there is no requirement for any buffer zone in terms of the location criteria prescribed under the Revised Guidelines for Common Bio-Medical Waste Treatment Facilities.

The relevant part of the Revised Guidelines for Common Bio-Medical Waste Treatment Facilities is reproduced hereunder for ready reference:

> *"6) Location criteria*
> *In the context of these guidelines, buffer zone represents a separation distance between the source of pollution in CBWTF and the receptor - following the principle that the degree of impact reduces with increased distance. The following parameters may be considered for ascertaining buffer distance on case-to-case basis:*
> *(i) potential for spread of infection from wastes stored in the premises.*

(ii) applicable standards for pollution control and the relative efficiency of the existing incinerators and emission control systems,
(iii) potential of fugitive dust emission from incinerators,
(iv) potential for discharge of wastewater
(v) the potential for odour production,
(vi) the potential for noise pollution,
(vii) the risk posed to human health and safety due to exposure to emissions from incinerator,
(viii) the risk of fire and
(ix) significance of the residual impacts such as bottom ash and fly ash.
As far as possible, the CBWTF shall be located near to its area of operation in order to minimize the transportation distance in waste collection, thus enhancing its operational flexibility as well as for ensuring compliance to the time limit for treatment and disposal of bio-medical waste as stipulated under the BMWM Rules (i.e., within 48 hours). Also, the location of the CBWTF should be in conformity to the CRZ Norms and other provisions notified under the Environment (Protection) Act, 1986. The location shall be decided in consultation with the State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC). The location criteria for development of a CBWTF are as follows:

(a) A CBWTF shall preferably be developed in a notified industrial area without any requirement for buffer zone (or)

(b) A CBWTF can be located at a place reasonably far away from notified residential and sensitive areas and should have a buffer distance of preferably 500 m so that it shall have minimal impact on these areas. In case of non-availability of such a land, the buffer zone distance from the notified residential area may be reduced to less than 500 m by SPCB/PCC without referring the matter to CPCB by prescribing additional control measures such as (i) adoption of best available technologies (BAT) by the proponent of CBWTF; (ii) prescribing stringent

standards for operation of the CBWTF by the SPCB/PCC; (iii) adoption of zero liquid discharge by the CBWTF and (iv) in case of any complaints from the public, then CBWTF should prove that the facility is not causing any adverse impact on environment and habitation in the vicinity. If SPCB/PCC is not in a position to resolve the issue relating to buffer zone while selecting the site for CBWTFs, in such a case, SPCBs/PCCs may refer the matter to CPCB.

(c) The CBWTF can also be developed as an integral part of the Hazardous Waste Treatment Storage and Disposal Facility (TSDF) subject to obtaining of necessary approvals from the authorities concerned including 'environmental clearance' as per Environmental Impact Assessment 2006 and further amendments notified under the Environment (Protection) Act, 1986 provided there is no CBWTF exist within 150 KM distance from the existing CBWTF."

22. That the CBWTF is being developed on a plot ad-measuring 0.69 acres which is again in accordance with the Revised Guidelines for Common Bio-Medical Waste Treatment Facilities which provides that preferably a CBWTF shall be set up on a plot size of not less than one acre but in case of upcoming or new CBWTF in municipal limits with population more than 25 lakhs or in rural areas, the land requirement may be relaxed but not less than 0.5 acres.

The relevant part of the Revised Guidelines for Common Bio-Medical Waste Treatment Facilities is reproduced hereunder for ready reference:

"7) Land requirement
Sufficient land shall be allocated to the CBWTF to provide all requisite systems which include dedicated

space for storage of waste (both treated and untreated), waste treatment equipment, vehicle washing bay, vehicle parking space, ETP, incineration ash storage provision, administrative room, space for DG Set etc.

(a) Preferably, a CBWTF shall be set up on a plot size of not less than one acre in all the areas. However, a CBWTF can be developed in adjacent plots but cannot be set up in two or more different plots located in different areas. Separate plots can be permitted only for vehicle parking if located in the close vicinity of the proposed CBWTFs or the existing CBWTFs.

(b) In case of upcoming or new CBWTFs (both in municipal limits with population more than 25 lakhs or in rural areas), the land area requirement may be relaxed (but in any case not less than 0.5 acre) by the SPCB/PCC, with additional control measures such as zero liquid discharge, increase in stack height, stringent emission norms, odour control measures or any other measures felt necessary by the prescribed authority on case-to-case basis, only in consultation with CPCB."

23. That the CBWTF is proposed to be developed at Sector 15, GIDA, Gorakhpur which is located in the rural area of Sahjanawa and as per the land requirement prescribed under the Revised Guidelines for Common Bio-Medical Waste Treatment Facilities, the preferable land requirement of 1 acre can be relaxed upto 0.5 acres for CBWTFs located in rural areas.

A true copy of the list of nagar panchayats located In Gorakhpur district available on the website of district Gorakhpur is annexed herewith and marked as **ANNEXURE No. R2/7.**

The google maps image depicting the extent of GIDA Phase 1, Gorakhpur is annexed herewith and marked as **ANNEXURE No. R2/8.**

The google maps image depicting the extent of Sahjanawa village is annexed herewith and marked as **ANNEXURE No. R2/9.**

24. That currently there is no CBWTF operational in the Gorakhpur district to cater to a total hospital bed of 16781 for which reason establishment of a CBWTF is indispensable for the district of Gorakhpur to ensure effective treatment of bio-medical wastes. It is pertinent to mention here that even though CBWTF is classified as a RED category industry, its operations cannot be equated with other RED category industries as it is not a pollution causing industry but a pollution treatment facility. Furthermore, the CPCB in its modified directions dated 07.03.2016 bearing no. B-29012/ESS(CPA)/2015-2016 have remarked CBWTF as special category projects as they are parts of pollution control facilities. It is further pertinent to mention here that the Hon'ble Gujarat High Court in Uttarsanda Gram Panchayat & Ors. Vs. State of Gujarat & Ors., Special Civil Application No. 12235 of 2017 observed as under:

> *"49. ... The right to life and live in a clean environment, although may be a basic human life or a fundamental right, yet the same is not absolute. As discussed at length above, the bio-medical waste has got to be processed in accordance with the rules and regulations laid down by the Central Pollution Control Board. If, according to the applicants, operating a*

Bio-Medical waste Process Unit is an evil, then ignoring the bio-medical waste and allowing it to be disposed of without being processed, is a greater evil and would lead to more health hazard. The importance of the Bio-Medical waste Process Unit should not be undermined, and in my view, the applicants are unnecessarily hyper in this regard. The private respondents have been put to the strictest of the terms for the purpose of functioning and operation of the unit and they can still be put to certain more terms to ensure that the same does not lead to any pollution…

…….It is a settled law that the balance between environmental protection and developmental activities could only be maintained by strictly following the principle of "sustainable development. This is a development strategy that caters to the needs of the present without negotiating the ability of upcoming generations to satisfy their needs. The strict observance of sustainable development will put us on a path that ensures development while protecting the environment, a path that works for all peoples and for all generations. It is a guarantee to the present and a bequeath to the future. All environment related developmental activities should benefit more people while maintaining the environmental balance. This could be ensured only by strict adherence to sustainable development without which life of the coming generations will be in jeopardy. The adherence to sustainable development principle is a sine qua non for the maintenance of the symbiotic balance between the rights to environment and development.

Right to environment is a fundamental right. On the other hand, right to development is also one. Here the right to sustainable development cannot be singled out. Therefore, the concept of sustainable development is to be treated as an integral part of life under Article 21.

Weighty concepts like intergenerational equity, public trust doctrine and precautionary principle, which have been declared as inseparable ingredients of our environmental jurisprudence, could only be nurtured by ensuring sustainable development. To ensure sustainable development is one of the goals of the Environment (Protection) Act, 1986 and this is quite necessary to guarantee the right to life under Article 21."

A true copy of the Gap Analysis Report dated 26.04.2023 bearing reference no. 74/NOC/516/2023 issued by the Respondent No. 5 to the answering Respondent is annexed herewith and marked as **ANNEXURE No. R2/10.**

25. That the averments made by the Applicant in the OA are vehemently denied unless otherwise specifically admitted hereinabove.

26. That the Applicant is not entitled for any relief from this Hon'ble Tribunal vis-à-vis the CBWTF being developed by the answering Respondent as also the Environmental Clearance has been granted to it after fulfillment of all the necessary criteria and after due and proper compliance of the applicable rules and regulations.

It is prayed that the OA preferred by the Applicant be dismissed with heavy costs as the same is an abuse of the process of law and is based on vexatious and misleading facts and averments.

RESPONDENT NO. 2
M/S A.V. BIOMEDICAL WASTE SERVICES
THROUGH

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Date: 22.02.2025
Place: New Delhi

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 749 OF 2024

IN THE MATTER OF:
Ajay Kumar Singh ...Applicant

Versus

State Level Environmental Impact
Assessment Authority, Uttar Pradesh & Ors. ...Respondents

AFFIDAVIT

I, Vinay Kumar Rai S/o Ravindra Nath Rai aged about 56 years Partner of M/s AV Biomedical Waste Services having office at Plot No. A-2/ 36, Sector-15, Gorakhpur Industrial Development Authority, Gorakhpur, Uttar Pradesh do hereby solemnly affirm and state as under:

1. That I am the Partner of Respondent No. 2 in the present matter, well conversant with the facts and circumstances of the entire case and therefore, competent to swear the present Affidavit.

2. That the accompanying Reply to the OA has been drafted by my counsel under my instructions the contents of the same are true and correct as per my knowledge based on record and legal knowledge obtained.

For – AV Biomedical Waste Services

Partner

DEPONENT

SWORN & VERIFIED
BEFORE ME

VERIFICATION

Verified at Lucknow on this 22 day of February, 2025 that the contents of above affidavit are true and correct to my knowledge based on records and information received and believed to be true, no part of it is false and nothing material has been concealed therefrom.

For – AV Biomedical Waste Services

Partner

DEPONENT

22/2/2025
VIJAY KUMAR DWIVEDI
Advocate & Notary
Regn. 22366 Govt. of India

D/5303/2019
Identify the deponent/Executant/Surety who has signed/put T.I. before me.

ANNEXURE R2/1

PARIVESH
Ministry of Environment, Forest and Climate Change
Government of India

Project Name:	Common Bio Medical Waste Treatment Facility (CBWTF) M/s AV Bio Medical Waste Services Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur	**Single Window Number:**	SW/123824/2023
		Proposal Number:	SIA/UP/INFRA2/423582/2023
State:	UTTAR PRADESH	**Current Status:**	SUBMITTED
Submission Date:	04/04/2023	**Project Category:**	B1
Sector:	INFRA2	**Proposal For:**	Fresh ToR
Project Proponent Name:	Vinay Kumar Rai		

Common Application Form

Project Details

1. Details of Project

1.1. Name of the Project	Common Bio Medical Waste Treatment Facility (CBWTF) M/s AV Bio Medical Waste Services Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur
1.2. Project Proposal For	New
1.3. Project ID (Single Window Number)	SW/123824/2023
1.4. Description of Project	Common Bio Medical Waste Treatment Facility (CBWTF) M/s AV Bio Medical Waste Services

2. Details of the Company/Organization/User Agency making application

2.1. Legal Status of the Company/Organization/User Agency	Others
2.2. Name of the Company/ Organization/User agency	M/S AV BIOMEDICAL WASTE SERVICES

Registered address

2.3. Address	1 F 964 Vardan Khand, Gomti Nagar Extension
2.4. Village /Town / City	Lucknow
2.5. State	UTTAR PRADESH
2.6. District	LUCKNOW
2.7. Pin Code	226010
2.8. E-mail address	avbmwservices@gmail.com
2.9. Mobile number	7007265289

3. Details of the person making application

3.1. Name	Vinay Kumar Rai
3.2. Designation	Partner

Correspondence address

3.3. Address	1 F 964 Vardan Khand, Gomti Nagar Extension
3.4. Village /Town / City	Lucknow
3.5. State	UTTAR PRADESH
3.6. District	LUCKNOW
3.7. Pin Code	226010
3.8. E-mail address	avbmwservices@gmail.com
3.9. Mobile number	7007265289

Project Location

4. Location of the Project or Activity

4.1. Upload KML	GIDA CBWTF.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.
G44L2	UTTAR PRADESH	Gorakhpur	Sahjanwa	JURIAN	

Remarks
N/A

6. Land Requirement (in Ha) of the project or activity

6.1. Non-Forest Land	
6.2. Non-Forest Land [A]	0.28
6.3. Total Land [A+B]	0.28

6. Project/Activity Cost

6.1. Total Cost of the Project at current price level (in Lakhs)	387.4 Amount in Words : **Three Hundred Eighty Seven Point Four Lakh(s) Only**

7. Employment likely to be generated

During construction phase

Permanent employment

7.1. No. of permanent employment (No.s) [A]	5
7.2. Period of employment (No. of days) [B]	90
7.3. No. of man-days [X]=[A]*[B]	450

Temporary employment

7.4. Temporary / Contractual employment (No. of Man days) [Y]	90
7.5. Total [X] +[Y]	540

7.6. During operational phase

Permanent employment

7.6.1. No. of permanent employment (No.s) [A]	25
7.6.2. Period of employment (No. of days) [B]	365
7.6.3. No. of man-days [X]=[A]*[B]	9125

Temporary employment

7.6.4. Temporary / Contractual employment (No. of Man days) [Y]	365
7.6.5. Total [X] +[Y]	9490

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

Basic Information

1. Category of the Project/Activity

1.1. Whether multiple items (Components) as per the notification involved in the proposal?	No	
1.1.1. Item No. as per schedule to EIA Notification, 2006		NA
Capacity	1800	TPA
2. Whether project/activity attracts the General Condition specified in the Schedule of EIA Notification?	No	
3. Category of the Project as per EIA Notification, 2006	B1	
3.1. Whether proposal is required to be appraised at Central level?	No	
4. Whether Proposal has interlinked / interdependent projects or activities?	No	
4.1. Reason thereof	No	
5. Whether any Forest Land involved in the project or part thereof	No	
6. Whether NBWL recommendation is required?	No	

Project Details

7. Details of CTE

7.1. Whether consent under Air & Water Act has been obtained from SPCB / UTPCC?	No
7.1.1. Reason thereof	Applied in process
8. Whether the project/activity located in Notified Industrial Area?	Yes
8.1. Type of Industrial Area	Industrial Area
8.2. Name of the Notified Industrial Area	Gorakhpur Industrial Development Authority (GIDA)
8.3. Year of notification of the Industrial area	Before 14th September 2006
8.4. Copy of Notification of Industrial area	GIDA Land paper.pdf

8.5. Whether Prior Environmental Clearance available for Notified Industrial Area?	No
8.5.1. Reason thereof	Notified before 2006
9. Whether the project/activity located in CRZ or ICRZ area?	No
10. Whether the project proposed to be located in Territorial waters (Off-shore)	No
11. Whether project/activity attracts the Specific Condition specified in the Schedule of EIA Notification?	No
12. Whether project/activity located in the Eco-sensitive Zone notified/proposed to be notified under Environment (Protection) Act, 1986	No

Product Details

13. Details of Products & By-products

Name of Product	Product / By Product	Quantity / Capacity	Unit	Mode of Transport / Transmission	Remarks
Bio medical waste from Hospitals and other areas	By-Product	1800	Tons per Annum (TPA)	Road	NA

14. Whether any other Environmental Sensitive area exists within 10 Km from the project/activity boundary?	Yes
14.1. Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No
14.2. Areas which are important or sensitive for ecological reasons- Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Yes

Name	Shortest distance from the project boundary in Km	Remarks
Rapti river	2.01	NA

14.3. Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	No
14.4. Inland, coastal, marine or underground waters	No
14.5. Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No
14.6. Defence installations	No
14.7. Densely populated or built-up area	No
14.8. Areas occupied by sensitive man-made land uses	No
14.9. Areas containing important, high quality or scarce resources	No
14.10. Areas susceptible to natural hazards which could cause the project to present environmental problems similar effects	No
15. Status of collection of baseline data	Already collected

Period of baseline data collection

15.1. From	01/01/2021
15.2. To	31/03/2021
16. Seasons of collection	Winter

17. Number of Monitoring locations for

17.1. Meteorology (Nos.)	1
17.2. Ambient Air Quality (Nos.)	8
17.3. Surface Water Quality (Nos.)	8
17.4. Ground Water Quality (Nos.)	8
17.5. Ground water level (Nos.)	1
17.6. Noise Level (Nos.)	8
17.7. Soil Quality (Nos.)	8
17.8. Summary on the baseline situation	Baseline data maps.pdf
17.9. Map showing the monitoring locations	Baseline data summary.pdf

Consultant Details

19. Whether QCI/NABET Accredited EIA Consultant engaged?	Yes
19.1. Accreditation No. / Organization Id	ORG000721
19.2. Name of the EIA Consultant Organization	Environmental Management Division of India Glycols Limited
19.3. Address	A- 1 Industrial Area, Bazpur Road, Kashipur
19.4. Mobile No.	9855405264
19.5. E-mail Id	iglemdk@gmail.com
19.6. Category of Accreditation (Eligible for Category A / Eligible for Category B)	B
19.7. Sector(s) of Accreditation	4,21,22,1,32A,38
19.8. Validity of Accreditation	17/06/2024

Project Details

1. Introduction of Project or Activity

1.1. Need for the project or activity and its importance to the country/region	More than 15000 beds biomedical waste is in Gorakhpur district and no CBWTF facility is avalible
1.2. Demand - Supply Gap and Domestic and export markets, if any	Demand are very high for CBWTF for in Gorakhpur area

2. Social Infrastructure

2.1. Readily available	The proposed location is in industrial area all the facilites are available
2.2. Proposed to be developed	Proposed CBWTF and alied ficilites within project site

3. Connectivity to the project or activity

3.1. Nearest railway station and its distance (in Km)	Sahjanwa	2.19
3.2. Nearest Airport and its distance (in Km)	Gorakhpur airport	21.52
3.3. Nearest Town/City/District head quarter and its distance (in Km)	Gorakhpur	14
4. Soil classification	Alluvial soil	
5. Distance from the HFL of the river in m, if any	2000	

6. Benefits of the project

6.1. Social benefits of project or activity	opportunity for employment and better management of the BMW
6.2. Financial benefits of project or activity	Financial benefit to the state

7. Project Schedule

7.1. Likely date of start of construction activity	02/08/2023
7.2. Likely date of completion of construction activity	16/12/2023

Construction Details

2. Use of resources for construction or operation of the project

2.1. Whether requirement of water involved in the project?	Yes

Details of Water requirement during Construction stage

Source	Quantity in KLD Present	Quantity in KLD with Expansion	Method of water withdrawal	Distance from Source in mtr	Mode of Transport	Details of Permission
Treated effluent	10	0	TANKER	05	Tankers	MOU with existing plant STP /ETP water

Details of Water requirement during Operational stage

Source	Quantity in KLD Present	Quantity in KLD with Expansion	Method of water withdrawal	Distance from Source in mtr	Mode of Transport	Details of Permission
Ground Water	10	0	Others	0	Pipeline	NA

2.2. Other information, if any	Not applicable
2.3. Whether requirement of Minerals and/or fuels involved in the project?	Yes

Details thereof

Name of Minerals / Fuel	Quantity per annum in MT	Source	Mode of transport	Distance from source in Km	Details of linkage / supply agreement
HSD	65	Open market	Road	20	NA

2.4. Other information, if any	NA
2.5. Construction material	Yes

Construction material	Quantity in MT	Source	Mode of transport	Distance from source in Km
Cement	07	OPEN MARKET	Road	20

2.6. Timber	No
2.7. Electric Power:	Yes
2.7.1. Total Electricity requirement (MW):	0.63
2.7.2. Main Source:	UPCL
2.7.3. Renewable energy proposed to install (KW):	1
2.7.4. Percentage contribution of renewable energy:	2
2.7.5. Standby arrangements (details of DG Sets):	Yes 82.5 KVA (01 No. DG set)
2.7.6. Stack height in m (DG set):	10
2.7.7. Energy conservation measures:	Solar
2.8. Whether any other natural resources / other raw materials required?:	No
2.9. Whether any use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies) required?	No
2.10. Whether any resource efficiency / optimization / recycling and reuse envisaged in the project?	No

Physical Changes

3. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality:

3.1. Whether any permanent or temporary change in land use, land cover or topography due to project activity?	No
3.2. Whether any clearance of existing vegetation due to project activity?	No
3.3. Whether any loss of native species or genetic diversity?	No
3.4. Whether any demolition works involved in project activity?	No
3.5. Whether any linear structures proposed for diversion or demolition due to project activity? (e.g. roads, transmission lines, rail line, pipeline, conveyor, etc.)	No
3.6. Whether any closure or diversion of existing transport routes or infrastructure due to project leading to changes in traffic movements?	No
3.7. Whether any closure or diversion of water bodies present in project area or realignment of water courses passing through project area?	No
3.8. Whether any dismantling or decommissioning or restoration works or reclamation works (Long-term/ short-term)?	No
3.9. Whether any construction works for temporary use for project activity?	Yes

Details	No.s	Built up area	Remarks
Industrial Sheds and office building	1	2500	NA

	Total No.s	Total Built up area in Sq.m
Total	2	5000

3.10. Whether any cut and fill excavations proposed for the project activity?	No
3.11. Whether any underground works including tunnelling?	No
3.12. Whether any dredging involved in project?	No
3.13. Whether any offshore structures involved in project?	No
3.14. Whether any new road, rail, sea, airports, helipad, etc. during construction or operation?	No
3.15. Whether any construction of new linear structures? (e.g. transmission lines, pipelines, etc.)	No
3.16. Whether any Facilities for storage of goods or raw materials?	No
3.17. Whether any Facilities for long term/ permanent housing of operational workers/ staff?	No
3.18. Whether any Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No
3.19. Whether any Stream crossings, temporary and permanent?	No
3.20. Whether any Influx of people to an area in either temporarily or permanently?	Yes
3.20.1. No. of people likely to influx to an area temporarily	50
3.20.2. No. of people likely to influx to an area Permanently	25
3.20.3. Other information, if any	NA
3.21. Whether any other information would like to submit?	No

Pollution Details

4. Release of pollutants to Air and Mitigation measures

4.1. Whether any probable air pollutants generated?	Yes

Air Pollution Source	Probable Pollutants	Mitigation Measures
Others	PM, SO2 NOx dioxins and furans	Venturi and wet Scrubber, Cyclone separator and Mist eliminator

4.2. Other information, if any	NA

4.3. Generation of Noise & Vibration and mitigation measures

4.3.1. Whether any probable generation of Noise and vibration from the proposed project?	No
4.3.2. Whether any probable generation of Light and Heat?	No

4.4. Discharge of pollutants to water and mitigation measures

4.4.1. Whether any probable water pollutants generated?	Yes
4.4.1.1. Organic Pollutants	TSS COD BOD O&G
4.4.1.2. Inorganic pollutants	TSS COD BOD O&G
4.4.1.3. Micro-organism	pH
4.4.1.4. Sediments	NA
4.4.1.5. Heavy metals	NA
4.4.1.6. Others (Specify)	NA
4.5. Probable sources of water pollutant	Yes
4.5.1. Details of sources of water pollution	washing containers, vehicles, floors
4.5.2. Other information, if any	NA

Details of reuse / recycle of wastewater

Details	Qty / Capacity	
4.6. Quantity of waste water generation per day (KLD)	4.75	
4.7. Quantity of treated water proposed to use per day (KLD)	3.90	
4.8. Quantity of treated water proposed to discharge outside the premises (KLD)	0	
4.9. Purpose for which treated water is proposed to use	Green belt, Process (Scrubbing) Steam Generation (Autoclaving) Miscellaneous i.e., Floor washing, Vehicle washing etc.	
4.10. Whether it is proposed to opt/avail common off-site Sewage Treatment Plant (CSTP)/Effluent Treatment Plant (CETP) facility?	No	
4.11. Whether it is proposed to setup on-site Sewage Treatment Plant (STP)/Effluent Treatment Plant (ETP) facility?	Yes	
4.11.1. Whether 100% of the waste water generated will be treated?	Yes	
4.12. Type of treatment plant	ETP	
4.13. ETP/STP Capacity	ETP	
	10	KLD
	STP	
	N/A	N/A
4.14. ETP/STP Technology	ETP	STP
	ETP may have treatment unit operations comprising collection tank, O & G trap, chemical	N/A
4.15. Whether the adequacy of the Sewage Treatment Plant (STP) or Effluent Treatment Plant certified by an independent expert?	No	
4.15.1. Reasons thereof	At the time of CTO	
4.16. Whether any other mitigation measures proposed?	No	
4.17. Whether Dual Plumbing System proposed to be implemented?	No	
4.17.1. Reasons thereof	ETP is proposed	
4.18. Whether any discharge of treated effluent involved?	No	

Water Requirements

7. Ground water intersection and water conservation measures:

7.1. Whether ground water table intersection involved in the project activities?	No
7.2. Area category from Groundwater availability perspective?	Safe
7.3. Whether Rainwater harvesting proposed	No
7.4. Whether any other water conservation measures proposed?	No
7.5. Whether the ZLD is proposed?	Yes
7.5.1. Details of ZLD	Waste water will be reused after treatment

8. Greenbelt

8.1. Area proposed for green belt (in Ha)	0.09
8.2. Width of green belt (in m) along the boundaryof the project or activity	3
8.3. Percentage of the total area covered under green belt	33
8.4. Details of the species proposed for plantation	Local, Native and fast growing
8.5. No. of tree saplings to be planted	30
8.6. Funds allocated for plantation in Lakhs.	2.5

Waste Generation

9. Production of wastes during construction or operation or decommissioning

9.1. Whether any generation of Solid waste (domestic wastes)?	Yes

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
Domestic waste	Office staff and others	1440	Domestic wastes are segregated at source, collected in bins and composted.	Road

9.2. Whether any generation of plastic waste?	Yes

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
Plastic waste	BMW & Domestic	100	Authorized vender	Road

9.3. Whether any generation of e-waste?	Yes

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
Electronic waste	Office staff and others	50	Authorized vender	Road

9.4. Whether any generation of batteries waste?	No

9.5. Whether any generation of Bio-medical waste?	Yes

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
This is a proposed CBWTF site	Hospitals in covrage area	1800	CBWTF	All as per 2016

9.6. Whether any generation of hazardous wastes (as per Hazardous Waste Management Rules)?	Yes

Name of the waste	Source	Qty (TPA)	Mode of disposal	Mode of Transport
Discarded Containers /Barrels	Discarded Containers /Barrels	100	Handed over to authorized recyclers/re-processors	Road
Sludge from wet scrubbers	Sludge from wet scrubbers	1	Send to TSDF / Co processing industries.	Road
Ash from incinerator and flue gas cleaning residue	Ash from incinerator and flue gas cleaning residue	5	Send to TSDF / Co processing industries	Road
Spent Oil from DG sets	from DG sets	5	Handed over to authorized recyclers/re-processors	Road

9.7. Whether any generation of construction or demolition wastes?	No
9.8. Whether any generation of other wastes?	No
9.9. Whether any generation of surplus products?	No
9.10. Whether measures for waste minimization proposed?	No

Risk Assessment

10. Whether any risks associated with project activities which could affect human health or the environment, -

10.1. From explosions, spillages, fires etc. from storage, handling, use or production of hazardous substances?	Yes
10.1.1. Details thereof	Best management practices will be adopted
10.2. From any other causes?	No
10.3. Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No
10.4. Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No
10.5. Could project adversely affect the wellbeing of people in project area e.g. by changing living conditions?	No
10.6. Vulnerable groups of people who could be adversely affected by the project e.g. hospital patients, children, the elderly etc.	No
10.7. Risk Management Plan	No
10.8. Whether any likely impacts of the proposed activity on the existing facilities adjacent to the proposed site due to generation of dust, smoke, odorous fumes or other hazardous gases?	No

11. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality	
11.1. Whether lead to development of supportive facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: Supportive infrastructure (roads, power supply, waste or waste water treatment, etc.); housing development; industries in supply chain and downstream; any other?	No
11.2. Whether lead to after-use of the site, which could have an impact on the environment? (e.g. mine void, dump sites, etc.)	No
11.3. Whether set a precedent for later developments?	No
11.4. Have cumulative effects due to proximity to other existing or planned projects with similar effects?	No
11.5. Whether lead to growth of alien species, if any?	No
11.6. Is there any threat of the project to the biodiversity (including displacement of fauna-both terrestrial and aquatic and avi-fauna or creation of barriers for their movement)?	No
11.7. Will the proposed project in any way result in the obstruction of a view, scenic amenity or landscapes?	No
11.8. Is there any impact on anthropological or archaeological sites or any important site feature in the vicinity of the proposed site have been considered?	No

proposed site have been considered?

11.9. Will the proposed project result in any changes to the demographic structure of local population?	No
11.10. Will the project cause adverse effect on local communities, disturbance to sacred sites or other cultural values?	No

12. CBWTF Proposals

Project configuration

12.1. Project components	Incinerator (02 No.) standby Autoclave Shredder Chemical Disinfection Tank: ETP
12.2. Any other details	NA
12.3. Nearest operational CBWTF details	14.15 KM MPCC Khalilabad -UPSIDC Industrial Area II Khalilabad
12.4. Details of wastes to be handled	19000
12.5. Details of member units	19000
12.6. Mode of transportation of wastes to CBWTF	Road
12.7. Land area distribution for proposed activities in Ha	0.28

Enclosures

13. Layout Plan showing the components of the project and green belt proposed; general location and specific location of the project along with coordinates	Proposed Layout Plan- CBWTF..pdf
14. Schematic representation of the feasibility drawings which give information for EIA purpose	Schematic representation of the feasibility drawings which give information for EIA purpose.pdf

15. Additional Information

Sr. No.	Document Name	Remark	Document
1	Projected gap anlysis	Gap analysis	Gap Analysis Report for gida vns on 75 km.pdf
2	Land documents	Land paper	GIDA Land paper (1).pdf
3	Proposed TOR	Proposed TOR	Proposed TOR.pdf
4	Cover letter for submission	TOR application	Cover letterGorakhpur CBWTF.pdf
5	Pre fesibility report	PFR	PFR CBWTF RSBMW SERVICESR1.pdf

Undertaking

16. ☑ 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

16.1. Name	Vinay Kumar Rai
16.2. Designation	Partner
16.3. Company	M/S AV BIOMEDICAL WASTE SERVICES
16.4. Address	1 F 964 Vardan Khand, Gomti Nagar Extension
16.5. Date	04/04/2023

ANNEXURE R2/2

File No.7762

Goverment of India

State Level Environment Impact Assessment Authority

Uttar Pradesh

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To,

M/s M/S AV BIOMEDICAL WASTE SERVICES
1 F 964 Vardan Khand, Gomti Nagar Extension,
Lucknow-226010
Uttar Pradesh

Tel.No.-; Email:avbmwservices@gmail.com

Sub. Terms of Reference to the Common Bio Medical Waste Treatment Facility (CBWTF) M/s AV Bio Medical Waste Services Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, 1 F 964 Vardan Khand, Gomti Nagar Extension

Dear Sir/Madam,

This has reference to the proposal submitted in the Ministry of Environment, Forest and Climate Change to prescribe the Terms of Reference (TOR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the proponent had submitted online information in the prescribed format (Form-1) along with a Pre-feasibility Report. The details of the proposal are given below:

1. Proposal No.:	SIA/UP/INFRA2/423582/2023
2. Name of the Proposal:	Common Bio Medical Waste Treatment Facility (CBWTF) M/s AV Bio Medical Waste Services Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur
3. Category of the Proposal:	INFRA-2
4. Project/Activity applied for:	7(d)(a)Common Bio-Medical Waste Treatment Facility
5. Date of submission for TOR:	04 Apr 2023

Date : 06-04-2023

Member Secretary
(Member-Secretary, SEIAA)

Office : **Uttar Pradesh Pollution Control Board**
Phone No : Mobile : **7007265289**
Email id : **msseiaaup@gmail.com**

Note : This is auto tor granted letter.

In this regard, under the provisions of the EIA Notification 2006 as amended, the Standard TOR for the purpose of preparing environment impact assessment report and environment management plan for obtaining prior environment clearance is prescribed with public consultation as follows:

7(da): STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR BIO-MEDICAL WASTE TREATMENT FACILITIES AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

I. Project Details

i. Importance and benefits of the project.

ii. Reasons for selecting the site with details of alternate sites examined/rejected/selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental damages, resources sustainability associated with selected site as compared to rejected sites. The analysis should include parameters considered along with weightage criteria for short-listing selected site.

iii. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

iv. Details of various waste management units with capacities for the proposed project. Details of utilities indicating size and capacity to be provided.

v. List of waste to be handled and their characteristics. Details of temporary storage facility for storage of Bio-medical waste at project site.

vi. Other chemicals and materials required with quantities and storage capacities.

vii. Detailed design of pre-treatment and waste stabilization facility of *Bio-medical waste.*

viii. Project proponents would also submit a write up on how their project proposal conform to the stipulations made in the " Bio-Medical Waste Management Rules, 2016 *", notified by the MoEF&CC on 28th March, 2016.*

ix. Process description along with major equipment and machineries, process flow sheet (quantitative) from *Bio-Medical waste* material to disposal to be provided.

x. Details of man-power requirement (regular and contract).

xi. A detailed layout of the project site indicating all the project components.

II. Road and Traffic

xii. Submit the details of the road/rail connectivity along with the likely impacts and mitigative measures

xiii. Examine the details of transportation of Bio-Medical wastes, and its safety in handling.

III. Land Environment

xiv. Detailed soil analysis of the site including its permeability, water holding capacity be included.

xv. Submit the present land use and permission required for any conversion such as forest, agriculture etc.

xvi. Specify the land area and space allotted for each activity proposed within the facility. The area requirements for each activity shall be calculated as per the CPCB guidelines for the specified activity.

xvii. Status of the land purchases in terms of land acquisition Act. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.

xviii. The EIA would address to the conformity of site to the stipulations as made in the Bio-Medical Waste Management Rules, 2016 and Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and will have a complete chapter indicating conformity to the said rules. NOC shall be obtained from State Pollution Control Board/Committee (SPCB/SPCC) regarding site suitability for establishment of Bio-Medical Waste Treatment Facilities.

xix. Post project reclamation management program with financial allocation.

IV. Environmental Monitoring and Management

xx. Examine and submit the details of on line pollutant monitoring.

xxi. Project proponent must ensure Good Combustion Practice (GCP) to reduce the possibilities of formation of 'Total dioxins and furans'. In addition, GCP must be coupled with appropriate End-of-the-pipe treatment at low temperature to reduce the emission of 'Total dioxins and furans' below the standards. Further, the project proponent must provide detailed Standard operating procedure (SOPs) for sampling and monitoring of 'Total dioxins and furans'.

xxii. Environmental Management Plan should be accompanied with Environmental Monitoring Plan and environmental cost and benefit assessment. Regular monitoring shall be carried out for odour control

xxiii. Water quality around the landfill site shall be monitored regularly to examine the impact on the ground water.

xxiv. A detailed draft EIA/EMP report should be prepared in accordance with the above additional TOR and should be submitted to the Ministry in accordance with the Notification.

xxv. Air Quality Index shall be calculated for base level air quality.

xxvi. Baseline data on Ground water quality is required.

xxvii. Possible carbon footprint contribution from each activities and mitigation measures proposed shall be included as part of Environment Management Plan.

V. Waste Management

xxviii. Examine and submit details of the proposed odour control measures.

xxix. The storage and handling of Bio-Medical wastes shall be as per the Bio-Medical Waste Management Rules, 2016.

xxx. Details of storage and disposal of pre-processing and post-processing rejects/inerts and products. List of proposed end receivers for the rejects/inerts/products should be provided. MoUs to be submitted in this regard.

xxxi. Details of hazardous/solid waste generation and their management.

VI. Water Environment

xxxii. Detailed hydro-geological studies and possible impact if any accidental contamination occurs shall be included.

xxxiii. Examine and submit details of monitoring of water quality around the landfill site.

xxxiv. Examine and submit details of impact on water body and mitigative measures during rainy season.

xxxv. Details of Drainage of the project up to 5 km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on

peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided.

VII. Water Management

xxxvi. Details of effluent treatment and recycling process.

xxxvii. A certificate from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water already committed, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for ground water and surface water sources, ensuring that there is no impact on other users.

VIII. Energy Management

xxxviii. A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project.

IX. Disaster Management Plan

xxxix. Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster.

xl. Hazard identification and proposed mitigation measures.

X. Green Belt

xli. A detailed Plan for green belt development.

XI. Socioeconomic Environment

xlii. Public hearing to be conducted for the project in accordance with provisions of Environmental Impact Assessment Notification, 2006 and the issues raised by the public should be addressed in the Environmental Management Plan. The Public Hearing should be conducted based on the ToR letter issued by the Ministry and not on the basis of Minutes of the Meeting available on the web-site.

xliii. The project proponents shall satisfactorily address all the complaints/suggestions that have been received against the project till the date of submission of proposals for Appraisal.

XII. Court Cases

xliv. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

XIII. Miscellaneous

xlv. Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website http://moef.nic.in/Manual/Incinerator

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ANNEXURE R2/3

FINAL EIA/EMP REPORT
OF
PROPOSED COMMON BIOMEDICAL WASTE TREATMENT FACILITY (CBWTF)

At

Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh

OF

M/s AV Bio Medical Waste Services

1 F 964, Vardan Khand, Gomti Nagar Extension Lucknow, Uttar Pradesh

TOR Details: SEIAA Uttar Pradesh TOR File No.7762, Proposal No. SIA/UP/INFRA2/423582/2023

Baseline data – 1st January, 2021 to 31st March, 2021

&

1st April, 2023 to 30th April 2023

Prepared by
Environment Management Division of M/s India Glycols Limited, Kashipur
(NABET, QCI Approved -)
A- 1 Industrial Area, Bazpur Road, Kashipur, Uttarakhand

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1 INTRODUCTION

1.1 Purpose of the Project

Improper management of waste generated in health care facilities causes a direct health impact on the community, the health care workers and on the environment. Every day, a significant amount of potentially infectious bio-medical waste is generated around the world. Indiscriminate disposal of bio-medical waste and exposure to such waste posesa serious threat to environment and to human health, bio-medical waste requires specific treatment and management prior to its final disposal.

Ministry of Environment, Forest & Climate Change (MoEFCC), Govt. of India has introduced the new notification as Biomedical Waste Management Rules, 2016 based on draft Biomedical Waste (Management & handling) 2011, under the Environment (Protection) act 1986 which replaced the earlier Biomedical waste (management & handling) rules, 1998. In accordance with the rules, every occupier of a healthcare establishment (HCE) shall either set up requisite biomedical waste treatment facilities on site or ensure requisite treatment of the biomedical waste at an approved common treatment facility. It is to ensure that no untreated biomedical waste shall be kept stored beyond a period of 48 hours.

According to Bio-Medical Waste Management Rules 2016, Bio-Medical Waste (BMW) means "any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps".

The treated waste may finally be sent for disposal after incineration or for recycling purposes.

Installation of individual treatment facilities by small healthcare units requires comparatively high capital investment. In addition, it requires separate manpower and infrastructure development for proper operation and maintenance of treatment systems. The concept of CBWTF not only addresses such problems but also prevents proliferation of treatment equipment in a city. In turn it reduces the monitoring pressure on regulatory agencies. By running the treatment equipment at CBWTF to its full capacity, the cost of treatment per kilogram gets significantly reduced especially with the introduction of new Biomedical Waste Management Rules in 2016 which prescribes the standards for dioxin & furans from

incinerator. Its considerable advantages have made CBWTF popular and proven concept in many developed countries. CBWTF as an option has been legally introduced in India. The Bio-medical Waste Management Rules makes it mandatory for the bio-medical waste generator within 75 km radius to treat the biomedical waste at the CBWTF.

The Government of India has made it mandatory for all developmental projects to prepare a detailed EIA study so that the impacts of the proposed developmental activity can be predicted and a suitable management plan can be implemented before commissioning the project.

Environmental Impact Assessment (EIA) serves as a useful tool in prediction of potential impacts on the surrounding environment due to developmental project. The purpose of this EIA report is to reduce the burden of environmental impacts for sustainable development. It helps the project proponent, impact assessment authorities, regulatory agencies and other stakeholders in understanding the project, environmental impacts and mitigation measures, and establishing emission requirements and other measures early in the project cycle. This report describes the project location, baseline environmental scenario, potential impacts of the project on the environment and proposed measures for effective environment management during the project cycle (Environmental Management Plan during construction and operation stage of the project).

M/s AV Bio Medical Waste Services is a private company proposes to setup a Common Bio-medical Treatment Facility (CBWTF) at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh. The proposed project of setting up the Common Bio-medical Waste Treatment Facility (CBWTF) includes Incinerator with Air Pollution Control Device (APCD), Autoclave, Shredder and Effluent Treatment Plant. It is proposed to utilize 0.28 ha of land for the proposed project.

As per EIA Notification 2006, the project was earlier considered by MoEF&CC under Category “B” Projects of activity 7(d), namely Common hazardous waste Treatment and Disposal Facility. Subsequently in the amendment vide Gazette Notification dated 17thApril 2015, separate entry has been made therein for Bio-medical Waste Treatment Facilities. Thus, all Projects of Bio-medical Waste Treatment Facilities now fall under “Category B” activity

7(da). As a part of above process, the application (Form-1 along with Pre-Feasibility Report) was submitted for setting up of Biomedical Waste Treatment Facility.

Environment Management Division of M/s India Glycols Limited, Kashipur, and a NABET approved consultant with Certificate No. NABET/EIA/2124/IA0078 dated 19/07/2024, has been assigned for the Environmental Impact Assessment (EIA) studies. The study is done based on Standard Terms of Reference (TOR) issued by State Environmental Impact Assessment Authority, Uttar Pradesh for assessing the impact of the proposed of Common Biomedical Waste Treatment Facility on various environmental parameters in the study area.

1.2 Identification of the Project

The present proposal is for setting up of Common Biomedical Waste Treatment Facility (CBWTF), which includes Incinerator with APCD, Autoclave, Shredder and Effluent Treatment Plant capacity 10.0 KLD which will be built at project site located at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur Uttar Pradesh. It is proposed to utilize 0.28 ha of land for setting up of Common Biomedical Waste Treatment Facility.

Common Bio-Medical Waste Treatment Facility (CBWTF) is providing services to Health Care Units for collection of bio-medical wastes for its final disposal to their site. Bio-Medical Waste Management Rules 2016, stipulates that occupier of every organization generating bio-medical waste (as defined in the rules) must manage bio-medical waste as prescribed in the rules such that it does not cause any harm to the environment.

1.3 Objective of the Project

- Establish a Common Bio-medical Waste Treatment facility including the Incinerator, autoclave, shredder and effluent treatment unit.
- Collection of Segregated Biomedical waste and its transportation, storage, treatment and disposal in accordance to the Biomedical Waste Management Rules 2016.
- Compliances with statutory and environmental norms.
- Develop concise waste management principles.

- Introduce a continuing waste management education program for all staff to increase awareness of Occupational Health & Safety issues and waste minimization principles.
- Adopt policies and procedures to minimize the environmental impacts of waste treatment and Disposal.

1.4 Reporting to regulatory authorities as needed.

- Establish a Common Bio-medical Waste Treatment facility including the Incinerator, autoclave, shredder and effluent treatment unit.
- Collection of Segregated Biomedical waste and its transportation, storage, treatment and disposal in accordance to the Biomedical Waste Management Rules 2016.
- Compliances with statutory and environmental norms.
- Develop concise waste management principles.
- Introduce a continuing waste management education program for all staff to increase awareness of Occupational Health & Safety issues and waste minimization principles.
- Adopt policies and procedures to minimize the environmental impacts of waste treatment and
- Disposal.
- Reporting to regulatory authorities as needed

1.5 Relevant Provisions of Biomedical Waste Management Rules 2016

"Bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

"Handling" in relation to bio-medical waste includes the generation, sorting, segregation, collection, use, storage, packaging, loading, transportation, unloading, processing, treatment, destruction, conversion, or offering for sale, transfer, disposal of such waste.

"Health Care Facility" means a place where diagnosis, treatment or immunization of human beings or animals is provided irrespective of type and size of health treatment system, and research activity pertaining thereto;

"Major accident" means accident occurring while handling of bio-medical waste having potential to affect large masses of public and includes toppling of the truck carrying bio-medical waste, accidental release of bio-medical waste in any water body but exclude accidents like needle prick injuries, mercury spills.

"Management" includes all steps required to ensure that bio- medical waste is managed in such a manner as to protect health and environment against any adverse effects due to handling of such waste;

"Occupier" means a person having administrative control over the institution and the premises generating biomedical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment, irrespective of their system of Medicine and by whatever name they are called;

"Operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBMWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste;

Duties of the Occupier- It shall be the duty of every occupier to-

a. Take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment;
b. Make a provision within the premises for a safe, ventilated and secured location for storage of segregated biomedical waste in colored bags or containers in the manner, to ensure that there shall be no secondary handling, pilferage of recyclables or inadvertent scattering or spillage by animals and the bio-medical waste from such place or premises shall be directly transported in the manner as prescribed Biomedical

Waste Management Rules 2016 to the common bio-medical waste treatment facility or for the appropriate treatment and disposal.

c. Pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilization on-site in the manner as prescribed by the World Health Organization (WHO) or National AIDs Control Organization (NACO) guidelines and then sent to the common bio-medical waste treatment facility for final disposal;
d. Phase out use of chlorinated plastic bags, gloves and blood bags
e. Dispose off solid waste other than bio-medical waste in accordance with the provisions of respective waste management rules made under the relevant laws and amended from time to time;
f. Not to give treated bio-medical waste with municipal solid waste;
g. Provide training to all its health care workers and others, involved in handling of bio medical waste at the time of induction;
h. Ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralization prior to mixing with other effluent generated from health care facilities;
i. Ensure treatment and disposal of liquid waste in accordance with the Water (Prevention and Control of Pollution) Act, 1974;
j. Ensure occupational safety of all its health care workers and others involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment;
k. Maintain and update on day to day basis the bio-medical waste management register and display the monthly record on its website according to the bio-medical waste generated in terms of category and color coding.
l. Report major accidents including accidents caused by fire hazards, blasts during handling of bio-medical waste and the remedial action taken
m. Establish a system to review and monitor the activities related to bio-medical waste management, either through an existing committee or by forming a new committee and the Committee shall meet once in every six months.

Duties of the operator of a common bio-medical waste treatment and disposal facility:
It shall be the duty of every operator to-

a. Take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with Biomedical Waste Management Rules, 2016 and guidelines issued by the Central Government or the central pollution control board from time to time;
b. Ensure timely collection of bio-medical waste from the occupier;
c. Establish bar coding and global positioning system for handling of bio-medical waste within one year;
d. Inform the prescribed authority immediately regarding the occupiers which are not handing over the segregated bio-medical waste in accordance with these rules;
e. Provide training for all its workers involved in handling of bio-medical waste at the time of induction and at least once a year thereafter;
f. Assist the occupier in training conducted by them for bio-medical waste management;
g. Report major accidents including accidents caused by fire hazards, blasts during handling of bio-medical waste and the remedial action taken and the records relevant thereto;
h. Maintain a log book for each of its treatment equipment according to weight of batch; categories of waste treated; time, date and duration of treatment cycle and total hours of operation;
i. Allow occupier, who are giving waste for treatment to the operator, to see whether the treatment is carried out;
j. Shall display details of authorization, treatment, annual report etc.
k. After ensuring treatment by autoclaving or microwaving followed by mutilation or shredding, whichever is applicable, the recyclables from the treated bio-medical wastes such as plastics and glass, shall be given to recyclers having valid consent or authorization or registration from the respective State Pollution Control Board or Pollution Control Committee;
l. Supply non-chlorinated plastic coloured bags to the occupier on chargeable basis, if required;
m. Common bio-medical waste treatment facility shall ensure collection of biomedical waste on holidays also;

Duties of Common Biomedical Waste Treatment Facility (CBWTF):

- Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/ Quarantine of COVID-19 Patients:
- Report to SPCBs/PCCs about receiving of waste from COVID-19 isolation wards / Quarantine

- Camps / Quarantined homes / COVID-19 Testing Centers;
- Operator of CBWTF shall ensure regular sanitization of workers involved in handling and collection of biomedical waste;
- Workers shall be provided with adequate PPEs including three layer masks, splash proof aprons/gowns, nitrile gloves, gum boots and safety goggles;
- Use dedicated vehicle to collect COVID-19 ward waste. It is not necessary to place separate label on such vehicles;
- Vehicle should be sanitized with sodium hypochlorite or any appropriate chemical disinfectant after every trip.
- COVID-19 waste should be disposed-off immediately upon receipt at facility.
- In case it is required to treat and dispose more quantity of biomedical waste generated from COVID-19 treatment, CBWTF may operate their facilities for extra hours, by giving information to SPCBs/PCCs.
- Operator of CBWTF shall maintain separate record for collection, treatment and disposal of COVID-19 waste.
- Do not allow any worker showing symptoms of illness to work at the facility. May provide adequate leave to such workers and by protecting their salary.
- CBWTF operator shall register on 'COVID19BWM' Tracking App developed by CPCB and also ensure registration of Waste Handler (with vehicle) for entering the data of COVID-19 biomedical waste received and disposed.

1.6 Salient features

The salient feature of the project is summarized in **Table 1.**

Table 1- 1 Salient Features of the Project

S.No.	Parameters	Description
1.	Identification of Project	The amendment vide Gazette Notification dated 17th April 2015, separate entry has been made there in form Bio-medical Waste Treatment Facilities. Thus, all Projects of Bio-medical Waste Treatment Facilities now fall under "Category B activity 7(da)."
2.	Project Proponent	M/s AV BIO MEDICAL WASTE SERVICES
3.	Brief description of nature	Biomedical waste is generated from all health

<table>
<tr><td></td><td>of the project</td><td>care institutions; nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks etc. The responsibility of collection, treatment and safe disposal of all types of solid wastes rests with the generator.
A Common Bio-medical Waste Treatment Facility (CBWTF) is proposed to be set up where bio-medical waste, generated from a number of healthcare units, will be suitably treated as per the prescribed procedure & norms laid down in the regulation.
Proposed project of setting up of the Common Bio- medical Waste Treatment Facility includes Incinerator, Autoclave, Shredder and Effluent Treatment Plant. The present proposal is to utilize 0.28 ha land for setting up of Biomedical Waste Treatment Facility.</td></tr>
<tr><td>4.</td><td colspan="2">Salient Features of the Project</td></tr>
<tr><td>5.</td><td>Proposed plant capacity</td><td>Proposed Capacity of CBWTF:
<table>
<tr><th>Equipment</th><th>Capacity</th><th>Number</th></tr>
<tr><td>Incinerator</td><td>300 kg/hr</td><td>1</td></tr>
<tr><td>Autoclave</td><td>1000 litre/Batch</td><td>1</td></tr>
<tr><td>Shredder</td><td>150 kg/hr</td><td>1</td></tr>
<tr><td>Chemical Disinfection Tank</td><td>1500 Ltr</td><td>1</td></tr>
<tr><td>Effluent Treatment Plant</td><td>10 KLD</td><td>1</td></tr>
</table></td></tr>
<tr><td>6.</td><td>Category of Projects</td><td>Category “B” and Schedule- 7(da)</td></tr>
<tr><td>7.</td><td>Number of working days</td><td>365</td></tr>
<tr><td>8.</td><td>Total Plot Area</td><td>0.28 ha</td></tr>
<tr><td>9.</td><td>Khasra Numbers</td><td>Plot No. A-2/36</td></tr>
<tr><td>10.</td><td>Location</td><td>Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh.</td></tr>
<tr><td>11.</td><td>Coordinates of the Plant</td><td>Latitude: 26°44'55.72"N - 26°44'53.39"N
Longitude: 83°13'47.93"E - 83°13'48.66"E</td></tr>
<tr><td>13.</td><td>Elevation</td><td>94 m-101 m</td></tr>
<tr><td>14.</td><td>Nearest habituated area</td><td>Bokta, Approx. 0.64 km towards NNE</td></tr>
<tr><td>15.</td><td>Nearest Main Public Road</td><td>Gorakhpur Road is about Approx. 0.19 Km towards North.</td></tr>
<tr><td>16.</td><td>Nearest Railway station/Airport</td><td>Sahjanwa Railway Station, approx. 2.15 km in North direction.</td></tr>
</table>

		Gorakhpur Airport is located at 21.15 Km in ESE direction
17.	Nearest water body	Rapti River, approx. 2.12 km in East direction Ami River, approx. 3.56 km in SSW direction
18.	Water requirement	Water requirement for the proposed CBWTF project is 11 KLD. Fresh- 7.10 KLD Recycled- 3.90 KLD
19.	Source of water	Ground water Supply (Water will be abstracted only after getting NOC from CGWA).
20.	Wastewater Generation	Waste water generated from the treatment of Biomedical waste during autoclaving, washing of floors, and domestic purpose etc. is 5.25 KLD and it shall be treated in effluent treatment plant and reuse in process
21.	Man Power	During Construction phase, the labors and workers will be hired from nearby villages. Total 20 persons are proposed to hire for plant operation including officers, skilled and unskilled workers.
22.	Air Pollution Control Device	Wet Scrubber, Cyclone and Bag Filter, Venturi Scrubber
23.	Nos. of Stack	2
24.	Power requirement	DG Set of 82.5 KVA is proposed for the project and lines will be taken from the authorized electricity board. ~ 1% of the total power load will meet through solar energy.
25.	Alternative site	No Alternative site is examined
26.	Land form, Land use and land ownership	The land for project is at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh.

1.6.1 Project Proponent

M/s AV BIO MEDICAL WASTE SERVICES

1F 964, Vardan Khand, Gomti Nagar Extension,

Distt- Lucknow, Uttar Pradesh, Uttar Pradesh

1.6.2 Brief Description of the Project

1.6.2.1 Nature of the project

A Common Bio-medical Waste Treatment Facility (CBWTF) is a set up where bio-medical waste, generated from a number of healthcare units, is suitably treated to reduce adverse effects that this waste may pose. The treated waste may finally be sent for disposal in a secured landfill or for recycling purposes.

Proposed project of setting up of the Common Bio-medical Waste Treatment Facility includes Incinerator, Autoclave, Shredder, Storage, Recycling Unit and Effluent Treatment Facility.

1.6.2.2 Size of the Project

The proposed project of setting up of the Common Bio-medical Waste Treatment Facility (CBWTF) includes Incinerator, Autoclave, Shredder and Effluent Treatment Plant. It is proposed to utilize 0.28 ha land for setting up of Biomedical Waste Treatment Facility.

1.6.2.3 Cost of the Project

Total Cost of the Proposed Project is estimated approximately Rs.3.87 Cr.

1.6.2.4 Location of the Project

The study area of proposed project of setting up of the Common Bio-medical Waste Treatment Facility (CBWTF) is situated at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur.

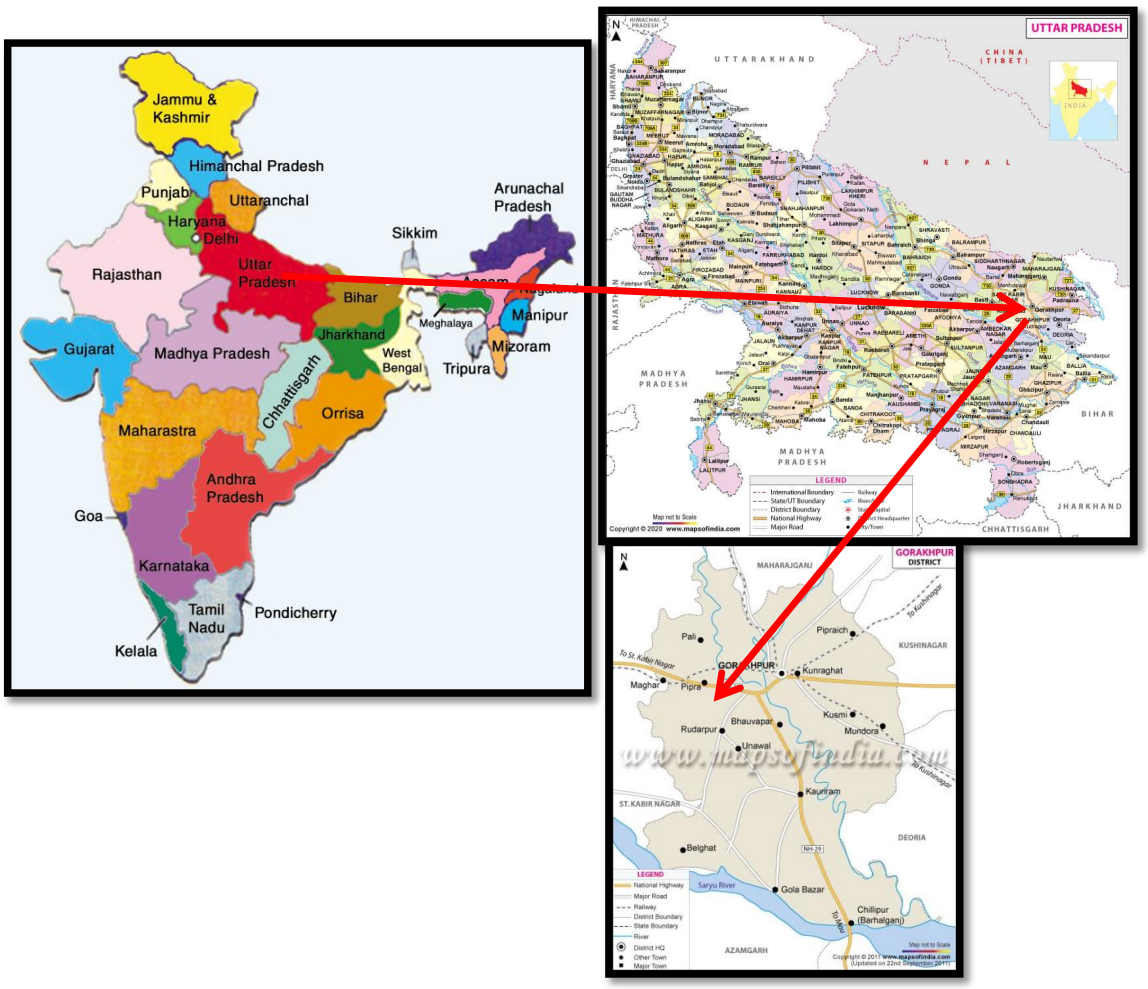


Figure 1-1 : Location of the project

1.7 Importance of Project to Country & Region

In 1983, the World Health Organization Regional office for Europe convened a meeting of concerned personal at Bergen, Norway, which was the first time when this issue was discussed. The seriousness of improper Bio Medical Waste management was brought to the limelight dung the "*beach wash-ups*" during summer 1998; which was investigated by the Environment Protection Agency (EPA) of USA; and it culminated in the passing of Medical Waste Tracking Act (MWTA).

The issue of indiscriminate Bio-Medical Waste management in India has attracted the attention of the highest judicial body at the level of Hon'ble Supreme Court of India and Apex Court has, from time to time issued instructions regarding management of Bio-Medical Waste. In this

background in persuasion to the directive of the Court, the Ministry of Environment and Forests, Government of India notified the Bio-Medical Waste (Management and Handling) Rules on 20thJuly 1998; further amended in Biomedical Waste Management Ltd, 2016, under the provision of Environment Protection Act 1986. These rules apply to all persons who generate, collect, receive, store, transport, treat, dispose or handle bio-medical waste in any form. The 'prescribed authority' for enforcement of the provisions of these rules in respect of all the health care facilities located in any State/Union Territory is the respective State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC) and in case of health care establishments of the Armed Forces under the Ministry of Defense shall be the Director General, Armed Forces Medical Services (DGAFMS).

'Bio-medical waste' means any waste generated during diagnosis, treatment or immunization of human beings or animals. Management of waste generated from health care facilities is an integral part of infection control and hygiene programs in healthcare settings. These settings are a major contributor to community-acquired infection, as they produce large amounts of biomedical waste.

A Common Bio-medical Waste Treatment Facility (CBWTF) is a set up where bio-medical waste, generated from a number of healthcare units, is imparted necessary treatment to reduce adverse effects that this waste may pose. The treated waste may finally be sent for disposal in a landfill or for recycling purposes. Installation of individual treatment facilities by small healthcare units requires comparatively high capital investment. In addition, it requires separate manpower and infrastructure development for proper operation and maintenance of treatment systems. The concept of CBWTF not only addresses such problems but also prevents proliferation of treatment equipment in a city. In turn it reduces the monitoring pressure on regulatory agencies. By running the treatment equipment at CBWTF to its full capacity, the cost of treatment of per kilogram gets significantly reduced. Its considerable advantages have made CBWTF popular and proven concept in many developed countries.

CBWTF as an option has also been legally introduced in India. The Biomedical Waste Management, 2016, gives an option to the bio-medical waste generator that such waste can also be treated at the common bio-medical waste treatment facility. The Second Amendment of the

Rules in June, 2000, further eased the bottleneck in upbringing the CBWTF by making Local Authority responsible for providing suitable site within its jurisdiction. The concept of CBWTF is also being widely accepted in India among the healthcare units, medical associations and entrepreneurs. Recently, a gazette notification dated 28thMarch 2016 has come into effect posing the rules and regulations of handling, storage and treatment of biomedical waste generated under Biomedical Waste Management Rules, 2016.

In order to set up a CBWTF to its maximum perfection, care shall be taken in choosing the right technology, development of CBWTF area, proper designing of transportation system to achieve optimum results.

1.8 Demand- Supply Gap

The Biomedical Waste Management Rules, 2016 stipulates that no occupier shall establish an on-site treatment and disposal facility, if a service of Common Bio-medical Waste Treatment Facility (CBWTF) is available within seventy-five kilometers. There has been a gradual increase in the bio-medical waste generation from the past consecutive years. Present proposal is to utilize 0.28 ha areas of land for setting up of Biomedical Waste Treatment Facility.

1.9 Scope of the study

To conduct EIA Study and prepare report for setting up of Common Biomedical Waste Treatment Facility, which is situated at Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur which will be operated accordance to Standard Terms of Reference prescribed by the **SEIAA, U.P TOR File No.7762, Proposal No. SIA/UP/INFRA2/423582/2023**. Copy of TOR is attached as Annexure-I.

Methodology

The Environment Impact Assessment report has been prepared with the following steps:

Establishment of Baseline Environmental Status

A comprehensive database on the baseline environmental status/conditions of the study area has been established through review, compilation & analysis of:

i) Existing published secondary data/literature/information, and

ii) Primary data generated/collected through initial site surveys and field study. The field monitoring has been carried out as per the guidelines of CPCB and requirement of the MoEF for one complete season. Field study/monitoring has been conducted on:

- Soil Quality
- Water Quality (ground and surface waters)
- Ambient Air Quality
- Noise
- Ecological Aspects
- Socio- Economic Aspects

Environmental Impact Assessment

The project data/activities has been analyzed & linked with the baseline environmental condition in order to list out the affected environmental parameters and assess the likely impacts on such parameters. Compliance of the project with national standards has been duly checked.

Preparation of Environment Management Plan

Environmental Management Plan (EMP) is the key to ensure a safe and clean environment. The desired results from the environmental mitigation measures proposed in the project may not be obtained without a management plan in order to assure its proper implementation & function. The EMP envisages the plans for the proper implementation of mitigation measures to reduce the adverse impacts arising out of the project activities. EMP has been prepared addressing issues such as:

- Details of management plans
- Pollution control/mitigation measures for abatement of the undesirable impacts caused during construction and operational activities
- Maintenance of water resources and water quality
- Post project environmental monitoring programme
- Institutional set up identified/recommended for implementation of the EMP

The study area covers an area of 5 km radius around the proposed project site. Baseline environmental quality of the study area has been assessed based on primary and secondary data collected from various sources supplemented by data generated at site during the period Baseline data – 1st January, 2021 to 31st March, 2021 & 1st April, 2023 to 30th April 2023. Environmental attributes and frequency of monitoring are outlined in Chapter -3.

1.10 Status of Litigation

There are no litigation/ court cases pending against the project as on date.

1.11 Structure of EIA Report

The entire EIA report has been prepared in line with generic structure of EIA document as annexed in EIA Notification, 2006:

Chapter 1: Introduction: This chapter describes the Purpose of the project, Identification of project & project proponent, Brief description of nature, size, location of the project and its importance to the country, region, Scope of the study – details of regulatory scoping carried out (As per Terms of Reference)

Chapter 2: Project Description (Based on pre-feasibility Report): This chapter includes Type of project, Need for the project, Location (maps showing general location, specific location, project boundary & project site layout), Size or magnitude of operation (including associated activities required by or for the project, Proposed schedule for approval and implementation, Technology and process description, Project description (Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose), Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope), Assessment of New & untested technology for the risk of technological failure.

Chapter3: Description of the Environment: It covers Study area, period, components & methodology, Establishment of baseline for valued environmental components, as identified in the scope, Base maps of all environmental components.

Chapter 4: Anticipated Environmental Impacts & Mitigation Measures: It includes Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project, Measures for minimizing and / or offsetting adverse impacts identified, Irreversible and Irretrievable commitments of environmental components, Assessment of significance of impacts (Criteria for determining significance, Assigning significance) and Mitigation measures.

Chapter 5: Analysis of Alternatives (Technology & Site): In case if scoping includes any alternative then it includes description of each alternative, Summary of adverse impacts of each alternative, Mitigation measures proposed for each alternative and Selection of alternative.

Chapter 6: Environmental Monitoring Program: This chapter covers technical aspects of monitoring the effectiveness of mitigation measures (including Measurement methodologies, frequency, location, and data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules).

Chapter 7: Risk Assessment and additional Studies: This chapter includes Public Consultation, Risk assessment, Social Impact Assessment and Rehabilitation & Resettlement Action Plans.

Chapter 8: Project Benefits: This chapter describes the benefits coming from the project in terms of improvements in the physical and social infrastructure, employment potential –skilled, semi- skilled and unskilled and other tangible benefits.

Chapter 9: Environmental Cost & Benefit Analysis: This chapter describes if recommended at the Scoping stage.

Chapter 10: Environmental Management Plan: This chapter describes the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness monitored after approval of the EIA.

Chapter 11: Summary and Conclusion: It includes overall justification for implementation of the project and Explanation of how, adverse effects have been mitigated

Chapter 12: Disclosure of consultants Engaged: The names of the Consultants engaged with their brief resume and nature of Consultancy rendered.

1.12 Compliance of TOR

TOR Details SEIAA Uttar Pradesh TOR File No.7762, Proposal No. SIA/UP/INFRA2/423582/2023. Copy of TOR is attached as Annexure –I.

Table 1- 2 Compliance of TOR

<table>
<tr><th>S.NO</th><th>TOR</th><th>Compliance</th></tr>
<tr><td>I.</td><td colspan="2">Project Details</td></tr>
<tr><td>i.</td><td>Importance and benefits of the project.</td><td>The importance of Project is that to manage the Bio medical waste in Gorakhpur district area within 75 km buffer area from project site. The proposed facilities will provide employment to the local people.</td></tr>
<tr><td>ii.</td><td>Reasons for selecting the site with details of alternate sites examined/rejected/selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental damages, resources sustainability associated with selected site as compared to rejected sites. The analysis should include parameters considered along with weightage criteria for short-listing selected site.</td><td>The proposed project site is located in Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur. As per the revised guideline of CPCB for CBWTF states that
“A CBWTF shall preferably be developed in a notified industrial area without any requirement of buffer zone”.</td></tr>
<tr><td>iii.</td><td>The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.</td><td>Project Capital Cost Rs. 3.87 Crores
EMP capital cost is Rs 40.0 Lakhs and 3 Lakhs is recurring cost of EMP.</td></tr>
<tr><td>iv.</td><td>Details of various waste management units with capacities for the proposed project. Details of utilities indicating size and capacity to be provided</td><td>
<table>
<tr><th>S. No</th><th>Equipment</th><th>Capacity</th></tr>
<tr><td>1</td><td>Incinerator</td><td>300 Kg/Hr.</td></tr>
<tr><td>2</td><td>Autoclave</td><td>1000 L per batch</td></tr>
<tr><td>3</td><td>Shredder</td><td>150 Kg/hr</td></tr>
<tr><td>4.</td><td>Chemical Disinfection Tank:</td><td>1500 Ltr</td></tr>
<tr><td>4</td><td>ETP</td><td>10 KLD</td></tr>
</table>
</td></tr>
<tr><td>v.</td><td>List of waste to be handled and their characteristics. Details of temporary storage facility for storage of Bio-medical waste at project site.</td><td>All the details of waste are given in Chapter -2 of EIA report</td></tr>
<tr><td>vi.</td><td>Other chemicals and materials required with quantities and storage capacities.</td><td>No such chemical will be stored</td></tr>
<tr><td>vii.</td><td>Detailed design of pre-treatment and waste stabilization facility of Bio-</td><td>Autoclave waste will be pre-treated in disinfection tank for pretreatment.</td></tr>
</table>

	medical waste.	
viii.	Project proponents would also submit a write up on how their project proposal conform to the stipulations made in the " Bio-Medical Waste Management Rules, 2016 ", notified by the MoEF&CC on 28th March, 2016.	Point wise compliance of Bio-Medical Waste Management Rules, 2016 ", notified by the MoEF&CC on 28th March, 2016 will be given in Chapter-2.
ix.	Process description along with major equipment and machineries, process flow sheet (quantitative) from Bio-Medical waste material to disposal to be provided.	Process description along with major equipment and machineries, process flow sheet is detailed in Chapter -2.
x.	Details of man-power requirement (regular and contract).	Total manpower will be 25 on regular basis and 50 will be on contract basis.
xi.	A detailed layout of the project site indicating all the project components.	Detailed lay out is given in Chapter -2
II.	**Road and Traffic**	
xii.	Submit the details of the road/rail connectivity along with the likely impacts and mitigative measures	The proposed site is located at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur. The nearest road is Gorakhpur Road is about Approx. 0.19 Km towards North. The nearest Railway station Sahjanwa Railway Station is about 2.15 Km in North direction from the site.
xiii.	Examine the details of transportation of Bio-Medical wastes, and its safety in handling.	The details of transportation of Bio-Medical wastes, and its safety in handling is given in Chapter -2
III	**Land Environment**	
xiv.	Detailed soil analysis of the site including its permeability, water holding capacity be included.	Soil analysis report of site including its permeability, water holding capacity is given in Chapter -3.
xv.	Submit the present land use and permission required for any conversion such as forest, agriculture etc.	The present land of the project site is industrial land, and no need of for any conversion is required.
xvi.	Specify the land area and space allotted for each activity proposed within the facility. The area requirements for each activity shall be calculated as per the CPCB guidelines for the specified activity.	Specify the land area and space allotted for each activity proposed within the facilities are given in Chapter -2.
xvii	Status of the land purchases in terms	Land document is attached is as Annexure -

	of land acquisition Act. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land	II.
xviii.	The EIA would address to the conformity of site to the stipulations as made in the Bio-Medical Waste Management Rules, 2016 and Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and will have a complete chapter indicating conformity to the said rules. NOC shall be obtained from State Pollution Control Board/Committee (SPCB/SPCC) regarding site suitability for establishment of Bio-Medical Waste Treatment Facilities.	Yes the site to the stipulations as made in the Bio-Medical Waste Management Rules, 2016.
xix.	Post project reclamation management program with financial allocation.	There will be no landfill site therefore no site reclamation management program will be proposed.
IV.	**Environmental Monitoring and Management**	
xx.	Examine and submit the details of on line pollutant monitoring.	All pollutant which are mentioned in CPCB guideline for CBWTF are monitored regularly and online stack monitoring system and ambient monitoring system will be installed at site.
xxi.	Project proponent must ensure Good Combustion Practice (GCP) to reduce the possibilities of formation of 'Total dioxins and furans'. In addition, GCP must be coupled with appropriate End-of-the-pipe treatment at low temperature to reduce the emission of 'Total dioxins and furans' below the standards. Further, the project proponent must provide detailed Standard operating procedure (SOPs) for sampling and monitoring of 'Total dioxins and furans'.	Yes, will ensure Good Combustion Practice (GCP) to reduce the possibilities of formation of 'Total dioxins and furans. In addition, GCP must be coupled with appropriate. Combustion efficiency (CE) will be at least 99.00%.
xxii.	Environmental Management Plan should be accompanied with Environmental Monitoring Plan and	Environmental Monitoring Plan and environmental cost and benefit assessment.

	environmental cost and benefit assessment. Regular monitoring shall be carried out for odour control.	
xxiii.	Water quality around the landfill site shall be monitored regularly to examine the impact on the ground water.	Not applicable as landfill site is not proposed in CBWTF.
xxiv.	A detailed draft EIA/EMP report should be prepared in accordance with the above additional TOR and should be submitted to the Ministry in accordance with the Notification.	The Final EIA /EMP report is prepared in accordance with the TOR and should be submitted to the MOEF &CC.
xxv.	Air Quality Index shall be calculated for base level air quality.	Air Quality level is given in chapter -3
xxvi.	Baseline data on Ground water quality is required.	Ground water quality report of the study area is given in Chapter -03.
xxvii	Possible carbon footprint contribution from each activities and mitigation measures proposed shall be included as part of Environment Management Plan.	Detailed pollution control and mitigation measures are given in Chapter -4.
V.	**Waste Management**	
xxviii	Examine and submit details of the proposed odour control measures.	Best management practice will be adopted to control the odour.
xxix.	The storage and handling of Bio-Medical wastes shall be as per the Bio-Medical Waste Management Rules, 2016.	Yes, storage and handling of Bio-Medical wastes shall be done as per the Bio-Medical Waste Management Rules, 2016
xxx.	Details of storage and disposal of pre-processing and post-processing rejects/inerts and products. List of proposed end receivers for the rejects/inerts/products should be provided. MoUs to be submitted in this regard.	
xxxi.	Details of hazardous/solid waste generation and their management.	Details of hazardous waste/solid waste are detailed in chapter -2.
VI.	**Water Environment**	
xxxii.	Detailed hydro-geological studies and possible impact if any accidental contamination occurs shall be included.	There will be no interaction of ground water therefore no hydro-geological studies are required and no accidental contamination occurs shall be included.
xxxiii.	Examine and submit details of monitoring of water quality around	Landfill is not proposed in CBWTF. Therefore, monitoring of water quality

	the landfill site.	around
xxxiv.	Examine and submit details of impact on water body and mitigative measures during rainy season.	There will be no impact on water body.
xxxv.	Details of Drainage of the project up to 5 km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided.	Drainage of project up to 10 km radius of study area
VII.	**Water Management**	
xxxvi.	Details of effluent treatment and recycling process.	ETP (10 KLD) will be installed at site and treated water from ETP will be reused for scrubbing and green belt development
xxxvii.	A certificate from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water already committed, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for ground water and surface water sources, ensuring that there is no impact on other users.	Source of water is ground water. NOC is exempted for as this is an MSME project clarification letter is attached as Annexure.
VIII.	**Energy Management**	
xxxviii.	A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project.	Proposed – 82.5 KVA power load is required for the proposed CBWTF. Source of power is UPPCL
IX.	**Disaster Management Plan**	
xxxix.	Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster.	The details of Disaster Management Plan is give in Chapter -7
xl.	Hazard identification and proposed mitigation measures.	Details are given in Chapter -7 of EIA report.
X.	**Green Belt**	
X1i	A detailed Plan for green belt development.	Detail plan for green belt development is given in Chapter-10 of the EIA report.
XI.	**Socioeconomic Environment**	

X1ii	Public hearing to be conducted for the project in accordance with provisions of Environmental Impact Assessment Notification, 2006 and the issues raised by the public should be addressed in the Environmental Management Plan. The Public Hearing should be conducted based on the ToR letter issued by the Ministry and not on the basis of Minutes of the Meeting available on the web-site.	As the proposed project is located in the Industrial area therefore the project is exempted for the Public hearing.
X1iii.	The project proponents shall satisfactorily address all the complaints/suggestions that have been received against the project till the date of submission of proposals for Appraisal.	No complaints/suggestions is received at the time of Final EIA report submission.
XII.	**Court Cases**	
x1iv.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No, litigation pending against the project.
XIII	**Miscellaneous**	
x1v	Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website **http://moef.nic.in/Manual/Incinerator**	Yes, we have referred model ToR available on Ministry website.

2 PROJECT DESCRIPTION

Proposed Common Bio Medical Waste Treatment Facility (CBWTF) by M/S AV Biomedical Waste Services is located at Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh where bio-medical waste generated from various healthcare units, are suitably treated to reduce adverse effects that these wastes may pose. The Bio-medical Waste Management Rules, 2016 makes it mandatory for the biomedical waste generators within 75 km distance to get the biomedical waste treated and disposed of through CBWTF.

In the prevailing situation, there is no other Common Biomedical Waste Treatment Facilities in ~75 km area.) Site feasibility report from RO-UPPCB is attached as **Annexure-III**.

2.1 Need for the Project

In need of professional attention for effective management to contain costs on the one hand and enhance efficiencies on the other, M/s AV Bio Medical Waste Services has proposed for development of Common biomedical waste treatment facility (CBWTF) for biomedical waste generation in the district of Gorakhpur of Uttar Pradesh. The project aims to cater the biomedical waste generated from nearby health care facilities and medical institutions from the proposed site. Currently, there is no other Common Biomedical Waste Treatment Facilities operational in in 75 km area as shown in Figure 2. As per the CPCB guidelines, a CBWTF can be located at a place reasonably far away from notified residential and sensitive areas and should have a buffer distance of preferably 500m so that it shall have minimal impact on these areas.

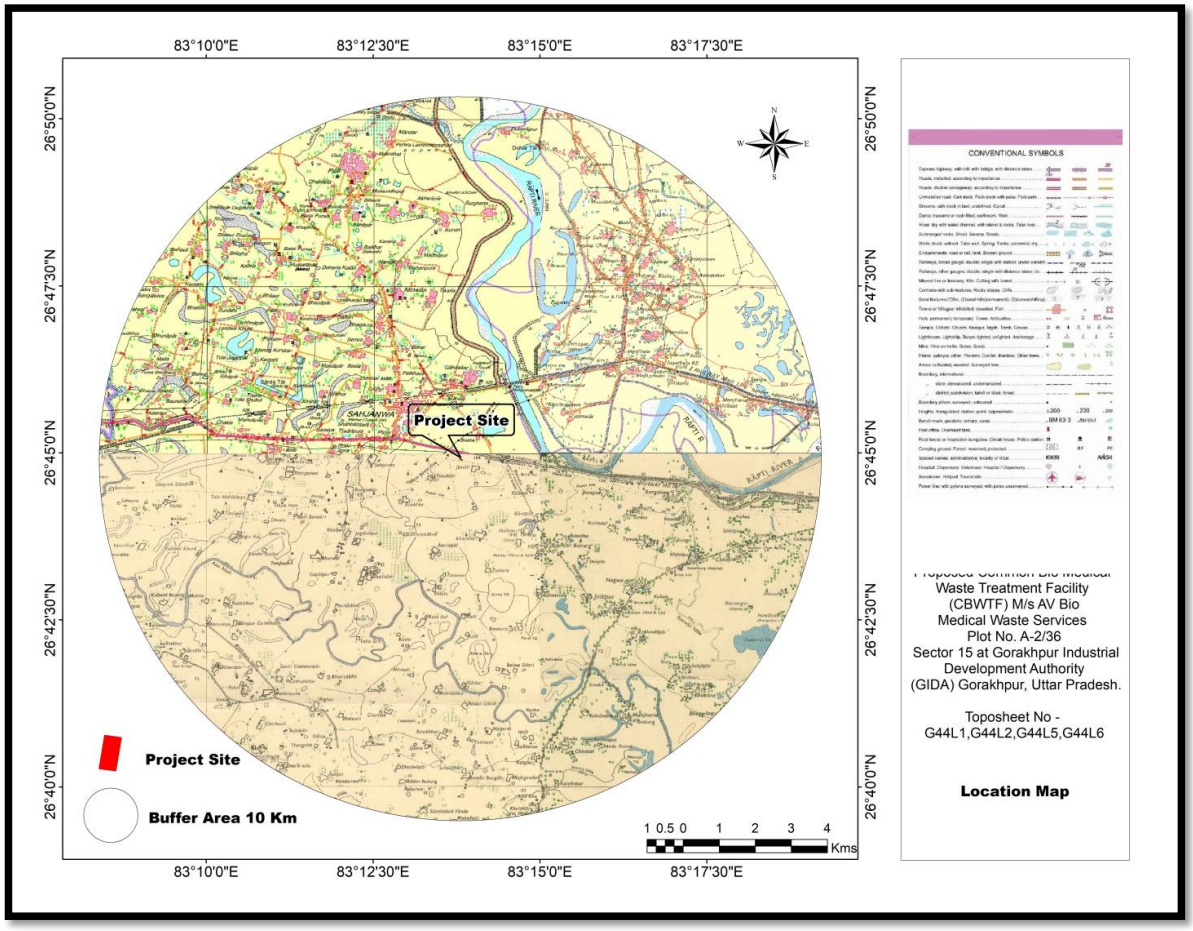


Figure 2-1: Location on Topo sheet

2.2 Site selection criteria

As per the Revised Guidelines for Common Bio-medical Waste Treatment Facilities- *A CBWTF shall preferably be developed in a notified industrial area without any requirement of buffer zone*. The proposed project area is fall into notified industrial area at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh.

2.3 Environmental Setting of the Project

The details of the Environment setting project are shown in below Table.

Table 2- 1 Environment setting project

S. No.	Particulars	Details
1.	Topo-sheet no.	G44L1, G44L2, G44L5, G44L6

2.	Elevation	94 meter- 101 meter
3.	Nearest settlement	Bokta, Approx. 0.64 km towards NNE
4.	Nearest major town	Gorakhpur, approx. 14.0 km in ENE direction
5.	Nearest highway	Gorakhpur Road, approx. 0.19 km in North direction
6.	Nearest railway Station	Sahjanwa Railway Station, approx. 2.15 km towards North direction
7.	Nearest major Airport	Gorakhpur Airport is located at 21.15 Km in ESE direction
10.	Archaeologically Listed important Place	Nil (Within 15 kms of study area)
11.	Ecological sensitive Zones	Nil (Within 15 kms of study area)
12.	Reserved/Protected Forest	Nil (Within 15 kms of study area)
13.	Nearest Streams/Rivers	Rapti River, approx. 2.12 km in East direction Ami River, approx. 3.56 km in SSW direction
14.	Seismic zone	Seismic zone- IV

2.4 Size and magnitude of Operation

The proposed facility is extended up to 0.28 ha land. The total cost of the project is estimated to be Rs. 3.87 Cr. The proposed equipment's to be installed in the plant are mentioned in table below.

Table 2- 2 Proposed equipment's in the plant

S.No.	Equipment	Installed Capacity	Number
1	Incinerator	300 kg/Hr	1
2	Autoclave	1000 ltr/batch	1
3	Shredder	150 kg/hr	1
4	Chemical Disinfection Tank	1500 Ltr	1
5	Effluent Treatment Plant	10 KLD	1

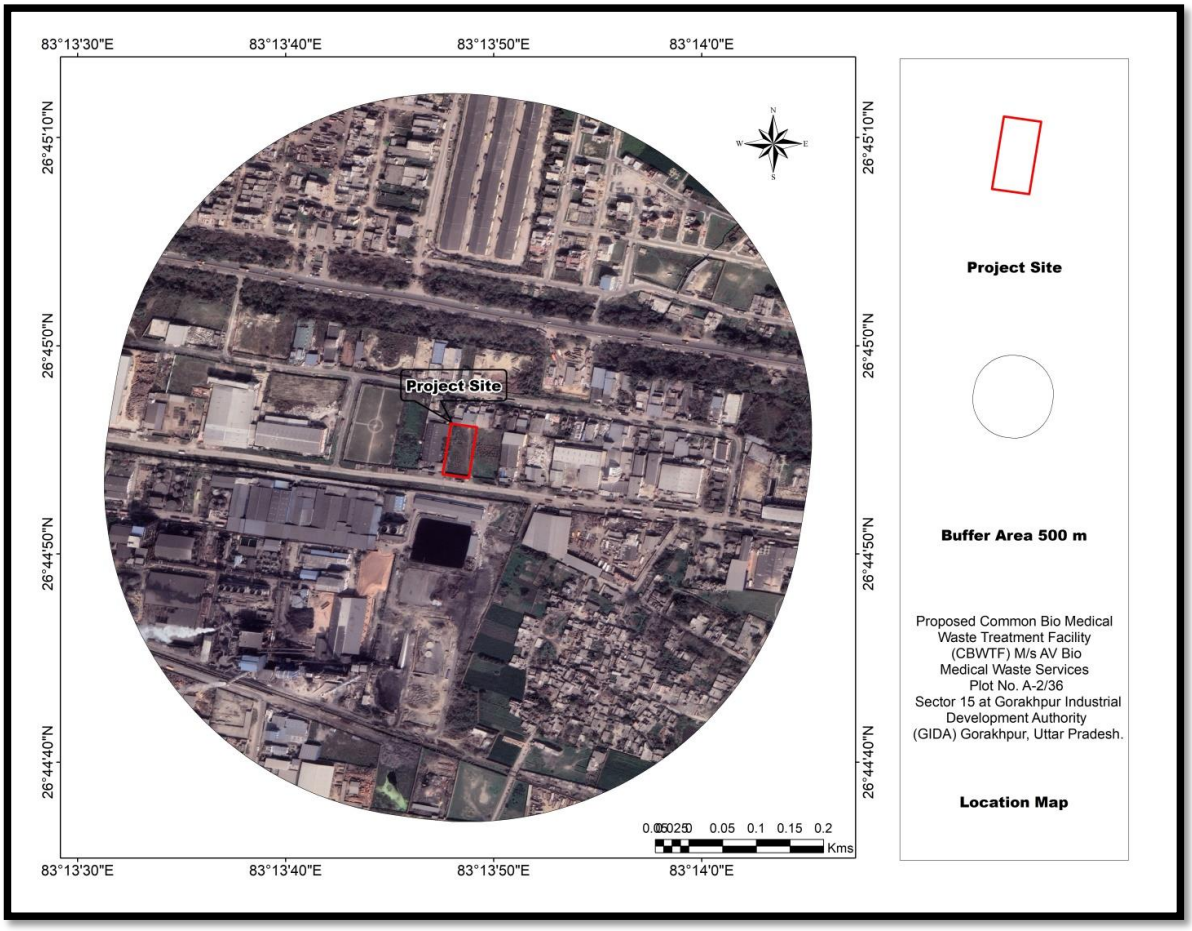


Figure 2-2: Buffer map of the study area

2.5 Land requirement and availability

M/S AV Biomedical Waste Services has proposed to setup the Common Biomedical Waste Treatment Facility at is located at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh. The present proposal is to utilize 0.28 hectare land for setting up of Biomedical Waste Treatment Facility.

2.5.1 Land Ownership Details

Land Documents are attached as Annexure II.

Figure 2-3: Layout plan of the site

Figure 2-4: Site Photographs

2.5.2 Alternate Sites

The proposed projects have no alternative site

2.5.3 Process of Biomedical Waste collection, storage, treatment and disposal

The flow chart of process of collection, transportation, storage, treatment and disposal of biomedical waste is shown in figure-4 below.

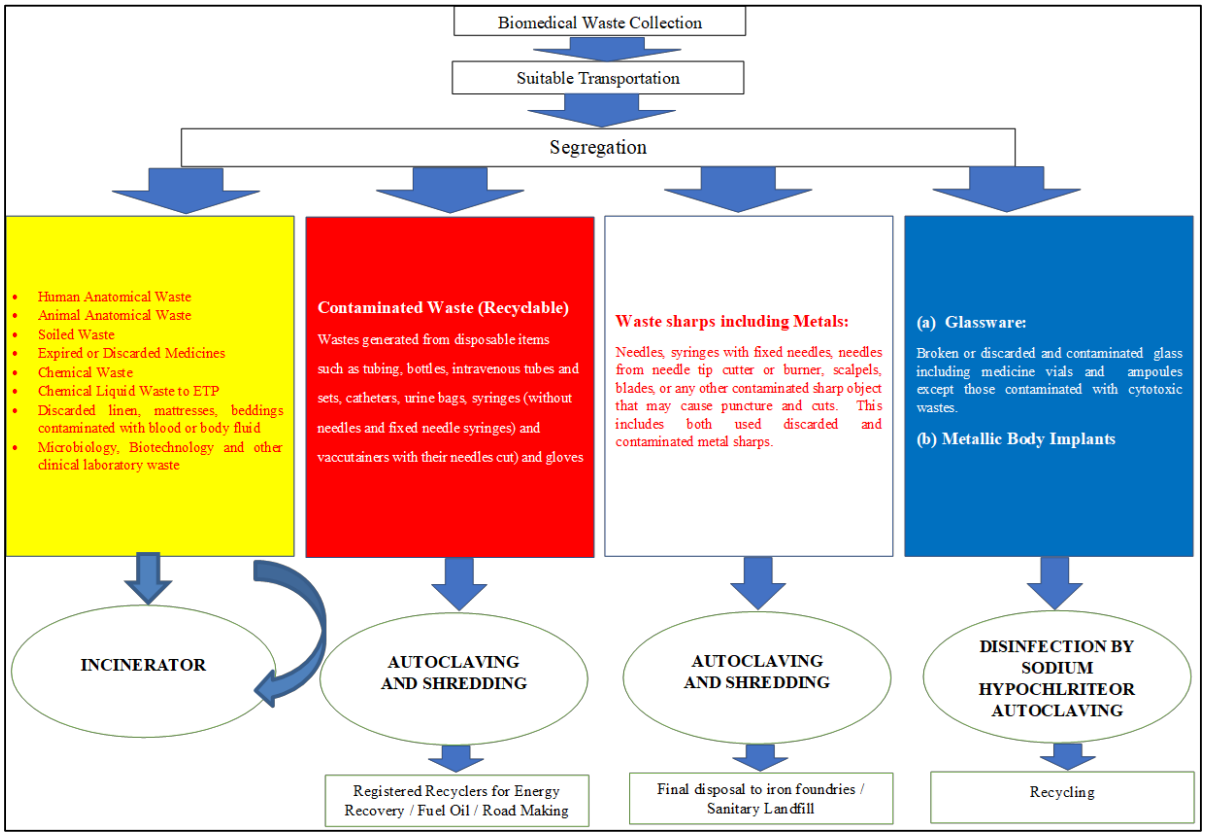


Figure 2-5: Process Flow Diagram

2.5.4 Collection of Biomedical Waste from Hospitals

The health care facility shall be advised to segregate the waste and enable trained personnel to carefully pack the waste as it contains sharps, solid waste etc. The waste collected shall be endorsed by issuing a small manifest. It is also realized that the Bio-medical Waste shall be collected every day and not be delayed more than 48 hours as it has tendency to give out odour & deteriorate with long standing storage. The collection of the waste from hospital and its movement to the carrying vehicle shall be properly managed by avoiding any spillage in the path. It is intended to have 5 closed vehicles (E.g. dimension size of 14ft x 6ft x 5.5ft with carrying capacity 3000kg) for collection and transportation of biomedical waste to CBWTF covering all the 4 districts proposed to cater within 75 km radius.

2.5.5 Transportation of the Waste to CBWTF

Proper fully covered dedicated vehicles shall be used for transportation of biomedical waste from healthcare facility to the treatment facility. The personnel hired for the transportation will be licensed driver and shall be trained for specific requirements of collection of infectious biomedical waste the bins containing the waste shall be stacked in a manner to avoid overturning in case of jerks. The Waste bins shall be unloaded from the trucks manually by trained staff at the facility wearing a persona viz. Overalls, Gloves, Gum Boots etc. ensuring there are no health impacts during the process. The dedicated vehicle for transportation of waste shall have following features;

(I) Separate cabins shall be provided for driver/staff and the bio-medical waste containers.

(II) The base of the waste cabin shall be leak proof to avoid pilferage of liquid during transportation.

(III) The waste cabin may be designed for storing waste containers in tiers.

(IV) The waste cabin shall be so designed that it is easy to wash and disinfect.

(V) The inner surface of the waste cabin shall be made of smooth surface to minimize water retention.

(VI) The waste cabin shall have provisions for sufficient openings in the rear and/or sides so that waste containers can be easily loaded and unloaded.

(VII) The vehicle shall be labeled with the bio-medical waste symbol (as per the schedule iii of the rules) and display the name, address and telephone number of the CBWTF.

(VIII) The vehicle will be fitted with GPS system for tracking.

Depending upon the area to be covered under the CBWTF, the route of transportation shall be worked out. The transportation routes of the vehicle shall be designed for optimum travel distance and to cover maximum number of healthcare units. As far as possible, the transportation shall be carried out during non-peak traffic hours. It shall be ensured that the total time taken from generation of bio-medical waste to its treatment, which also include collection and transportation and treatment time, shall not exceed 48 hours.

2.5.6 Storage

The proposed CBWTF will have storage area. The storage shed consists of different cells for storing different kinds of bio-medical waste. The storage building is an enclosed structure with

sufficient ventilations. The bio medical waste can be directly stored in dumper containers with lids of suitable size. The storage area will be at the entry point of the CBWTF to unload and store all biomedical wastes that have been transported to the facility by vehicle. The front portion of the room shall be utilized for unloading the wastes from the vehicle and back or side portion shall be utilised for shifting the wastes to the respective treatment equipment. The room where waste is unloaded the floor shall be made impermeable so that any liquid spilled during unloading does not percolate into the ground. The liquid generated during handling of wastes and washing, shall be diverted to the inlet of ETP.

In the main storage room, wastes shall be stacked with clear distinction as per the color coding of the containers. From here, the coloured containers will be sent to the respective treatment equipment.

2.5.7 Treated Waste Storage

After autoclaving the wastes will be segregated and stored in the treated waste storage area. Plastic waste will stored after shredding. Plastics, metals, glass will be stored separately. Waste having recycle value will be sold to registered or authorized recyclers. Disinfection and Destruction.

Upon receipt at the facility, wastes containers shall be unloaded. Wastes based on their colour codes shall be separated and properly treated and disposed of as per MoEF&CC rules the incinerable waste shall be loaded into the incinerator while autoclavable shall be loaded into the autoclave for dis-infection. Residue from incinerator units shall be disposed into a landfill and waste from autoclave shall send to authorized recyclers.

2.5.8 Treatment of Waste

The segregated waste shall be subjected to treatment in accordance to procedure prescribed in Biomedical Rules and CPCB guidelines.

2.5.8.1 Incineration

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. As being high temperature thermal process employing combustion of the waste under controlled condition for converting it into inert material and gases.

A process combination of pyrolysis and controlled air combustion, where heat and air for combustion is regulated in such a way as to first volatalise/gasify the waste in conditions of

inadequate air, i.e., below stochiometric air conditions and heat and then totally destroy it in adequate heat and excess air, thereby making the end products environmentally safe.

The primary purpose of incineration is to burn the waste to ashes through a combustion process. Proposed project intends to setup a 300 Kg/ hr incinerator. The unit shall be a dual chambered incinerator. The primary chambers primary purpose would be combustion of the waste materials into safe end products (ash). The temperature of the primary chamber would be850°C and above wherein, wastes shall be completely destroyed. The primary chamber would have an attached burner with auxiliary fuel supply to augment the fuel requirements and ensure maintenance of temperatures. The purpose of the secondary chamber would be to burn the off gases and ensure safe end products (gaseous). The secondary chamber would operate at a temperature of 1050°C and above. The gases would be completely burnt and safe gases then shall be let out of the incinerator unit. The incinerator shall be completely automated with control panel and continuous recording of temperatures. The entire system is very simple and is easy to operate. The system is environmentally safe without any hazard.

The size of the opening through which the waste is charged shall be larger than the size of the waste bag to be fed. Volume of the primary chamber shall be five times the volume of one batch. Pressure gauges shall be provided on the primary and secondary air ducting. Combustion air measurement through flow transmitter should be provided and the display shall be in PLC. "Controlled air" incineration principle shall be followed, as particulate matter emission will be low. The combustion air shall be supplied through a separate fan after accounting for the air supplied through the burners. Air supply in the primary and secondary chamber may be regulated between 30%-80% and 170%-120% of stoichiometric requirement respectively. Primary air shall be admitted near / at the hearth for better contact.

Flow meter/suitable flow measurement device shall be provided on the primary & secondary air ducting. The combustion air shall be supplied through a separate forced draft fan after accounting for the air supplied through burners. The pressure in the incineration chambers under all circumstances should be lower than the ambient pressure in the room where the incinerator is installed. A minimum negative draft of 1.27 to 2.54 mm of Water Column (WC) shall be maintained in the primary chamber to avoid leakage of gaseous emissions from the chamber and

fitted with WC measurement mechanism (eg. U-tube manometer etc.) or digital display provision and connected with PLC.

The waste shall be fed into the incinerator in small batches (about 15-20% of total capacity of the incinerator) after the fixed interval of time in case of fixed hearth incinerator and continuous charging using appropriate feeding mechanism in case of rotary kiln incinerator or as recommended by the manufacturer, depending on the capacity of the incinerator. The size of the hearth i.e. primary chamber shall be designed properly. The sides and top of the primary and secondary chamber shall have rounded corners from inside to avoid possibility of formation of black or cold pockets/dead zones. The size of the secondary chamber shall be properly designed so as to facilitate a minimum of two seconds residence time to ensure combustion of the gas flow, unburnt material such as volatiles, smoke and soot. For the estimation of residence time in the secondary chamber its volume shall be calculated starting from the secondary burner tip to the thermocouple.

Incinerator walls shall be protected with insulated fire bricks/refractory system. The refractory lining of the chamber shall be strong enough to sustain thermal shocks i.e., minimum temperature of 1000°C in the primary chamber and 1050 +/- 50°C in the secondary chamber. The refractory & insulation bricks shall have suitable thickness each & shall conform to IS: 8-1994 & IS: 2042-2006 respectively. However, in case the bio-medical waste incinerator operator wishes to treat outdated medicines or cytotoxic waste, the refractory lining of the chamber shall be designed suitably in conform to IS Specifications for bricks or refractory to with stand minimum temperature of 1200° C in secondary chamber. The incinerator combustion chamber(s) should be designed for easy maintenance of all internal parts including the refractory and insulation.

The materials used in the individual parts of the incinerator shall be heat resistance and shall with stand against the mechanical properties, oxidation, corrosion, etc. The Incinerator shell shall be made of mild steel plate of adequate thickness (minimum 5 mm thick) & painted externally with heat resistant aluminum paint suitable to withstand temperature of 250°C with proper surface preparation and also the outside surface temperature of the incinerator casing being touched during normal operations should not exceed 45 to 50°C above ambient temperature and should

be provided with a safety measure in the form of a spikes or mesh around hot surface which will prevent direct touch.

Refractory lining of all the hot ducts shall be done with refractory castable & insulating castable. Good quality Ceramic wool shall be used at all hot duct flanges & expansion joints.

The thermocouple sensor location shall be after tip of the burner and before exit of the incinerator chambers as follows:

There shall be separate burners for both Primary and Secondary Chamber. One or more separate burners each for primary and secondary chambers may be required depending on diameters of the incinerator chambers to maintain desired temperatures in the incinerator chambers. The temperature of Primary and Secondary chambers shall be maintained 800°C and 1050±50°C respectively. The burners shall have automatic switches. However, considering the life of refractory and also to avoid cracks in the refractory, pre-heating and cooling should be done gradually before and after incineration process. Also, the Incinerators (combustion chambers) shall be able to incinerate the waste so as to achieve the Total Organic Carbon (TOC) content in the slag and bottom ashes less than 3% or their Loss on Ignition (LoI) shall be less than 5%of the dry weight.

The burners shall have automatic switching "off/on" control to avoid the fluctuations of temperatures beyond the required temperature range. Each burner shall have spark igniters and main burner. Proper flame safeguard provision of the burner shall be installed. View port shall be provided to both the chambers. Burner retracting mechanism in both the chambers to safeguard the burners. (d) Provide projected type of observation or view ports (high-temperature glass with a metal closure provision) to observe visual condition of the burning process and waste/ash accumulation in the combustion chamber. Neither heat, flame nor particles should be able to pass through the observation or viewport. The flame of the Primary chamber shall be pointing towards the centre of the hearth shall be having a length such that it touches the waste but does not impinge directly on the refractory floor or wall. The Secondary burner shall be positioned in such a way that the flue gas passes through the flame. The automatic feeding mechanism shall be provided with the Incinerator.

There shall not be any manual handling during charging of waste in to the primary chamber of the incinerator. The waste shall be charged in bags through automatic feeding device at the manufacturer's recommended intervals ensuring no direct exposure of furnace atmosphere to the incinerator operator. The device shall prevent leakage of the hot flue gas & any backfire. The waste shall be introduced on the hearth in such a way so as to prevent the heap formation. Suitable raking arrangement shall be provided for uniform spreading of waste on the hearth.

A tamper-proof PLC (Programmable Logic Control) based control system or SCADA in case of all the upcoming new incinerator with higher capacity (i.e., more than 250 Kg/hour) shall be installed to prevent: (a) Opening of waste charging door while the incinerator is in operation with burning of waste or while the incinerator chamber is having temperature is less than 750°C and if the temperature in primary chamber is higher than 850°C. Waste charging in case of any unsafe conditions such as very high temperature in the primary & secondary chambers. (b) failure of the combustion air fan, ID fan, recirculation pumps; (c) low water pressure & high temperature of the flue gas at the outlet of air pollution control device.

The incineration system must have an automatic emergency vent designed with a provision of valves and a compressor. The emergency vent shall remain closed and such provision it shall not emit flue gases or leakages during normal operation of the incinerator. Each incineration system shall have graphic or computer recording devices which shall automatically and continuously monitor and record dates, time of day, batch sequential number and operating parameters such as temperatures in both the chambers as well as stack exit gas. Flue gas parameters such as CO, CO2, and O2 as well as other relevant parameters in gaseous emission as set by the prescribed authority shall also be measured during the operation of the incineration using continuous emission monitoring system (CEMS).

Provision of heat recovery system/heat exchanger with the incinerator shall also be considered wherever possible or feasible. Pre-heating of combustion air shall be practiced wherever possible. Structural design of the chimney / stack shall be as per IS: 6533-1989. The chimney/stack shall be lined from inside with natural hard rubber suitable for the duty conditions and shall also conform to IS:4682 Part I-1994 or suitable thickness of Fibre Reinforced Plastic (FRP) lining also be used to avoid corrosion due to oxygen and acids in the flue gas.

The incinerator should have alarm system to alert the incinerator in the event of power failure, non-operation of the APCD, not maintaining adequate temperatures in primary and secondary chambers or in case of any emergency including the following:

- Deviation from permitted range of pH of the scrubbed liquid;
- Deviation from permitted range of ID Fan Temperature;
- Low level of diesel;
- Low temperature of primary chamber at the time of waste feeding;
- Exceeding of outlet water temperature
- Fault in chimney lighting arrestor;
- Failure of water and electricity supply; and
- Failure of solenoid valve of any of the burners.

Relevant operating parameters as per technology provider/design requirement. The incinerator should have instruction plate(s) attached in a prominent location on the unit that clearly addresses:

- Cleaning ashes and slag from the combustion chamber(s) and cleaning of combustion air openings before starting the incinerator and
- Operating procedures and instructions. These should include proper start-up procedures, normal shut-down procedures, emergency shut-down procedures, and procedures for loading waste.

All the measuring devices attached with the incinerator shall have digital display and have provision of connecting to the recording system, which includes fuel meter and separate energy meter.

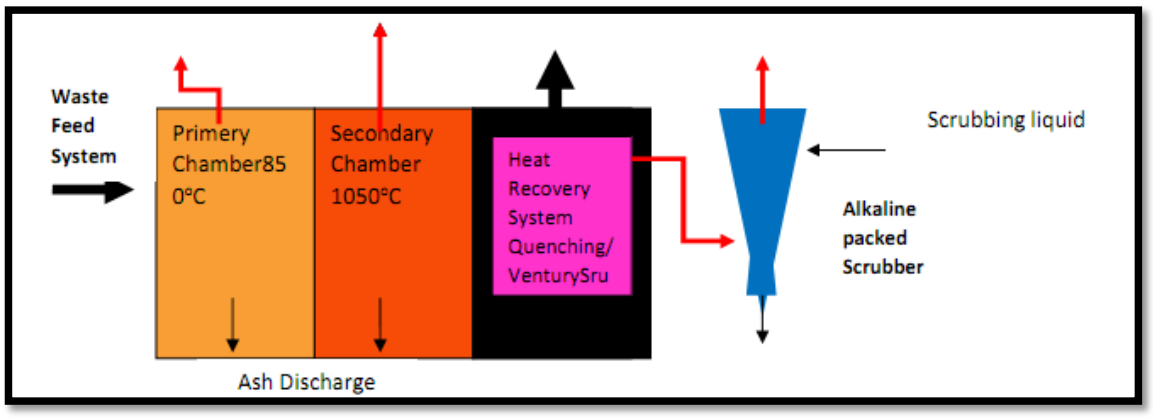


Figure 2-6: Diagrammatic view of Incinerator

2.5.9 Air Pollution Control Device (APCD)

The gases after being burnt at 1050^{o}C shall be run into a ventury scrubber followed by a flooded scrubber with water quenching arrangement. The scrubber shall be an alkaline scrubber to neutralise the gases and ensure trapping of any pollutants escaping into the environment. The purpose of water quenching is to reduce the temperature of the gases which are at high temperature. The clean gases are let out into the environment. The scrubbed water shall be collected into a sump, where the water is neutralised, and then sent into a cooling tower from where the water is recirculated into the scrubber after cleaning them of their particulates by way of pressure sand filter and activated carbon filter. The system is thus a zero discharge system in terms of water discharges and is pollution free.

Autoclave

An autoclave is a specialized piece of equipment designed to deliver 121^{0}C temperature under 15 psi pressures to a chamber, with the goal of decontaminating or sterilizing the contents of the chamber. Decontamination is the reduction of contamination to a level where it is no longer a hazard to people or the environment. Intends to establish an autoclave with above principle. To ensure safety and quality control, all bio-hazardous materials and items contaminated with potentially infectious agents should be decontaminated before use or disposal. Such items include, but are not limited to: culture media, surgical instruments, laboratory equipment, glassware, and biomedical waste including sharps.

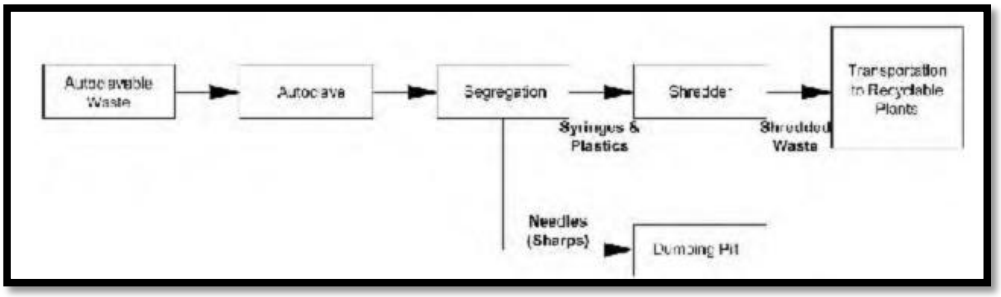


Figure 2-7: Process Flow Diagram of Autoclave

Shredder

Shredding is a process by which waste are de-shaped or cut into smaller pieces so as to make the waste Shredding is a process by which waste are de-shaped or cut into smaller pieces so as to make the waste unrecognizable. Shredder has non- corrosive sharp blades capable for shredding of plastic waste, sharps, bottles, needles, tubing's, and other general waste. The low speed two shaft systems are effective for bottles, needles, tubing's, and other general waste. The low speed two shaft systems is effective for shredding hard and solid waste. Environment intends to establish a Shredder, thus rendering the waste free from infection. The dis-infected waste shall then be segregated into HDPE, PP, rubber, latex, glass and metal. The segregated materials shall then be shredded completing the process of dis-infection sent to recycler approved by UPPCB.

Waste Treatment and Disposal Scheme

Depending on the category/nature of the waste the following treatment and disposal method are employed according to Bio-medical Waste Treatment Rules 2016.

Table 2- 3 Treatment and disposal method are employed according to Bio-medical Waste Treatment Rules 2016

Category	Type of Waste	Type of Bag or Container to be used	Treatment and Disposal options
YELLOW	Human tissues, organs, body parts and fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time).	Yellow coloured non-chlorinated plastic bags	Incineration or Plasma Pyrolysis or deep burial
	Animal Anatomical Waste: Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses.		
	Soiled Waste: Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components.		Incineration deep burial* or Plasma Pyrolysis or In absence of above facilities, Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery.
	Expired or Discarded Medicines: Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoule, vials etc	Yellow coloured non-chlorinated plastic bags or containers	Expired cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature >1200^{0}C or to common bio-medical waste

			treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >1200^{0}C or Encapsulation or Plasma Pyrolysis at 1200^{0}C. All other discarded medicines shall be either sent back to manufacturer or disposed by Incineration.
	Chemical Waste: Chemicals used in production of biological and used or discarded disinfectants.	Yellow coloured containers or non-chlorinated plastic bags	Disposed of by incineration or Plasma Pyrolysis or encapsulation in hazardous waste treatment, storage and disposal facility.
	Chemical Liquid Waste: Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, Discarded Formalin, Infected Secretions, Aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in Schedule III.
	Discarded linen, mattresses, beddings contaminated with blood or body fluid.	Non-Chlorinated yellow plastic bags or suitable packing material	Non- chlorinated chemical disinfection followed by incineration or Plasma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding.

			Treated Waste to be sent for energy recovery or incineration or Plasma Pyrolysis.
	Microbiology, Biotechnology and other clinical laboratory waste: Blood bags, Laboratory cultures, stocks or specimens of micro-organisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures.	Autoclave safe plastic bags or containers	Pre- treat to sterilize with non-chlorinated chemicals on-site as per National AIDS Control Organization or World Health Organization guidelines thereafter for Incineration.
RED	Contaminated Waste (Recyclable) Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes) and vaccutainers with their needles cut) and gloves.	Red coloured non- chlorinated plastic bags or containers	Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.
WHITE (Translucent)	**Waste sharps including Metals:** Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades,	Puncture proof, Leak proof, tamper proof containers	Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container

	or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps		or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit.
BLUE	**Glassware:** Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes	Cardboard boxes with blue colored marking	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.
	Mettalic Body Implants		

STANDARDS FOR INCINERATION:

All incinerators shall meet the following operating and emission standards-

A. Operating Standards

1. Combustion efficiency (CE) shall be at least 99.00%.
2. The Combustion efficiency is computed as follows:

$$C.E. = \frac{\%C02}{\%C02 + \%CO} \times 100$$

3. The temperature of the primary chamber shall be a minimum of 800 °C and the secondary chamber shall be minimum of 1050°C + or - 50°C.

The secondary chamber gas residence time shall be at least two seconds

B. Emission Standards

Table 2- 4 Emission Standards

S.No.	Parameter	Standards	
1.	2.	3.	4
		Limiting concentration in mg/Nm3 unless stated	Sampling Duration in minutes, unless stated
1.	Particulate matter	50	30 or 1NM3 of sample volume, whichever is more.
2.	Nitrogen Oxides NO and NO2 expressed asNO2	400	30 for online sampling or grab sample.
3.	HCl	50	30 or 1NM3 of sample volume, whichever is more.
4.	Total Dioxins and Furans	0.1ngTEQ/Nm3 (at 11% O2)	8 hours or 5NM3 of sample volume whichever is more.
5.	Hg and its compounds.	0.05	2 hours or 1NM3 of sample volume, whichever is more.

C. Stack Height: Minimum stack height shall be 30 meters above the ground and shall be attached with the necessary monitoring facilities as per requirement of monitoring of 'general parameters' as notified under the Environment (Protection) Act, 1986 and in accordance with the CPCB Guidelines of Emission Regulation Part- III.

Note:

a) All upcoming Common Bio-medical Waste Treatment and Disposal Facilities having incineration facility or captive incinerator shall comply with standards for Dioxins and Furans.
b) Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.
c) Ash from incineration of biomedical waste shall be disposed of at Common Hazardous Waste Treatment and Disposal Facility. However, it may be disposed of in municipal landfill, if the toxic metals in incineration ash are within the regulatory quantities as defined under the Hazardous Waste (Management and Handling and Transboundary Movement) Rules, 2008 or as revised from time to time.
d) Only low Sulphur fuel like Light Diesel Oil or Low Sulphur Heavy Stock or Diesel, CNG, PNG or LPG shall be used as fuel in the incinerator.
e) The occupier or operator of a common bio-medical waste treatment facility shall monitor the stack gaseous emissions (under optimum capacity of the incinerator) once in three months through a laboratory approved under the Environment (Protection) Act, 1986 and record of such analysis results shall be maintained and submitted to the prescribed authority. In case of dioxins and furans, monitoring should be done once in a year.
f) The occupier or operator of the common bio-medical waste treatment facility shall install continuous emission monitoring system for the parameters as stipulated by SPCBs or PCCs in authorization and transmit the data real time to the servers at SPCBs or PCCs and CPCB.
g) All monitored values shall be corrected to 11% Oxygen on dry basis.
h) Incinerators (combustion chambers) shall be operated with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the slag and

bottom ashes less than 3% or their loss on ignition shall be less than 5% of the dry weight.

i) The occupier or operator of a common bio-medical waste incinerator shall use combustion gas analyzer to measure CO2, CO and O2.

2.5.9.1 Chemical Disinfection

This treatment shall be to microbiology & biotechnology waste, waste sharps, infectious solid waste and chemical wastes. Chemical treatment involves use of at least 1%hypochlorite solution with a minimum contact period of 30 minutes or other equivalent chemical reagents such as phenolic compounds, iodine, hexachlorophene, iodine-alcohol or formaldehyde-alcohol combination etc. No chlorinated compound shall be used for disinfection of waste to be treated in incinerator. Waste after disinfection will be shredded and will be disposed in secured landfill or recycled through registered recyclers. Chemical waste after chemical treatment is discharged into drains and solids are disposed in secured in landfill.

2.5.9.2 Sharp pits

Sharp pits shall be provided for the disposal of treated sharps. Needles are cut into pieces to avoid reuse. For disposal of sharps, pits of about 3m diameter and 3m depth will be constructed of concrete/concrete hollow bricks with suitable plastering.

2.5.9.3 Effluent Treatment Plant

The proposed CBWTF will have an ETP of 10 m3 per day (KLD) capacity. Chemical wastes after chemical treatment is discharged into ETP. The waste water generated from the scrubber, vehicle sterilization area and floor washing will also be treated in an effluent treatment plant. Sealed drainage will be provided to collect the all liquid effluents. Effluent will be collected in equalization tanks after passing through the grit chamber. Grit chamber removes large solid particles. From the equalization tank, raw effluent is pumped to the flash mixers where flocculants and coagulants are added. Effluent is taken to primary clarifier where settling of solids takes place. The thickened sludge is collected, dewatered and disposed in the landfill. The wet sludge is dewatered in sludge drying bed and temporarily stored in sludge storage area. Sludge after drying will be disposed in landfill. Clarified effluent is biologically treated by activated sludge process in an aeration tank. The biologically treated effluent will be taken to the

secondary clarifier and the overflow from the secondary clarifier will be allowed to pass through pressurized sand filters (PSF) and activated carbon filters (ACF).

Finally, the treated effluent will be recycled for floor washing and gardening. The treated effluent recycled for the use in scrubber will not be treated with hypochlorite solution.

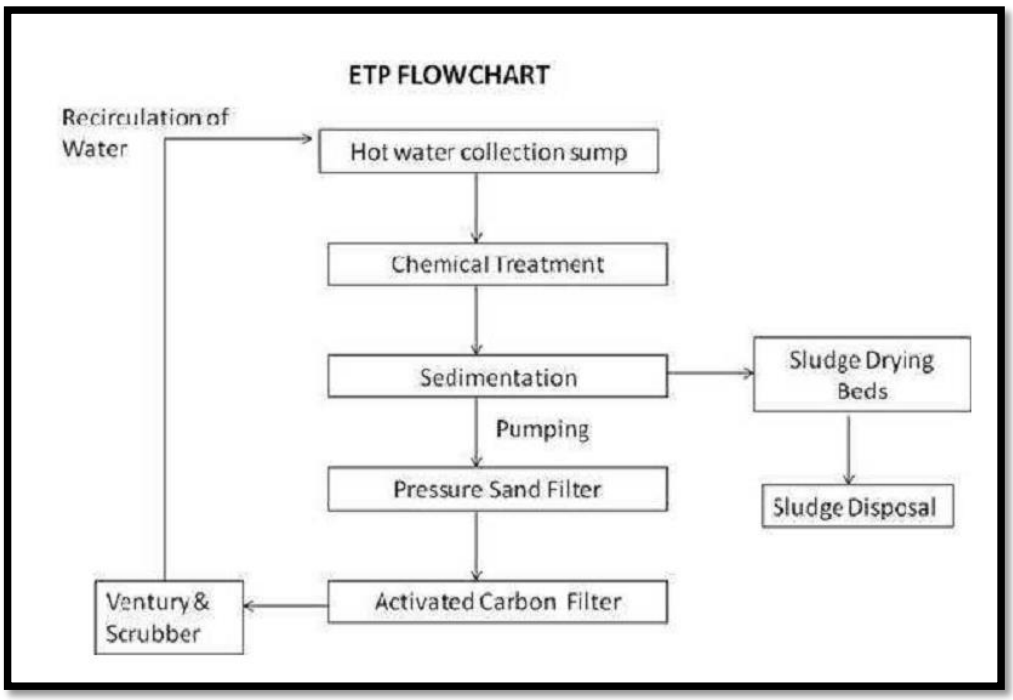


Figure 2-8: Effluent Treatment Plant Flow Diagram

2.5.10 Disposal

Ash, residue from high temperature incineration and other material residues from the process shall be collected into containers and shall be disposed into a secure landfill.

Recycle of Treated Waste

The treated waste will be segregated and option for sale of recyclable waste will be worked out. Recovery of metal scraps from sharps will also be worked out.

Health and Safety

The operators, who are in contact with the infectious waste generated, are continuously at risk during their working hours. Therefore, it is essential that adequate protection measures are provided against occupational health hazards.

Occupational Hazards

The following types of occupational hazards can occur with cleaning/collection or transportation of waste etc. Accidental cut or punctures from infected sharps such as, hypodermic needles, scalpels, knives etc. Contact with infected material like pathological waste, used gloves, tubing etc.

Safety Measures

- Display of illustrated notices with clear instructions for do's and don'ts in English and the local language.
- Issuance of all protective gears such as, gloves, aprons, masks, gum boot etc. without fail.
- Provision of disinfectant, soap etc. of the right quality and clean towels.
- Provision of a wash area.
- Washing and disinfecting facility for the cleaning equipment and tools.
- Regular medical checkup for the employees

Documents and Records

Daily records shall be maintained for the waste accepted and treated waste removed from the site. This record shall include the following minimum details:
Waste Accepted: Waste collection date, Name of the healthcare unit, Waste category as per the Rules, Quantity of waste, Vehicle number & receiving date (at site).
Treated Waste Removed: Date, treated waste type, quantity, vehicle number and location of disposal.

- Label for transport of bio-medical waste containers / bags.
- Logbook for Treatment Equipment's
- The weight of each batch.
- The categories of waste as per the Rules.
- The time, date and duration of each treatment cycle and total hours of operations.
- The complete details of all operational parameters during each cycle

- Lab analysis
- Accident reporting

Site Records

- Site records shall include the following:
- Maintenance schedule, breakdowns/trouble shootings and remedial actions
- Emergencies
- Incidents of unacceptable waste received and the action taken
- Details of site inspections by the officials of the regulatory Agency and necessary action on the observations.

3 DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 Introduction

This chapter describes the existing environmental status of the study area with reference to the prominent environmental attributes. The study covers the core zone and buffer zone of 10 km radius around the project site.

3.2 Present Environmental Scenario

Baseline study is conducted in order to identify the changes to the natural and socioeconomic environments, or any potential impact and to have a thorough understanding of the nature of those existing environments prior to utilize 0.28 hectare of land for setting up of biomedical waste treatment facility. The present environmental scenario has been described in this chapter in respect of ambient air quality, water and effluent quality, noise level measurement, land use/cover pattern, socio- economic scenario, biodiversity, and hydrogeology.

3.3 Sources of Environmental Data

The baseline information on micro-meteorological data was generated by M/s EMDIGL, a NABET approved Consultant and ETS Lab.

3.4 Study Area

For the description of baseline environmental scenario, the CBWTF project area has been considered as the core zone. The area falling within a distance of 5 km from the boundary of the core zone has been considered as the buffer zone. The core zone and the buffer zone, combined together, form the study area. The study area is considered 10 km around the proposed project located in Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh.

Study Period: The baseline data were collected during winter season **1st January 2021 to 31st March 2021 & additional one month study in 1st April 2023 to 30th April 2023.**

Approach and Transportation

The study area is at distance of approx. 2.15 km (Aerial) to Sahjanwa Railway Station in North direction. The airport (Gorakhpur International Airport) is at a distance of 21.15 km (Aerial) from the project site in East.

3.5 Topography

The topography of the city is largely plain with a marginal gradient/ slope from north to south. The slope decreases from the middle of the city to both east and westwards. The height of the city ranges from 72 meters in south and south west to 95 meters in North above the mean sea level. In the north newly developed part of the city has elevation more than 85 meters and decreases toward south. The least elevation is in the southern part of the city which is along the Ramgarh Tal and Hobert embankment and NH 28.

Most of the area of northern parts has the elevation between 80 to 85 meters. There are numerous water bodies within the city and the biggest Ramgarh tal is situated in the south eastern part of the city. The elevation is much irregular and gradients are also very uneven. But there are three north-south elongated low lying land which is deeper having the height less than 80 meters. It seems that these are the older beds of Rapti in west, Gorghoia Nala in east and other channel between them.

The areas along river Rohin and Gordhoianala have the height between 75 to 80 meters. The height from eastern bank of Ramgarh Tal to extreme east, up to city boundary, is continuously increasing. The southern part of the city has comparatively lesser height which ranges between 75 to 80 meters. It is lowest part of the city. The Ramgarh Tal and its water covered area have the height around 70 meters. Thus, the southern part from Ramgarh Tal to west ward is a low-lying area where height increases from east to west.

Hence according to the height, the city can be divided in two parts- first- northern half part of the city which has more than 79 meters height while second -half southern part has the elevation between 74 to 79 meters, except higher patches of area of civil lines and Dharmshal bazar around railway station. The area along Gordhoian nala to Ramgarh Tal and extreme southern part between river Rapti to Ramgarh Tal has lowest elevation.

Source:- http://mygorakhpurup.blogspot.com/2012/06/geography-of-gorakhpur.html

3.6 Climate & Rainfall

The normal rainfall is of tune of 1379.20 mm. The most of rainfall in the area occurs from south west monsoon from mid-June to September. During the rest of the year, the rainfall is sporadic and scanty.

The climate is sub-humid to humid and is influenced to some extent by the proximity of the north and the existence of Terai swamps. About 87% of rainfall takes place from June to September. During monsoon surplus water is available for deep perlocation to ground water.

January is the coldest month with mean daily maximum temperature at 23^0C and mean daily minimum temperature at 9.9^0C. May is the hottest month with mean daily maximum temperature at 39^0C and mean daily minimum temperature is 25.9^0C. With onset of the monsoon day temperature drops appreciably but nights continue to be warm. The mean monthly maximum temperature is at 31.9^0C while mean monthly minimum temperature is 19.8^0C. During the monsoon and post-monsoon seasons the relative humidities are high and decreases in winter months. The mean monthly morning relative humidity is 69% and mean monthly evening relative humidity is 53%.

Winds are generally light with a slight increase in force in the late summer and southwest monsoon months. The mean wind velocity is 4.1 Km/hr.

The potential evapotranspiration is 1422.7 mm.

Source: https://cgwb.gov.in/District_Profile/UP/Gorakhpur%20.pdf

3.7 Meteorology

The meteorological data recorded continuously during season of Winter Season (Jan-March) on hourly basis for wind speed, wind direction, relative humidity, precipitation and temperature and the same is processed to extract the 24-hour mean meteorological data as per the guidelines of IMD and MoEF for application of AERMOD Version 10.0.1 model. Stability classes computed for the mean hours are based on the guidelines issued by CPCB on modelling. Mixing heights representative of the region have been taken from the available published literature.

3.7.1 Stability Classification

Wind direction fluctuation method (CPCB PROBES/70/1997-1998) is adopted for hourly stability as determined by wind direction fluctuation method as suggested by Slade (1965).

$$\sigma_\Theta = Wdr/6$$

Wdr: the overall wind direction fluctuation or width of the wind direction in degrees, over the averaging period.

σ_Θ : the standard deviation of wind direction fluctuation.

The stability classes are as detailed below:

Table 3- 1 Stability Classification based Wind direction fluctuation

Stability Class	σ_Θ (degree)
A (Extremely Unstable)	>22.5
B (Moderately Unstable)	22.4-17.5
C (Slightly Unstable)	17.4-12.5
D (Neutral)	12.4-7.5
E (Slightly Stable)	7.4-3.5
F (Stable)	<3.5

3.7.2 Monthly Wind Speed and Wind Direction

The weather is one of the main factors affecting the air quality. Weather can help to clear away pollutants from atmosphere to improve air quality, or it can make air pollution extremely worse by helping to form highly polluted regions. The concentration of air pollutants in ambient air is governed by the meteorological parameters such as atmospheric wind speed, wind direction, relative humidity, and temperature. Rainfall can effectively remove atmospheric particulate pollutants, and the removal rate of PM10 is greater than the removal rate of PM2.5. In general

wind speed more than 7 m/s can lift dust. Heavier particles will settle near the source area, with the smaller ones settling farther away. The site-specific weather data has been collected by installation of weather monitoring station at site.

Table 3- 2 Weather Monitoring Data of the Site

Month	Temp(^{0}C) average		Relative Humidity (%)	Wind Speed(m/h)	Predominant wind direction(blowing from)
	Minimum	Maximum			
January, 2021	6.7	26.7	76.0	0.5	West
February, 2021	7.8	31.7	67.4	0.48	West
March, 2021	15.0	37.2	50.73	0.56	West

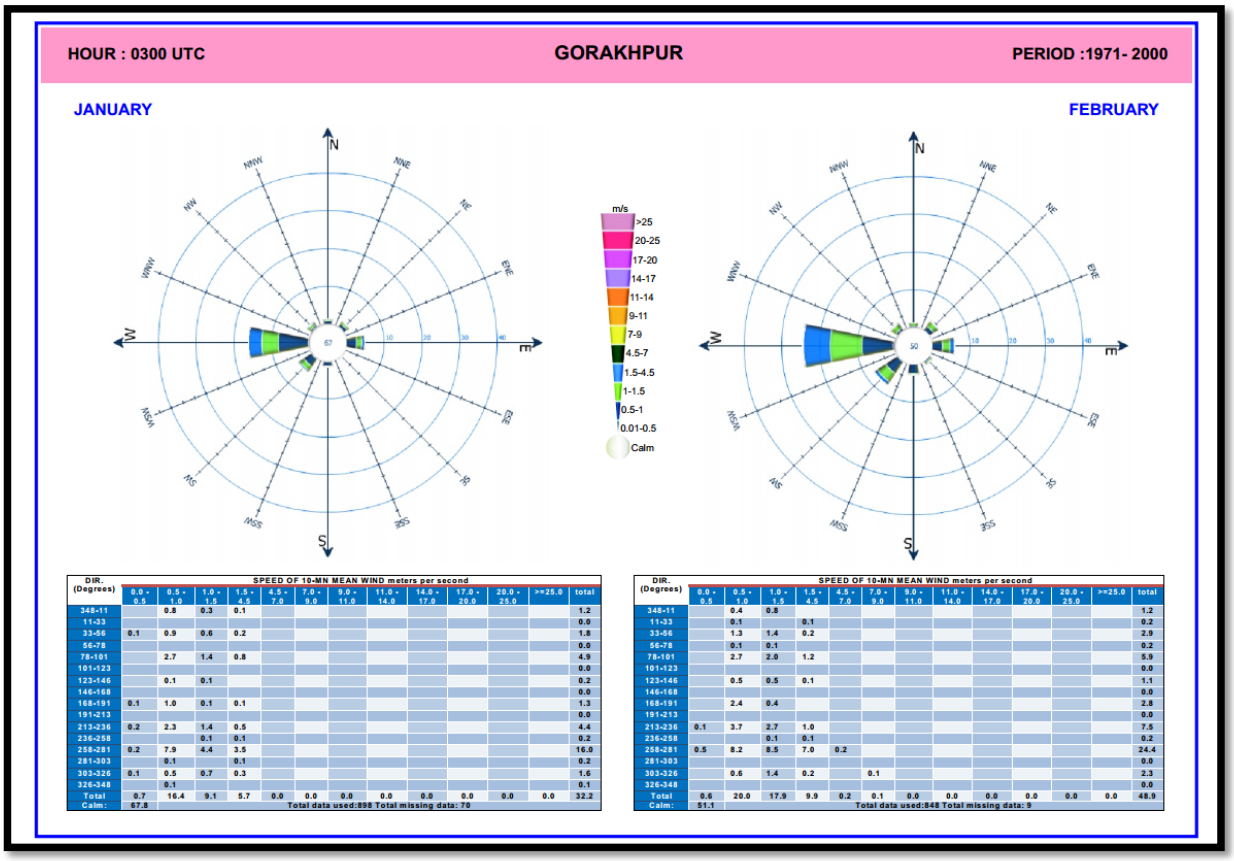
Table 3- 3 Meteorological Parameters (Jan-March 2021)

Meteorological Parameters (Jan-March)			
Parameter	**Minimum Value**	**Maximum Value**	**Mean Value**
Temperature (°C)	6.7	37.2	24.5
Wind Speed (m/s)	1.5	12.5	2.45
Relative Humidity (%)	21	75	48
Solar Radiation (W/m2)	5000	5500	5300

Rainfall	Total rainfall (mm)	No. of rainy days	Average annual rainfall (mm)
	0	0	1169

Secondary Windrose of the Gorakhpur

(Source-IMD Windrose Book)



JANUARY

DIR. (Degrees)	SPEED OF 10-MN MEAN WIND meters per second												
	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 4.5	4.5 - 7.0	7.0 - 9.0	9.0 - 11.0	11.0 - 14.0	14.0 - 17.0	17.0 - 20.0	20.0 - 25.0	>=25.0	total
348-11		0.8	0.3	0.1									1.2
11-33													0.0
33-56	0.1	0.9	0.6	0.2									1.8
56-78													0.0
78-101		2.7	1.4	0.8									4.9
101-123													0.0
123-146		0.1	0.1										0.2
146-168													0.0
168-191	0.1	1.0	0.1	0.1									1.3
191-213													0.0
213-236	0.2	2.3	1.4	0.5									4.4
236-258			0.1	0.1									0.2
258-281	0.2	7.9	4.4	3.5									16.0
281-303		0.1		0.1									0.2
303-326	0.1	0.5	0.7	0.3									1.6
326-348		0.1											0.1
Total	0.7	16.4	9.1	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.2
Calm:	67.8	Total data used:898 Total missing data: 70											

FEBRUARY

DIR. (Degrees)	SPEED OF 10-MN MEAN WIND meters per second												
	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 4.5	4.5 - 7.0	7.0 - 9.0	9.0 - 11.0	11.0 - 14.0	14.0 - 17.0	17.0 - 20.0	20.0 - 25.0	>=25.0	total
348-11		0.4	0.8										1.2
11-33		0.1		0.1									0.2
33-56		1.3	1.4	0.2									2.9
56-78		0.1	0.1										0.2
78-101		2.7	2.0	1.2									5.9
101-123													0.0
123-146		0.5	0.5	0.1									1.1
146-168													0.0
168-191		2.4	0.4										2.8
191-213													0.0
213-236	0.1	3.7	2.7	1.0									7.5
236-258			0.1	0.1									0.2
258-281	0.5	8.2	8.5	7.0	0.2								24.4
281-303													0.0
303-326		0.6	1.4	0.2		0.1							2.3
326-348													0.0
Total	0.6	20.0	17.9	9.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	48.9
Calm:	51.1	Total data used:848 Total missing data: 9											

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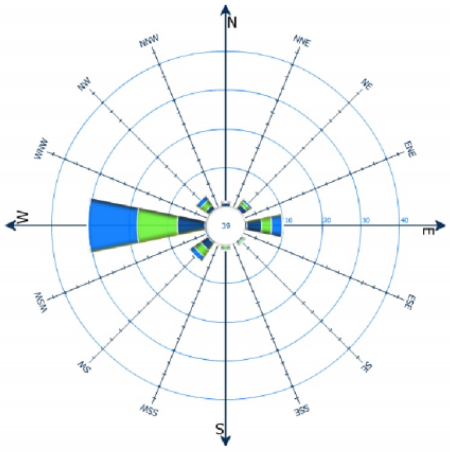
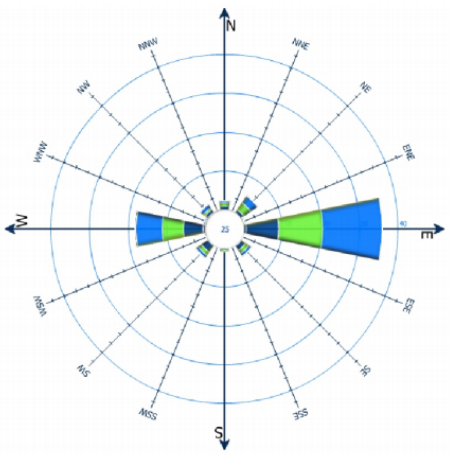
MARCH

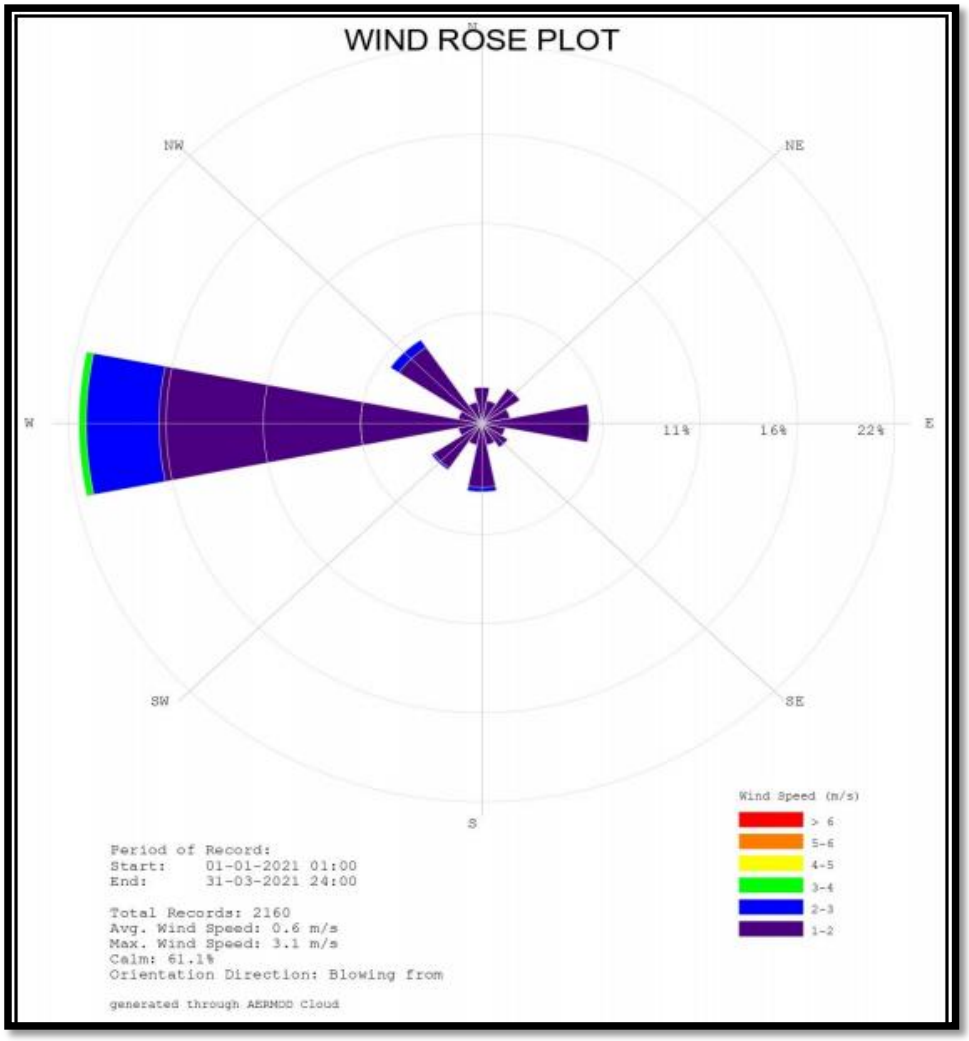


DIR. (Degrees)	SPEED OF 10-MN MEAN WIND meters per second												
	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 4.5	4.5 - 7.0	7.0 - 9.0	9.0 - 11.0	11.0 - 14.0	14.0 - 17.0	17.0 - 20.0	20.0 - 25.0	>=25.0	total
348-11		0.8	0.2	0.3									1.3
11-33													0.0
33-56	0.2	1.4	1.0	0.7									3.3
56-78	0.1	0.1		0.1									0.3
78-101	0.6	3.8	2.6	2.7	0.1					0.1			9.9
101-123													0.0
123-146		0.5	0.5	0.3									1.3
146-168													0.0
168-191	0.2	0.2	0.6	0.3									1.3
191-213		0.1	0.1	0.1									0.3
213-236	0.5	2.2	2.2	1.4									6.3
236-258			0.1	0.5									0.6
258-281	0.3	7.2	10.5	12.6	0.2								30.8
281-303				0.1									0.1
303-326		1.3	1.7	1.3									4.3
326-348													0.0
Total	1.9	17.6	19.5	20.4	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	59.7
Calm:	40.3	Total data used:929 Total missing data: 50											

APRIL



DIR. (Degrees)	SPEED OF 10-MN MEAN WIND meters per second												
	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 4.5	4.5 - 7.0	7.0 - 9.0	9.0 - 11.0	11.0 - 14.0	14.0 - 17.0	17.0 - 20.0	20.0 - 25.0	>=25.0	total
348-11		0.9	0.9	0.3	0.1								2.2
11-33													0.0
33-56		0.9	2.2	2.1	0.1								5.3
56-78			0.3		0.1								0.4
78-101	0.7	8.4	11.4	15.4	0.1								36.0
101-123		0.1	0.1										0.2
123-146	0.2	1.3	1.0	0.8									3.3
146-168													0.0
168-191		0.3	0.6										0.9
191-213													0.0
213-236	0.1	2.0	1.0	0.8									3.9
236-258				0.2									0.2
258-281	0.6	5.0	5.6	6.8	0.3								18.3
281-303		0.1	0.1	0.3									0.5
303-326	0.1	0.8	0.6	1.0									2.5
326-348													0.0
Total	1.7	19.8	23.8	27.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74.4
Calm:	25.6	Total data used:899 Total missing data: 42											



Windrose Data of the Site (Jan-March)

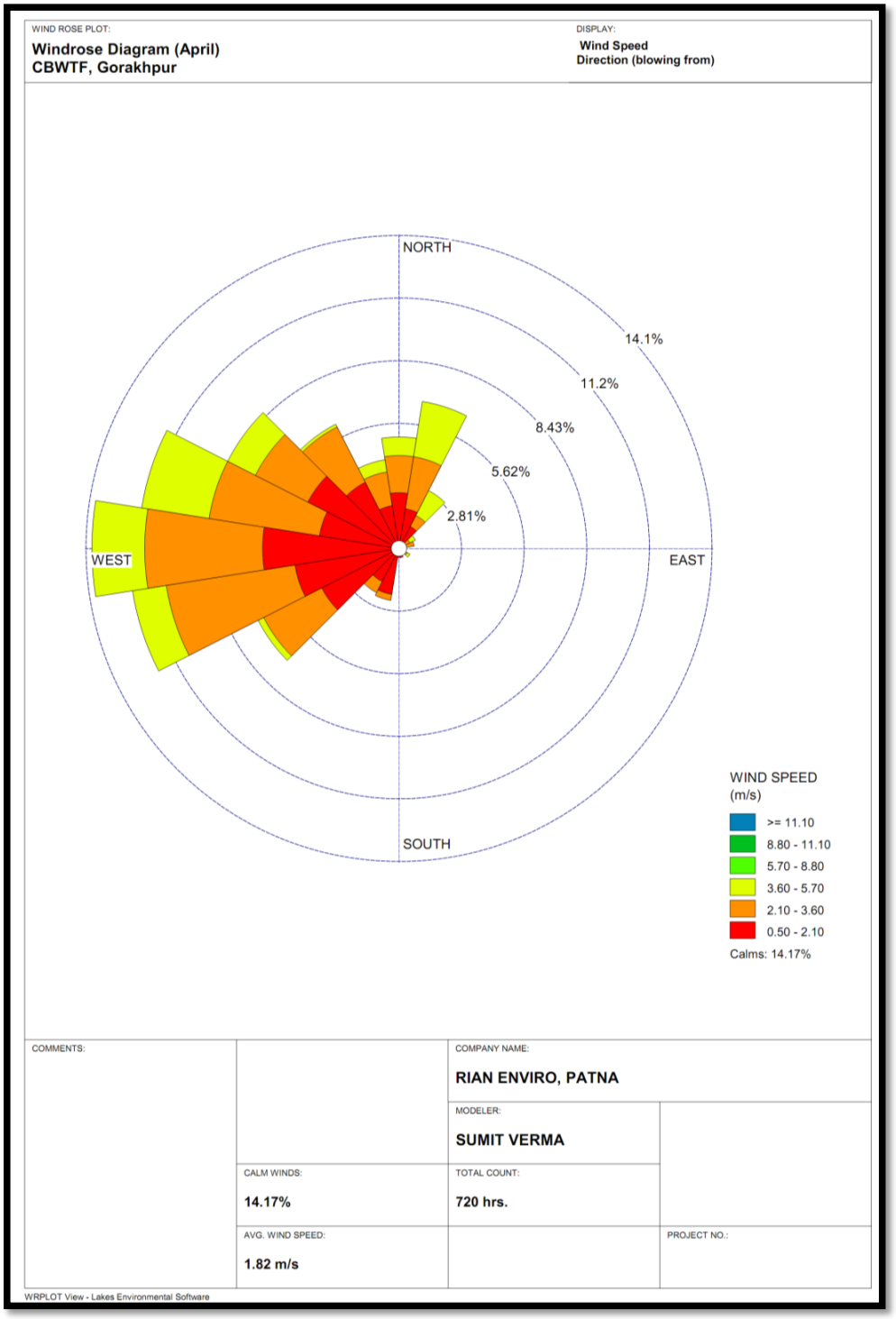


Figure 3- 1 Wind Rose Diagram at project site during study period

The wind direction is predominantly from West to East during study period of one month. The wind rose diagram prepared from data collected at site is shown in Figure 3-5.

3.8 Ambient Air Quality

The prime objective of the baseline ambient air quality monitoring is to evaluate the existing air quality of the area and to confirm whether the ambient air quality during the operation of the proposed project meets the air quality standards. This section describes the selection of sampling locations, methodology adopted for sampling, analytical techniques and frequency of sampling.

3.8.1 Location and selection of ambient air sampling stations

The ambient air quality monitoring locations were established in the study area. For selection of ambient air quality monitoring locations, the following factors were considered:

- Meteorological conditions in the area;
- Topography of the study area;
- Representativeness of the habitation for establishing baseline status;
- Likely impact areas.

Table 3- 4 Details of Ambient Air Quality Monitoring stations

S.No	Locations	Distance & Direction	Co-ordinate
AAQ1	Project Site	---	26°44'55.18"N 83°13'48.58"E
AAQ2	Under 500 meter in downwind direction	330.78 meter in East direction	26°44'54.04"N 83°14'0.69"E
AAQ3	Jamuand	1.95 km in East direction	26°45'34.96"N 83°15'19.79"E
AAQ4	Bhitti Rawat	6.13 km in West	26°45'20.52"N 83°10'8.06"E
AAQ5	Barhuan	7.04 km in ESE direction	26°44'14.32"N 83°17'59.15"E
AAQ6	Banaura	4.73 km in SSE direction	26°42'26.84"N 83°14'38.13"E
AAQ7	Gahasand	1.95 km in North direction	26°45'57.81"N 83°13'40.45"E
AAQ8	Kesho Kurha	5.77 km in NW direction	26°47'5.93"N 83°11'18.11"E

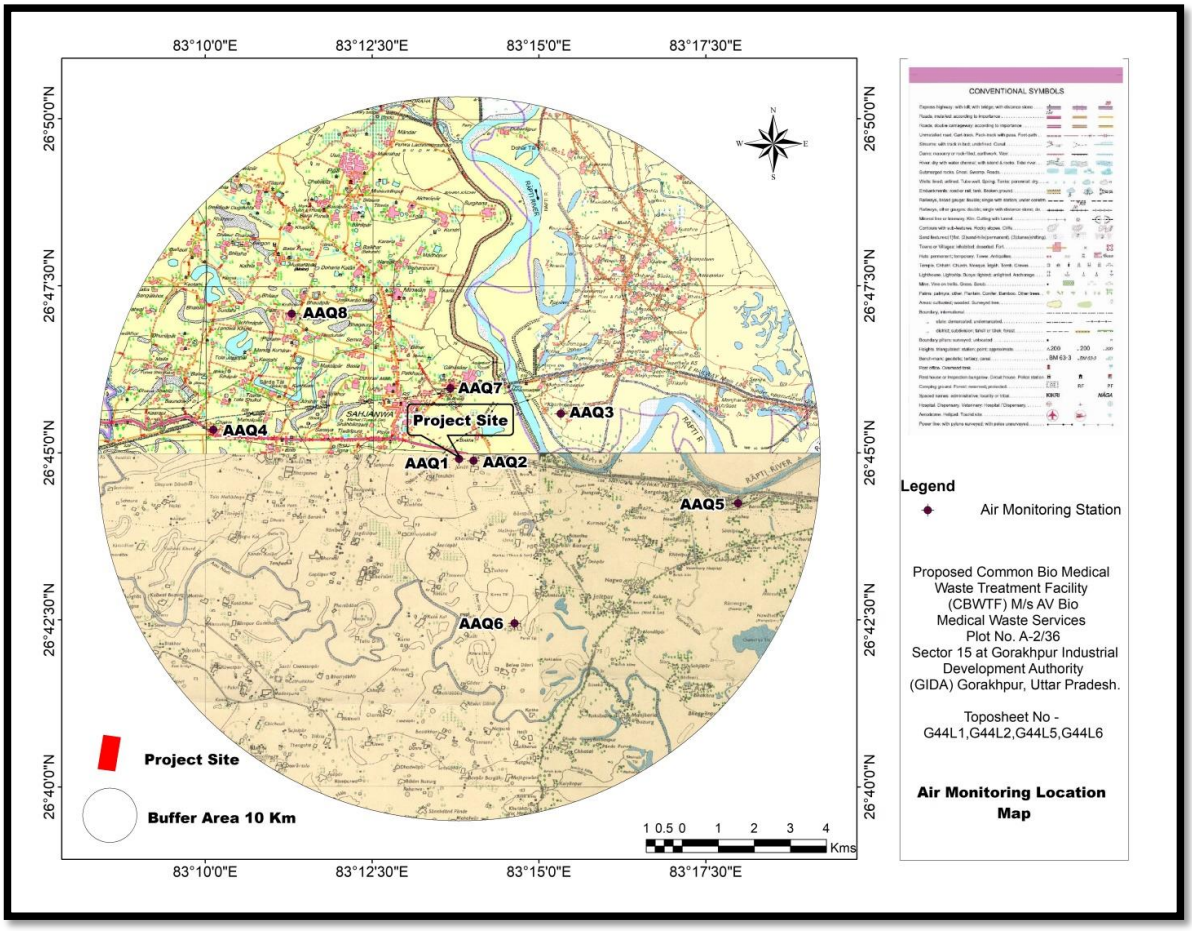


Figure 3- 2 Air monitoring Locations

Figure 3- 3 Air Monitoring photographs

3.8.2 Frequency and parameters of sampling

Ambient air quality monitoring has been carried simultaneously at 8 locations (One in the Core Zone and seven in the Buffer Zone) with a frequency of two consecutive days per week for 12 weeks. The samples were analyzed in laboratory by adopting the methods specified in National Ambient Air Quality Standards.

The following air pollution parameters were monitored during the sampling periods, for each sample:

- Respirable Particulate Matter (PM10)
- Fine particulate Matter (PM2.5)
- Sulphur dioxide (SO2)
- Oxides of nitrogen (NOx)
- Carbon Monoxide (CO)

Table 3- 5 Report of collected ambient air monitoring samples of 3 months

Parameter		AQ1	AQ2	AQ3	AQ4	AQ5	AQ6	AQ7	AQ8	NAAQS
		Project Site	Bhitti Rawat	Kesho Kurha	Gahasand	Jamuan	Barhuan	Piprauli	Banuara	
PM10 (µg/m3)	Min.	77.50	62.30	69.60	78.10	59.00	67.60	66.20	58.30	100
	Max.	90.00	81.30	88.60	81.60	86.96	85.60	84.30	78.60	
	Mean	83.65	75.14	82.25	80.07	80.58	79.66	75.90	68.21	
	98 %*	90.00	81.25	88.60	81.46	86.84	85.42	84.30	78.05	
PM2.5 (µg/m3)	Min.	40.20	30.40	35.80	30.90	28.60	26.80	29.30	32.60	60
	Max.	50.30	42.30	50.50	43.50	38.60	40.60	43.20	44.70	
	Mean	46.09	38.29	41.80	39.56	32.83	33.55	37.80	40.41	
	98 %*	50.21	42.30	50.41	43.36	38.46	40.05	43.20	44.65	
SO2 (µg/m3)	Min.	13.40	9.70	12.30	10.20	7.30	7.50	8.60	8.50	80
	Max.	20.80	15.20	18.40	17.30	13.60	14.30	16.40	14.30	
	Mean	18.46	12.79	15.16	14.08	11.32	11.76	13.36	12.49	
	98 %*	20.75	15.11	18.40	17.30	13.14	14.25	16.40	14.30	
NOX (µg/m3)	Min.	20.40	14.80	20.60	16.30	13.70	13.60	14.80	14.20	80
	Max.	26.50	22.40	26.40	28.20	22.30	23.50	24.90	24.30	
	Mean	23.25	18.76	21.93	23.88	17.65	18.86	20.85	19.02	
	98 %*	26.50	2240	26.40	28.15	20.68	23.32	24.62	23.89	
(CO) (mg/m3)	Min.	0.78	0.50	0.52	0.51	0.61	0.70	0.62	0.59	1 Hrs.=04
	Max.	1.62	0.63	0.92	0.68	0.99	0.99	0.82	1.12	
	Mean	1.26	0.58	0.77	0.61	0.83	0.85	0.70	0.83	
	98 %*	1.62	0.63	0.92	0.68	0.98	0.99	0.81	1.07	

Table 3- 6 One month additional data for Ambient Air Quality

Parameter		AQ1	AQ2	AQ3	AQ4	AQ5	AQ6	AQ7	AQ8	NAAQS
		PROJECT SITE	UNDER 500 METER IN DOWNWIND DIRECTION	JAMUAND	BHITTI RAWAT	BARHUAN	BANAURA	GAHASAND	KESHO KURHA	
PM10 (µg/m3)	Min.	76.0	85.1	71.7	75.0	77.3	76.5	78.1	84.0	100
	Max.	92.5	97.1	95.1	86.2	90.2	88.6	94.0	96.1	
	Mean	88.7	92.2	84.6	82.0	84.0	83.0	88.7	89.1	
	98 %*	92.5	96.8	94.7	86.1	90.0	88.3	93.8	95.6	
PM2.5 (µg/m3)	Min.	41.5	40.4	34.8	43.9	44.1	40.5	40.1	44.6	60
	Max.	52.8	55.2	45.9	50.2	53.5	54.3	48.2	55.2	
	Mean	46.8	49.1	40.0	47.6	50.3	47.0	46.3	48.8	
	98 %*	52.3	55.2	45.8	50.2	53.5	53.7	48.1	54.6	
SO2 (µg/m3)	Min.	12.4	11.4	13.1	10.9	8.9	10.7	10.8	10.7	80
	Max.	16.7	16.8	17.3	19.7	17.8	14.9	19.0	15.2	
	Mean	14.1	13.9	14.6	15.1	14.7	12.9	14.4	13.1	
	98 %*	16.6	16.7	17.2	19.4	17.7	14.8	18.5	15.1	
NOX (µg/m3)	Min.	20.3	24.3	23.0	21.0	19.8	18.8	17.9	24.8	80
	Max.	28.9	34.1	32.3	30.1	27.3	26.2	21.7	31.9	
	Mean	25.8	30.3	28.6	26.6	24.2	23.2	20.2	29.1	
	98 %*	28.8	34.1	32.3	30.0	27.3	26.1	21.7	31.9	
(CO) (mg/m3)	Min.	0.97	0.64	1.02	0.61	0.63	0.62	0.59	0.73	1 Hrs.=04
	Max.	1.79	1.18	1.89	1.20	1.12	1.14	1.09	1.35	
	Mean	1.31	0.86	1.37	0.86	0.89	0.84	0.80	0.98	
	98 %*	1.78	1.18	1.88	1.18	1.12	1.14	1.09	1.34	

The summary of results of ambient air quality monitoring of $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO are presented in Table 3-6. On the basis of tabulated data in Table 3-6, the following observations can be made:

3.8.3 Observation of 3 months baseline data

Particulate Matter (PM10)

The minimum and maximum concentration of PM10 ranges between 58.30 – 90.00µg/m3. Maximum average concentration of PM10 (i.e., 83.65µg/m3 at project site) was found to be within the standards value prescribed by National Ambient Air Quality Standards of 100µg/m3 at all the monitoring locations.

Fine Particulate Matter (PM2.5)

The minimum and maximum concentration of PM2.5 ranges between 26.80 – 50.50µg/m3. Maximum average concentration of PM2.5 (i.e., 46.09µg/m3 at project site) was found to be within the standards value prescribed by National Ambient Air Quality Standards of 60µg/m3 at all the monitoring locations.

Sulphur Dioxide (SO2)

The minimum and maximum concentration of SO2 ranges between 7.30 – 20.80µg/m3. Maximum average concentration of SO2 (i.e., 18.46µg/m3 at village project site) was found to be within the standards value prescribed by National Ambient Air Quality Standards of 80µg/m3 at all the monitoring locations.

Nitrogen Oxide (NO2)

The minimum and maximum concentration of NO2 ranges between 13.60 – 26.50µg/m3. Maximum average concentration of NO2 (i.e., 23.88µg/m3 at Village Gahasand) was found to be within the standards value prescribed by National Ambient Air Quality Standards of 80µg/m3 at all the monitoring locations.

Carbon Monoxide (CO)

The minimum and maximum concentration of CO2 ranges between 0.50 – 1.62µg/m3. Maximum average concentration of CO2 (i.e., 1.26µg/m3 at Village Project Site) was found to

be within the standards value prescribed by National Ambient Air Quality Standards of 4.0µg/m3at all the monitoring locations.

Note:- 3 months baseline monitoring data(January 2021 to March 2021) is taken from the distillery project which is at 300 meter distance from the project site and already got EC. For reviewing the previous baseline data we are collected additional one month data of APRIL, 2023 which is shown in table no. 3.6.

3.9 Water Environment

3.9.1 Drainage Pattern of the Study area

The drainage system of the district represents a part of the Ganga basin and Ghaghra sub basin. The main river system is controlled by the Ghaghra river and its affluent in the district. There are two direct affluent of Ghaghra viz the Rapti and the kuwana. Rapti river with its tributaries Tarauna Nadi, Ami river and Gaura Nadi form the main drainage of the district. The drainage of the entire district is discharged into Ghaghra. The major sources are Ramgarh Tal, Nandaur Tal, Amir Tal, Bheuri Tal and Taraina Tal. These are useful as sources for minor irrigation & fisheries.

The project is not located within 1.0 km radius of any major river.

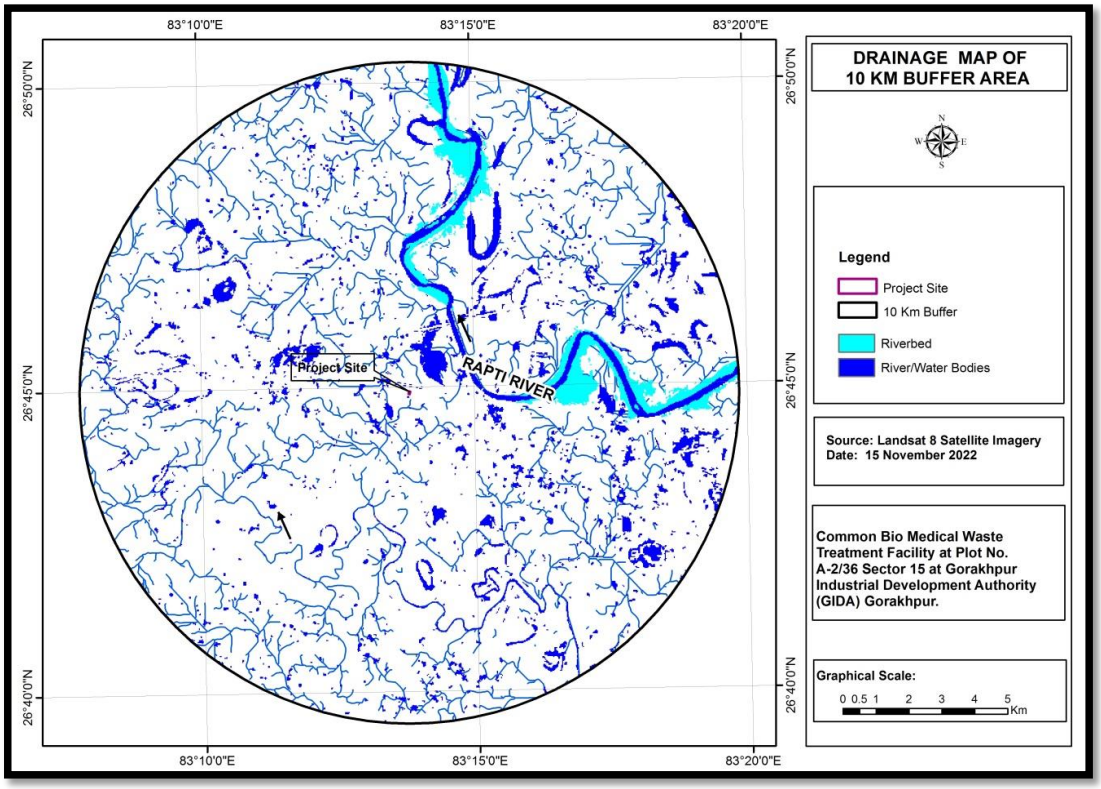


Figure 3- 4 Drainage map of the study area

3.9.2 Water Quality report

Baseline Information on Water Quality: Water quality monitoring were carried out at 8 (Eight) locations for ground water and 8(Eight) locations for surface water.

Frequency of sampling was once for one season (January, February and March) during winter season for eight surface water sampling locations and eight ground water sampling locations. The locations of water quality monitoring stations are mentioned in the Table 3.7 & 3.8 for surface water and ground water respectively and locations are shown in maps in figure 3.9 & 3.10.

Methodology: Water samples were collected manually from selected 8 (eight) sampling points as mentioned in previous paragraphs. Polytetrafluoroethylene (PTFE) sample bottles were used for

sample collection. These bottles were washed and sterilized properly in an autoclave before being used for water sample collection.

The analysis of water samples carried out at NABL Accredited Chemical Testing Laboratory of ETS. Analysis procedures adopted as per the Standard Operating Procedure (SOP) for WATER prepared based on BIS specification confirming to Central Pollution Control Board Guidelines.

Table 3- 7 Surface Water Sampling Locations

S.No	Locations	Distance & Direction	Co-ordinate	Environmental Setting	Justifications
SW1	Rapti River (Upstream)	2.80 km, West	26°44'54.16"N 83°15'9.35"E	River in buffer zone	Ghaghra river and its Affluent (Rapti and the Kuwana). Rapti river with its tributaries Tarauna Nadi, Ami river and Gaura Nadi form the main drainage of the district. Within 10 km radius of the project area, there are several open ponds. Eight surface water sampling locations are chosen from this area to study over all surface water quality within the total study area comprising 10 km radius from the boundary of the project site
SW2	Rapti River (Downstream)	2.81 km, West	26°44'52.13"N 83°15'13.45"E	River in buffer zone	
SW3	Ami River (Upstream)	3.85 km, NW	26°42'45.00"N 83°13'17.78"E	River in buffer zone	
SW4	Ami River (Downstream)	3.06 km, NNW	26°42'40.61"N 83°13'23.35"E	River in buffer zone	
SW5	Bhitti Rawat(Pond)	7.79 km, SE	26°45'30.75"N 83° 9'42.66"E	Open pond in buffer zone	
SW6	Gahasand (Pond)	8.55 km, ENE	26°46'7.63"N 83°13'35.29"E	Open pond in buffer zone	
SW7	Barhuan (Pond)	7.79 km, NE	26°44'20.60"N 83°17'59.00"E	Open pond in buffer zone	
SW8	Pond, Domari	Banaura (Pond)	26°42'26.25"N 83°14'36.53"E	Open pond in buffer zone	

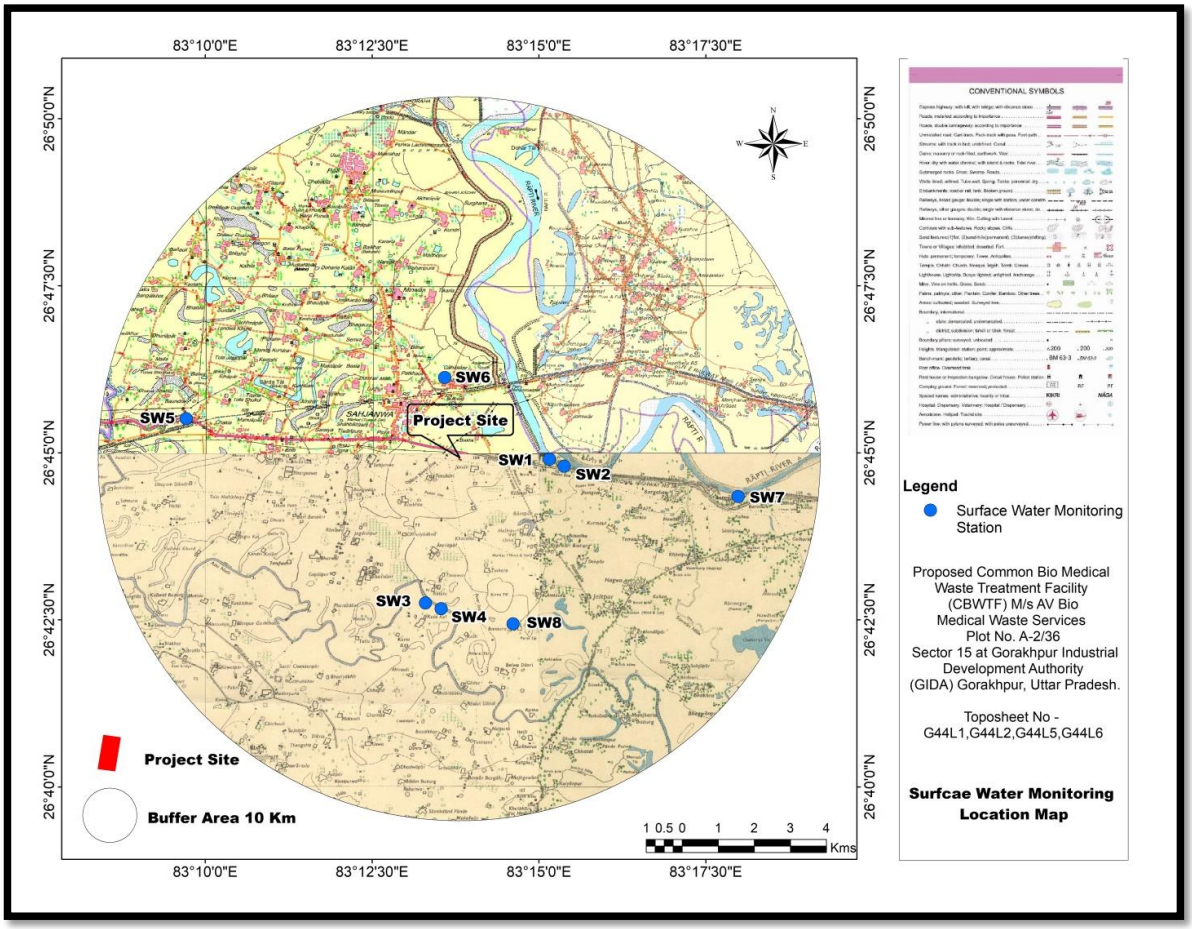


Figure 3- 5 Surface water location

Figure 3- 6 Surface water sampling photograph

Table 3- 8 Analysis Report of Surface Water

S. No.	Parameter	Unit	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
01	pH (at 25°C)	--	7.89	8.01	7.75	7.88	7.85	7.54	7.41	7.67
02	Temperature	°C	18.00	23.00	20.00	23.00	21.0	18.0	23.0	22.0
03	Turbidity	NTU	8.6	9.2	75.0	8.6	10.5	7.6	10.5	12.2
04	Electric Conductivity (at 25°C)	µs/cm	608	615	524.0	540	998	650	748	820
05	Sulphate (SO4)	mg/l	10.66	12.08	17.20	18.15	58.12	21.8	35.2	14.6
06	Nitrate (NO3)	mg/l	2.45	2.57	4.40	4.60	8.02	5.46	4.12	5.38
07	Total Hardness (as CaCO3)	mg/l	180.0	182.00	210.0	223.0	260.0	189	210	240
08	Chloride (as Cl)	mg/l	52.80	54.10	34.60	35.50	208	78	85	76
09	Fluoride (as F)	mg/l	0.64	0.66	0.51	0.54	1.27	0.65	0.58	0.41
10	COD (as O2)	mg/l	21.00	23.00	12.0	14.0	58.0	27.0	32.0	25
11	Iron (as Fe)	mg/l	0.25	0.27	0.23	0.25	0.41	0.34	0.42	0.34
12	Dissolved Oxygen	mg/l	6.5	6.4	6.8	6.6	5.1	5.8	6.2	6.5
13	Total Dissolved Solid	mg/l	398	410	342	410	680	368	430	398
14	BOD (3 Days at 27o C)	mg/l	4.6	4.8	2.8	4.1	15.0	7.2	8.5	7.1
15	Calcium (as Ca)	mg/l	35	38.5	40.2	45.7	32.0	41.0	44	48

16	Magnesium (as Mg)	mg/l	18.04	20.6	25.1	28.2	28.0	23.0	21.0	25
17	Arsenic (as As)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Lead (as Pb)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Copper (as Cu)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Zinc (as Zn)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21	Manganese (as Mn)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Total Chromium (as Cr)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Sodium (as Na)	mg/l	54.0	57.0	14.5	16.5	121.0	89	45.0	78
24	Potassium (as K)	mg/l	6.2	6.4	2.8	2.6	6.8	2.1	1.8	2.4
25	Total Alkalinity (as CaCO3)	mg/l	327	326	260	261	335	302	260	280
26	Phosphate (as P)	mg/l	0.34	0.35	0.21	0.23	0.28	0.24	0.30	0.27
27	Nitrite (as NO2)	mg/l	0.21	0.22	0.18	0.20	0.25	0.16	0.23	0.19
28	Total Suspended Solid	mg/l	6.2	6.4	3.2	4.1	7.1	8.2	7.4	8.8
29	Faecal Coliform	MPN/100 ml	$0.76x10^3$	$0.81x10^3$	$0.85x10^3$	$0.87x10^3$	$1.0x10^3$	$0.95x10^3$	$1.0x10^3$	$1.2x10^3$
30	Total Coliform	MPN/100 ml	$0.85x10^3$	$0.89x10^3$	$0.92x10^3$	$0.96x10^3$	$1.2x10^3$	$1.1x10^3$	$1.4x10^3$	$1.5x10^3$

Table 3- 9 Analysis Report of Surface Water for one month

S. No.	Parameter	Unit	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	Test Method
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	IS:3025 (Pt-4)
2	Odour	---	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3	pH	---	7.82	7.12	8.10	7.5	7.93	7.41	7.4	7.21	IS:3025 (Pt-11)
4	Turbidity	NTU	5.10	10.8	13.0	10.3	8.91	9.8	9.78	12.87	IS:3025 (Pt-10)
5	Total Dissolve Solid (TDS)	mg/L	286.5	315.5	518.9	530.9	508.8	405.2	679.4	431.9	IS:3025 (Pt-16)
6	Total Alkalinity (CaCO3)	mg/L	190.4	176.0	246.3	269.0	289.0	126.1	317.6	295.2	IS:3025 (Pt-23)

7	Total Hardness(CaCO3)	mg/L	178.2	152.6	372.7	310.0	254.1	171.7	268.6	219.6	IS:3025 (Pt-21)
8	Chloride (Cl)	mg/L	68.2	50.9	94.3	88.3	93.2	83.4	104.9	42.8	IS:3025 (Pt-32)
9	Calcium (Ca)	mg/L	87.7	73.4	117.2	126.5	119.3	41.6	121.7	84.6	IS:3025 (Pt-40)
10	Mineral Oil	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	IS:3025 (Pt-39)
11	Sulphate (SO4)	mg/L	24.2	38.1	52.6	51.5	48.8	34.5	33.3	47.8	IS:3025 (Pt-24)
12	Nitrate (NO3)	mg/L	4.8	3.30	6.7	6.32	0.32	0.70	0.65	3.23	IS:3025 (Pt-34)
13	Fluoride (F)	mg/L	0.32	0.34	0.38	0.26	0.38	0.32	0.35	0.24	IS:3025 (Pt-60)
14	Iron (Fe)	mg/L	0.25	0.21	0.22	0.37	0.15	0.17	0.15	0.16	IS:3025 (Pt-53)

15	Aluminium (Al)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	APHA-3500 (B)
16	Selenium (Se)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	APHA-3113 (B)
17	Cyanide (Cn)	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	APHA-4500 (C)
18	Copper(Cu)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	APHA-3111(B)
19	Magnesium (Mg)	mg/L	25.2	19.8	34.2	35.3	16.3	14.9	15.03	15.4	IS:3025 (Pt-45)
20	Manganese(Mn)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	APHA-3111(B)
21	Zinc(Zn)	mg/L	0.16	0.13	0.27	0.13	0.24	0.51	0.24	0.34	APHA-3111 (B)
22	Cadmium(C d)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	APHA-3111 (B)

23	Lead(Pb)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	APHA-3111 (B)
24	Boron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	IS:3026(Pt-57)
25	Mercury(Hg)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	APHA-3112 (B)
26	Molybdenum(mo)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	IS:3025(Pt-2)
27	Nickel (Ni)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	APHA-3111 (B)
28	Arsenic(As)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	APHA-3500 (B)
29	Chromium (Cr+6)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	APHA-3500 Cr-B
30	Conductivity (25 °C)	µs/Cm	478.6	522.9	816.0	821.5	817.8	387.2	990.2	612.7	APHA-2510

31	Chemical Oxygen Demand (COD)	mg/L	18.28	20.2	32.6	22.1	18.2	22.14	26.0	19.5	APHA-5220 (B)
32	Biological Oxygen Demand (BOD at 27OC for 3 day)	mg/L	2.05	2.47	3.5	4.6	1.3	4.9	3.42	2.73	APHA-4500 (D)
33	Dissolve Oxygen (DO)	mg/L	6.16	6.61	4.2	6.7	3.76	5.6	5.56	6.18	APHA-5210
34	E. Coli	MPN/ 100ml	270	190	190	210	130	110	390	70	IS:1622-1981
35	Total Coliform	MPN/ 100ml	320	240	280	340	270	260	440	130	IS:1622-1981

Table 3- 10 Standards of Surface Water Quality Criteria

Class of Water	Designated best use	Criteria
A	Drinking Water Source without conventional treatment but after disinfection	• Total Coliforms Organism MPN/100ml shall be 50 or less • pH between 6.5 and 8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20°C 2mg/l or less
B	Outdoor bathing (Organized)	• Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 • Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20°C 3mg/l or less
C	Drinking water source after conventional treatment and disinfection	• Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 • Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20°C 3mg/l or less
D	Propagation of Wild life and Fisheries	• pH between 6.5 to 8.5 • Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less
E	Irrigation, Industrial Cooling, Controlled Waste disposal	• pH between 6.0 to 8.5 • Electrical Conductivity at 25°C micro mhos/cm Max.2250 • Sodium absorption Ratio Max. 26 • Boron Max. 2 mg/L

As per ISI-IS: 2296-1982	
Classification	**Type of use**
Class A	Drinking water source without conventional treatment but after disinfection
Class B	Outdoor bathing
Class C	Drinking water source with conventional treatment followed by disinfection
Class D	Fish culture and wild life propagation
Class E	Irrigation, industrial cooling or controlled waste disposal

3.9.3 Observations of 3 months baseline data

Surface Water: Surface water samples have turbidity level less than 10, TDS levels less than 500 mg/l. These water sources needs water treatment plant consisting of clarification, sand filter carbon filter and disinfection treatment before they are used for domestic purpose. For drinking water purpose these sources needs further treatment using UF/RO plant.

3.10 Ground Water

Table 3- 11 Ground Water sampling locations in the study area

S.No	Locations	Distance & Direction	Co-ordinate
GW1	Project Site	---	26°44'55.18"N 83°13'48.58"E
GW2	Under 500 meter in downwind direction	330.78 meter in East direction	26°44'54.04"N 83°14'0.69"E
GW3	Jamuand	1.95 km in East direction	26°45'34.96"N 83°15'19.79"E
GW4	Bhitti Rawat	6.13 km in West	26°45'20.52"N 83°10'8.06"E
GW5	Barhuan	7.04 km in ESE direction	26°44'14.32"N 83°17'59.15"E
GW6	Banaura	4.73 km in SSE direction	26°42'26.84"N 83°14'38.13"E
GW7	Gahasand	1.95 km in North direction	26°45'57.81"N 83°13'40.45"E
GW8	Kesho Kurha	5.77 km in NW direction	26°47'5.93"N 83°11'18.11"E

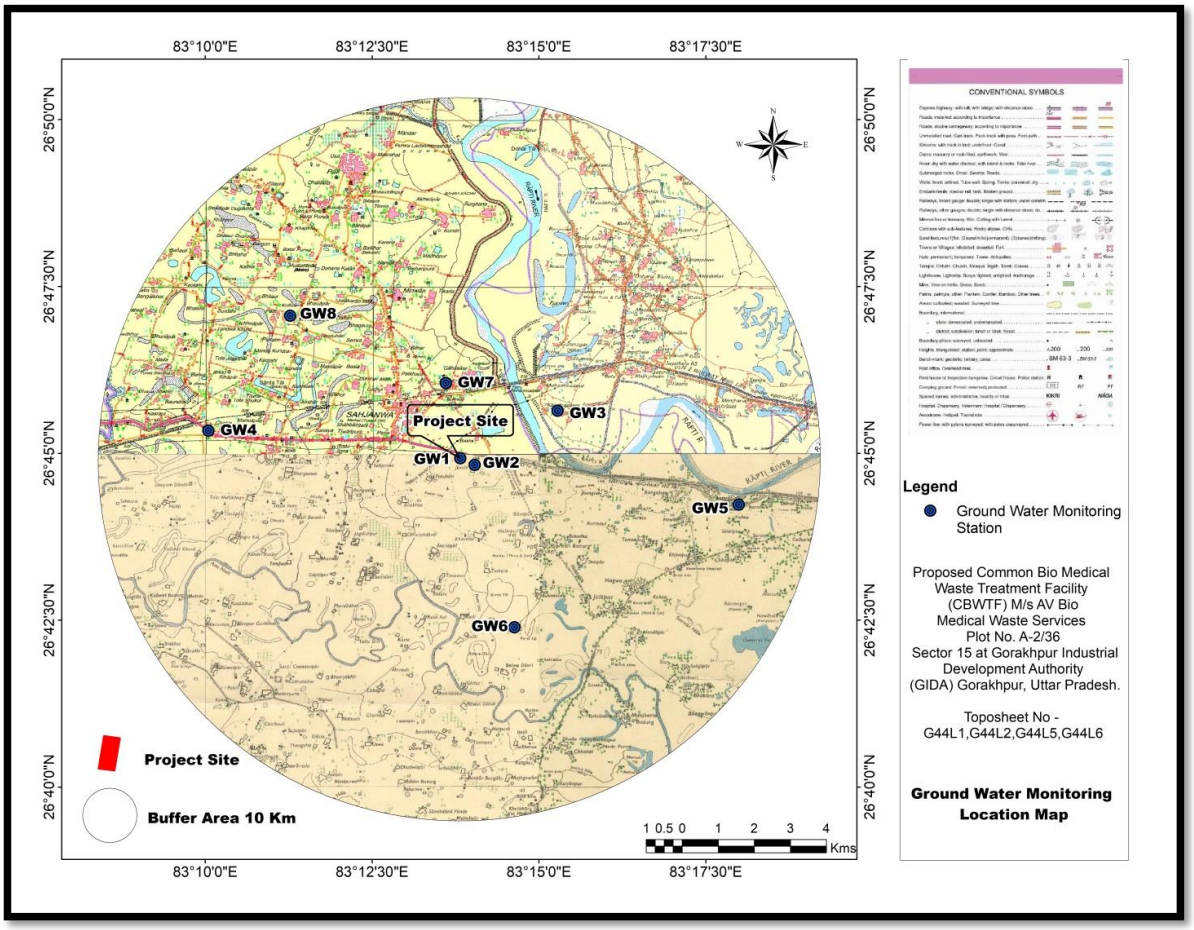


Figure 3- 7 Ground water location

Figure 3- 8 Ground Water sampling photograph

Table 3- 12 Analysis Report of Ground Water of 3 months

S.No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8
Microbiological Requirement										
1.	Escherichia Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
2.	Coliform Bacteria	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Organoleptic & Physical Parameters										
1.	Colour	Hazen	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
5.	pH Value	-	7.45	7.23	7.78	7.84	7.88	7.36	7.78	7.38
6.	Total Dissolve Solid (TDS)	Mg/l	350	557	396	672	540	421	408	426
General Parameters concerning substances undesirable in excessive										
1.	Aluminium (as Al)	Mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2.	Total Ammonia	Mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

3.	Anionic Detergents (as MBAS)	Mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
4.	Barium (as Ba)	Mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
5.	Boron (as B)	Mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
6.	Calcium (as Ca)	Mg/l	60.35	65.23	58.22	76.40	114.23	57.26	68.25	56.45
7.	Chloramines (as Cl2)	Mg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
8.	Chloride (as Cl)	Mg/l	42.50	48.18	80.15	112.86	189.60	38.89	62.16	28.16
9.	Copper (as Cu)	Mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10.	Fluoride (as F)	Mg/l	0.62	0.68	0.62	0.82	0.59	0.54	0.58	0.61
11.	Free Residual Chlorine	Mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
12.	Iron (as Fe)	Mg/l	0.26	0.34	0.202	0.248	0.35	0.23	0.32	0.29
13.	Magnesium (as Mg)	Mg/l	18.25	23.06	24.55	41.75	10.22	16.26	23.54	2308

14.	Manganese (as Mn)	Mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
15.	Mineral Oil	Mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
16.	Nitrate (as NO3)	Mg/l	2.56	3.12	4.12	8.75	3.56	3.02	3.08	3.27
17.	Selenium (as Se)	Mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Silver (as Ag)	Mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
19.	Sulphate (as SO4)	Mg/l	23.24	27.50	34.60	34.12	45.12	19.60	26.47	15.88
20.	Sulphide (as H2S)	Mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Alkalinity (as CaCO3)	Mg/l	260.0	310.0	282.0	315.0	375.0	221.0	260	286
22.	Total Hardness (as CaCO3)	Mg/l	245.0	278.0	240.0	380.0	326.0	318.0	289	303
23.	Zinc (as Zn)	Mg/l	0.26	0.32	0.28	0.34	0.35	0.26	0.24	0.25

Table 3- 13 Analysis Report of Ground Water for One Month

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5	15	IS:3025 (Pt-4)
2	Odour	---	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3	pH	---	7.68	7.68	7.29	7.58	7.41	7.75	7.75	7.08	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4	Taste	---	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	5	IS:3025 (Pt-10)
6	Total Dissolve Solid (TDS)	mg/L	290.3	518.0	491.0	656.0	443.0	335.0	619.0	542.3	500	2000	IS:3025 (Pt-16)
7	Total Alkalinity (CaCO3)	mg/L	185.7	270.0	287.0	328.0	210.0	190.0	315.0	287.7	200	600	IS:3025 (Pt-23)

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
8	Total Hardness(CaCO3)	mg/L	145.5	258.5	226.8	381.8	169.8	173.8	293.8	263.8	200	600	IS:3025 (Pt-21)
9	Chloride (Cl)	mg/L	28.1	78.0	56.0	123.0	48.0	42.0	71.0	82.2	250	1000	IS:3025 (Pt-32)
10	Calcium (Ca)	mg/L	42.6	80.0	80.0	105.6	67.0	68.0	105.0	94.6	75	200	IS:3025 (Pt-40)
11	Mineral Oil	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12	Sulphate (SO4)	mg/L	18.6	30.6	45.6	36.2	28.2	43.2	81.2	38.1	200	400	IS:3025 (Pt-24)
13	Nitrate (NO3)	mg/L	0.3	2.90	3.05	5.53	6.27	3.70	8.61	5.75	45	No Relaxation	IS:3025 (Pt-34)
14	Fluoride (F)	mg/L	0.27	0.20	0.04	0.34	0.36	0.25	0.14	0.31	1	1.5	IS:3025 (Pt-60)

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
15	Iron (Fe)	mg/L	0.13	0.16	0.12	0.16	1.23	0.26	0.22	0.36	0.3	No Relaxation	IS:3025 (Pt-53)
16	Aluminium (Al)	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.2	APHA-3500 (B)
17	Selenium (Se)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18	Cyanide (Cn)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19	Copper(Cu)	mg/L	0.04	0.02	0.15	0.001	0.13	0.03	0.01	0.08	0.05	1.5	APHA-3111(B)
20	Magnesium (Mg)	mg/L	16.4	21.8	17.9	28.8	12.8	23.8	12.8	15.4	30	100	IS:3025 (Pt-45)
21	Manganese (Mn)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3	APHA-3111(B)
22	Zinc(Zn)	mg/L	0.16	0.14	0.21	0.05	0.10	0.17	0.017	0.18	5	15	APHA-3111 (B)

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
23	Cadmium(Cd)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24	Lead(Pb)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No. Relaxation	APHA -3111 (B)
25	Mercury(Hg)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26	Nickel (Ni)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27	Arsenic(As)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.05	APHA - 3111(B)
28	Chromium (Cr+6)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No. Relaxation	APHA -3500 Cr-B
29	Phenolic Compound (C6H5OH)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	APHA -5530
30	Conductivi	mhos/cm	452.2	795.6	754.7	903.1	689.3	516.0	956.1	768.5	Not Specif	Not Specifie	APHA -2510

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
	ty (25 °C)										ied	d	
31	E. Coli	Coli/100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		IS:1622-1981
32	Total Coliform	MPN/100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		IS:1622-1981
33	Temperature	°C	18	18.0	18.5	18.0	17.0	19.0	18.5	20.0	Not Specified	Not Specified	IS:3025 (Pt-9)
34	Sodium (Na)	mg/L	53.1	66.4	76.6	73.9	78.4	43.4	65.7	67.2	Not Specified	Not Specified	APHA-3500 (Na)
35	Fecal Coliform	MPN/100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		APHA-9221

3.10.1 Observations of 3 months baseline data

Ground water: Ground water samples analysis results indicate that Calcium level is higher at sampling point GW5. Ground water is fit for use as industrial water and for non-direct contact domestic purpose after basic filtration and disinfection treatment. After desalination treatment ground water can be used for low TDS water application.

3.11 Noise Environment

The physical description of sound concerns its loudness as a function of frequency. Noise, in general, is sound that is composed of many frequency components of various levels of loudness, distributed over the audible frequency range. Various noise scales have been introduced to describe, in a single number, the response of an average human to a complex sound made up of various frequencies at different loudness levels. The most common and universally accepted scale is the 'A' weighted scale which is measured as dB (A). This is more suitable in the audible range of 20 to 20,000 Hz. The scale has been designed to weigh various components of noise according to the response of the human ear. The impact of noise sources in surrounding community depends upon;

Characteristics of noise sources (instantaneous, intermittent or continuous in nature). It can be observed that steady noise is not as annoying as one which is continuously varying in loudness.

The time of day at which noise occurs, for example high noise levels at night in residential area are not acceptable because of sleep disturbance. The location of the noise source w.r.t. noise sensitive area, which determines the loudness and period of exposure.

3.11.1 Monitoring Locations

Eight monitoring locations were selected so as to represent the entire study area. A map of the study area showing the monitoring locations as mentioned in Table 3-14 is presented in Figure 3.9.

Table 3- 14 Noise monitoring Locations

S.No	Locations	Distance & Direction	Co-ordinate
NQ1	Project Site	---	26°44'55.18"N 83°13'48.58"E
NQ2	Under 500 meter in downwind direction	330.78 meter in East direction	26°44'54.04"N 83°14'0.69"E
NQ3	Jamuand	1.95 km in East direction	26°45'34.96"N 83°15'19.79"E
NQ4	Bhitti Rawat	6.13 km in West	26°45'20.52"N 83°10'8.06"E
NQ5	Barhuan	7.04 km in ESE direction	26°44'14.32"N 83°17'59.15"E
NQ6	Banaura	4.73 km in SSE direction	26°42'26.84"N 83°14'38.13"E
NQ7	Gahasand	1.95 km in North direction	26°45'57.81"N 83°13'40.45"E
NQ8	Kesho Kurha	5.77 km in NW direction	26°47'5.93"N 83°11'18.11"E

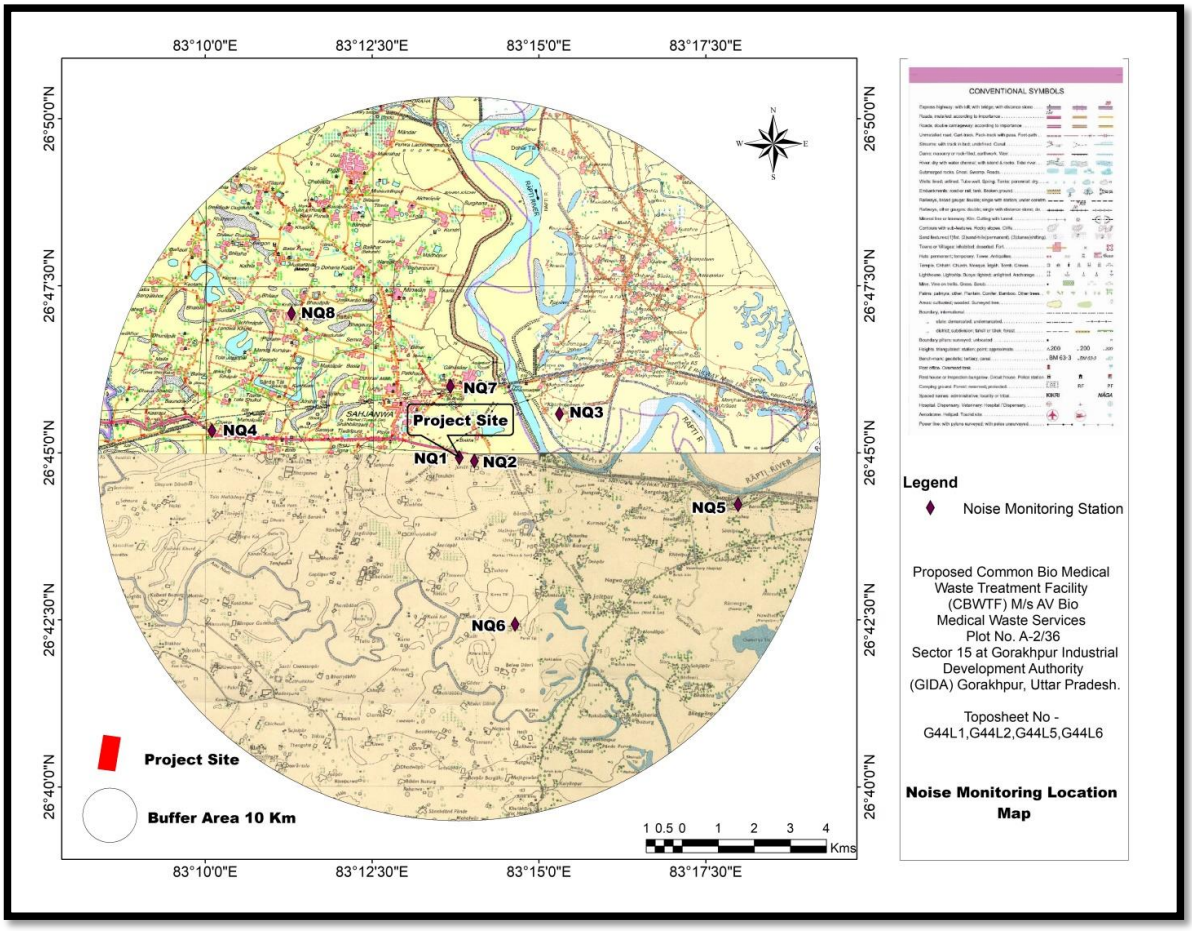


Figure 3- 9 Noise monitoring location map

Figure 3- 10 Noise monitoring photos

3.11.2 Methodology of data generation

The noise monitoring was carried out at eight locations in day time during and at night time in the study area covering all the areas i.e. industrial, commercial, and residential and silence zones as mentioned in Noise (Pollution and Control) Rules, 2000.

Noise, in general, is sound which is composed of many frequency components of various types of loudness distributed over the audible frequency range. Various noise scales have been introduced to describe, in a single number, the response of an average human to a complex sound made up of various frequencies at different loudness levels. The most common and universally accepted scale is the 'A' weighted Scale which is measured as dB (A). This is more suitable for audible range of 20 to 20,000 Hz. The scale has been designed to weigh various components of noise according to the response of a human ear.

Sound Pressure Level (SPL) measurements were measured at all locations. The readings were taken for every hour for 24 hours. The day noise levels have been monitored during 6 am to 10 pm and night levels during 10 pm to 6 am at all the locations covered in 10-km radius of the study area. The noise levels were measured once during the study period.

These readings were later tabulated and the frequency distribution table was prepared.

Finally, hourly and 24-hourly values for various noise parameters viz. L Day and L night were calculated.

For noise levels measured over a given period of time, it is possible to describe important features of noise using statistical quantities. This is calculated using the percent of the time certain noise levels exceed the time interval. The notations for the statistical quantities of noise levels are described below:

- L10 is the noise level exceeded 10 per cent of the time
- L50 is the noise level exceeded 50 per cent of the time and
- L90 is the noise level exceeded 90 per cent of the time

Equivalent Sound Pressure Level (Leq)

The Leq is the equivalent continuous sound level, which is equivalent to the same sound energy as the actual fluctuating sound measured in the same period. This is necessary because sound from noise source often fluctuates widely during a given period of time.

This is calculated from the following equation:

Leq= L50 + (L10 - L90)2/60

Noise level was recorded at every hour for 10 minutes continuously for 24 hours at 'A' response. Then the data was tabulated to get frequency table with different intervals. The ambient noise levels measure for the study is given in Table 3-16.

Table 3- 15 Noise monitoring data of 3 months

Station Code	Location (Category of Area)	CPCB Noise Limits in dB(A) Leq		Noise Level in dB(A) Leq	
		Day Time	Night Time	Day Time	Night Time
NQ1	Project Site	75.0	70.0	67.2	61.3
NQ2	Bheeti Rawat	55.0	45.0	62.3	60.0
NQ3	Kesokhura	55.0	45.0	52.3	41.8
NQ4	Gahasand	55.0	45.0	51.3	40.8
NQ5	Jamuand	55.0	45.0	52.6	42.2
NQ6	Barhua	55.0	45.0	52.9	42.6
NQ7	Piprauli	55.0	45.0	53.1	42.8
NQ8	Banura	55.0	45.0	51.0	40.5

Table 3- 16 Noise monitoring data for One Month

S. No.	Test Parameters	Unit	Result	Ambient Noise Standards/Specification (CPCB)
NQ 1 Project Site				
1	Noise Level Day Time	Leq :dB (A)	68.7	75
2	Noise Level Night Time	Leq :dB (A)	57.2	70

NQ2 UNDER 500 METER IN DOWNWIND DIRECTION				
1	Noise Level Day Time	Leq :dB (A)	65.5	75
2	Noise Level Night Time	Leq :dB (A)	52.3	70
NQ3 JAMUAND				
1	Noise Level Day Time	Leq :dB (A)	50.1	55
2	Noise Level Night Time	Leq :dB (A)	42.8	45
NQ4 BHITTI RAWAT				
1	Noise Level Day Time	Leq :dB (A)	48.2	55
2	Noise Level Night Time	Leq :dB (A)	36.6	45
NQ5 BARHUAN				
1	Noise Level Day Time	Leq :dB (A)	50.3	55
2	Noise Level Night Time	Leq :dB (A)	41.7	45
NQ6 BANAURA				
1	Noise Level Day Time	Leq :dB (A)	46.5	55
2	Noise Level Night Time	Leq :dB (A)	34.2	45
NQ7 GAHASAND				
1	Noise Level Day Time	Leq :dB (A)	47.1	55
2	Noise Level Night Time	Leq :dB (A)	35.1	45
NQ8 KESHO KURHA				
1	Noise Level Day Time	Leq :dB (A)	48.8	55
2	Noise Level Night Time	Leq :dB (A)	37.1	45

3.11.3 Observations of 3 months baseline data

Equivalent noise level of all locations varies from 51.0 – 67.2 dB (A) and 40.5 – 61.3 dB (A) during day and night time, respectively. Within the village location the noise level varied at the same place at different times due to fluctuations in traffic movements as well as Industrial/commercial and domestic activities going on in the study area. The noise in the study area was well within the CPCB limits (Table – 3.14) during the day time and night time.

3.12 Soil Environment

The soils of the district are mainly transported i.e. alluvial soil, comprising sand, silt and clay in varying proportions and rich in humus. The alluvial soil of the districts is subdivided into older alluvial soil and younger alluvial soil. The older alluvial soil occupies high land and younger alluvial soils are restricted to marginal tract of Rapti and Ghaghra rivers and both are fertile.

3.12.1 Soil Quality

To understand the soil characteristics**, 08** locations in the study area were selected for soil sampling. For selection of soil sampling locations, the following criterion was considered:

- Soil from agricultural land, park open land, and

- Soil from industrial area, where there is possibility of contamination

Table 3- 17 Soil sampling locations

S.No	Locations	Distance & Direction	Co-ordinate
SQ1	Project Site	---	26°44'55.18"N 83°13'48.58"E
SQ2	Under 500 meter in downwind direction	330.78 meter in East direction	26°44'54.04"N 83°14'0.69"E
SQ3	Jamuand	1.95 km in East direction	26°45'34.96"N 83°15'19.79"E
SQ4	Bhitti Rawat	6.13 km in West	26°45'20.52"N 83°10'8.06"E
SQ5	Barhuan	7.04 km in ESE direction	26°44'14.32"N 83°17'59.15"E
SQ6	Banaura	4.73 km in SSE direction	26°42'26.84"N 83°14'38.13"E
SQ7	Gahasand	1.95 km in North direction	26°45'57.81"N 83°13'40.45"E
SQ8	Kesho Kurha	5.77 km in NW direction	26°47'5.93"N 83°11'18.11"E

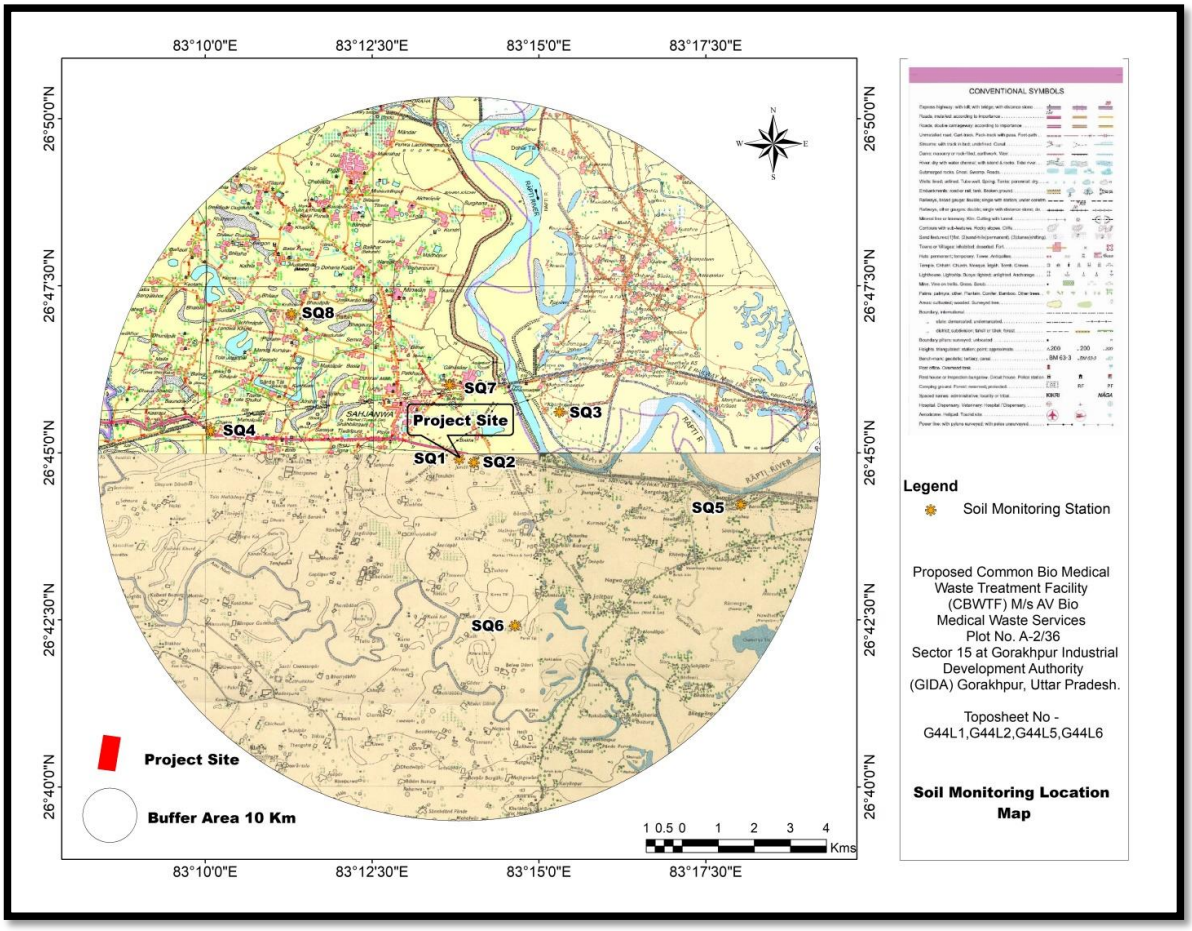


Figure 3- 11 Soil Monitoring Location Map

Figure 3- 12 Soil monitoring photos

Analysis results of physical and chemical parameters of soil samples are given in Table 3-19 Chemical classification of soil quality as per Indian Council Agriculture Research (ICAR) is given in Table 3-18.

The details of soil sampling locations & result are given in Table 3-14 & Table 3.15. The soil sampling locations are shown in Figure 3-10. Composite sampling of soil up to root depth (10 - 15 cm) was carried out at each location.

Table 3- 18 Chemical Classification of Soil Quality

Sr. No.	Soil Analysis Parameters	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 (mmhos/cm) (1ppm = 640 mmho/cm)	Up to 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops (Sensitive to salts)
3	Organic Carbon (%)	Up to 0.2: very less 0.21-0.4: less 0.41-0.5 medium, 0.51-0.8: on an average sufficient 0.81-1.00: sufficient >1.0 more than sufficient
4	Nitrogen (Kg/ha)	Up to 50 very less 51-100 less 101-150 good 151-300 Better >300 sufficient
5	Phosphorus (Kg/ha)	Up to 15 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 3- 19 Results of soil sample analyses report of 3 months

S.No.	Parameter	Unit	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6	SQ7	SQ8
1.	pH (1:2:5 suspension)	--	7.82	7.29	7.36	7.28	7.40	7.32	7.56	7.26
2.	Electrical Conductivity at 25^0C (1:2 suspension)	ms/cm	0.29	0.13	0.18	0.16	0.17	0.13	0.16	0.15
3.	Soil Texture	--	Clay Loam	Clay	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Silt Clay Loam
4.	Colour	--	Brownish Black	Brownish Black	Brownish Black	Brownish Black	Brownish Black	Brownish Black	Brownish Black	--
5.	Water Holding Capacity	--	40.73	43.98	39.24	40.82	41.56	35.84	36.52	37.26
6.	Bulk Density	gm/cc	1.29	1.32	1.36	1.32	1.29	1.27	1.31	1.32
7.	Chloride	mg/kg	79.80	42.98	39.82	59.36	63.14	43.78	42.65	46.35
8.	Calcium	mg/kg	1313.40	986.88	910.73	1110.0	1216.57	1364.14	1265.31	1254.3
9.	Sodium	mg/kg	61.24	63.49	81.01	56.33	58.44	45.32	48.65	42.32
10.	Potassium	mg/kg	153.95	136.78	219.09	196.33	156.33	161.19	155.12	148.63
11.	Organic Matter	(%) by mass	0.93	1.13	1.21	0.92	0.88	0.89	0.93	0.92
12.	Magnesium	mg/kg	284.53	267.25	215.32	215.41	288.32	296.41	295.31	298.41

13.	Available Nitrogen (as N)	kg/ha	192.5	148.3	156.3	196.4	198.3	185.4	135.6	142.5
14.	Available Phosphorus	kg/ha	17.61	21.41	9.25	18.4	20.2	10.65	13.25	16.43
15.	Zinc (as Zn)	mg/kg	25.64	30.21	13.54	17.65	15.78	12.10	13.45	12.34
16.	Manganese (as Mn)	mg/kg	295.32	254.35	219.64	265.3	321.5	356.21	290.54	265.05
17.	Chromium (as Cr)	mg/kg	5.40	6.98	5.23	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)
18.	Lead (as Pb)	mg/kg	9.23	12.10	8.65	10.23	8.56	8.65	9.22	9.54
19.	Cadmium (as Cd)	mg/kg	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)
20.	Copper (as Cu)	mg/kg	28.92	16.20	10.62	27.12	22.19	10.65	21.51	10.25
21.	Organic Carbon	(%) by mass	0.54	0.53	0.68	0.53	0.53	0.54	0.58	0.54
22.	SAR	--	0.43	0.46	0.63	0.42	0.38	0.43	0.47	0.49

Table 3- 20 Results of soil sample analyses report for One Month

S. No.	Test Parameters	Unit	SQ-1	SQ-2	SQ-3	SQ4	SQ5	SQ6	SQ7	SQ8	Test Method
1	Texture	…	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	IS:2720 (Pt-4)
2	Sand	%	52.4	46.2	50.3	45.8	48.5	47.2	55.2	44.2	IS:2720 (Pt-4)
3	Silt	%	27.2	38.6	32.5	34.0	21.4	33.3	24.0	32.3	IS:2720 (Pt-4)
4	Clay	%	20.4	15.2	17.2	20.2	20.1	19.5	20.8	23.5	IS:2720 (Pt-4)
5	pH (1:2 Suspension)	..	7.62	7.67	7.65	7.57	7.37	7.72	7.48	7.61	IS:2720 (Pt-26)
6	Cation Exchange Capacity(CEC)	meq/100	29.2	25.8	29.2	20.8	26.3	23.6	23.1	31.4	IS:2720 (Pt-24)
7	Electrical Conductivity (1:2)	µmho/cm	352.4	359.9	339.5	370.6	337.4	380.2	374.9	369.5	IS:14767
8	Water Holding Capacity(WHC)	%	38.2	31.1	23.6	40.1	34.4	32.5	27.2	40.3	IS 2720 (Part-2)
9	Sodium (Na)	mg/kg	170.2	138.2	145.7	135.4	131.7	109.7	131.7	126.4	APHA-3125B
10	Calcium (Ca)	mg/kg	1236.1	1105.8	1109.0	1024.8	960.0	1237.3	1042.6	1085.5	IS 2720 (Part-23)
11	Magnesium (Mg)	mg/kg	470.2	454.1	510.3	389.1	345.2	528.1	477.0	468.0	ETS/STP/SOIL-08

12	Bulk Density	g/cm3	1.94	1.58	1.52	1.63	1.34	1.44	1.43	1.65	IS 2386 (Part-4)
13	Total Nitrogen (N)	mg/kg	178.2	216.9	158.8	195.7	174.2	189.3	174.4	190.8	APHA, Pt 4500:(N)
14	Phosphorus (PO4)	mg/kg	63.6	60.0	46.5	49.8	41.1	55.0	51.3	49.8	ETS/STP/SOIL -19
15	Potassium (K)	mg/kg	211.9	271.8	285.1	237.5	269.5	240.4	267.0	321.9	APHA-3125B
16	Organic Matter	%	2.36	2.86	2.89	1.89	2.57	3.0	3.21	2.24	IS : 2720 (P-22)
17	Organic Carbon	%	2.03	1.94	1.74	2.24	1.71	1.50	1.60	1.71	BS 1377 -3)
18	Sulphate as (SO4)	mg/kg	2.57	2.65	2.67	1.76	1.34	2.78	2.14	1.93	IS:3025(P-24)
19	Porosity	%	27.50	28.57	19.64	22.42	30.5	24.59	20.6	34.21	IS 13030
20	Manganese,(Mn)	mg/kg	3.32	3.86	3.53	4.07	4.81	3.43	3.98	3.74	ETS/STP/SOIL -18
21	Nickel,(Ni)	mg/kg	1.07	0.94	1.71	1.01	1.53	1.04	1.60	1.82	ETS/STP/SOIL -18
22	Zinc,(Zn)	mg/kg	1.50	1.71	1.93	1.60	1.39	1.07	1.17	1.29	ETS/STP/SOIL -18
23	Lead,(Pb)	mg/kg	1.93	1.82	2.67	1.29	1.76	1.93	1.71	2.24	ETS/STP/SOIL -18

3.12.2 Observations of Results of 3 months baseline data

The soil is sandy load in the agriculture land. The data shows that the pH varies from 7.26 to 7.82 indicating that soil is alkaline. The conductivity varies from 0.13 to 0.29 ms/cm. The concentration of calcium and magnesium are ranged between 910.73 to 1364.14 mg/kg and 215.32 to 298.41 mg/kg, respectively. The percentage of Organic Carbon of the study area ranges from 0.53 to 0.68%.

3.13 Landuse/Landcover

3.13.1 Landuse Landcover Analysis for GIDA Gorakhpur Project

Landcover data highlights the area covered by forests, wetlands, impervious surfaces, agriculture, and other land and water types. Water types include wetlands or open water. Landuse shows how people use the landscape for development, conservation or for other purposes. Therefore its highlights the current scenario as well as predict the impact.

1. **Objectives:** Main objectives are:
   - To prepare the landuse landcover map of study area based on recent satellite imageries.
   - To assess the impact of proposed project on existing landuse and landcover
   - To suggest mitigations measures
2. **Hardware:** The equipment used during the present investigation includes ground truth hand held GARMIN 12 GPS receiver for ground truth collection, besides the visual observation and analysis.
3. **Software:** The following software were applied to extract indicators and maps:
   - **ERDAS Imagine:** The Erdas imagine version 2016 is used to process Landsat-8 satellite data and to extract the required indicators through spatial & spectral analysis.
   - **ArcGIS:** The ArcGIS version 10.3 has been used to prepare the final Maps for indicators through the outcomes of ERDAS software.
4. **Methodology:** The methodology applied for the study involved obtaining satellite images from open source, and then using a range of software to process the images and also by GPS coordinates (ground truthing) for drawing observations. The detailed methodology is explained as below:

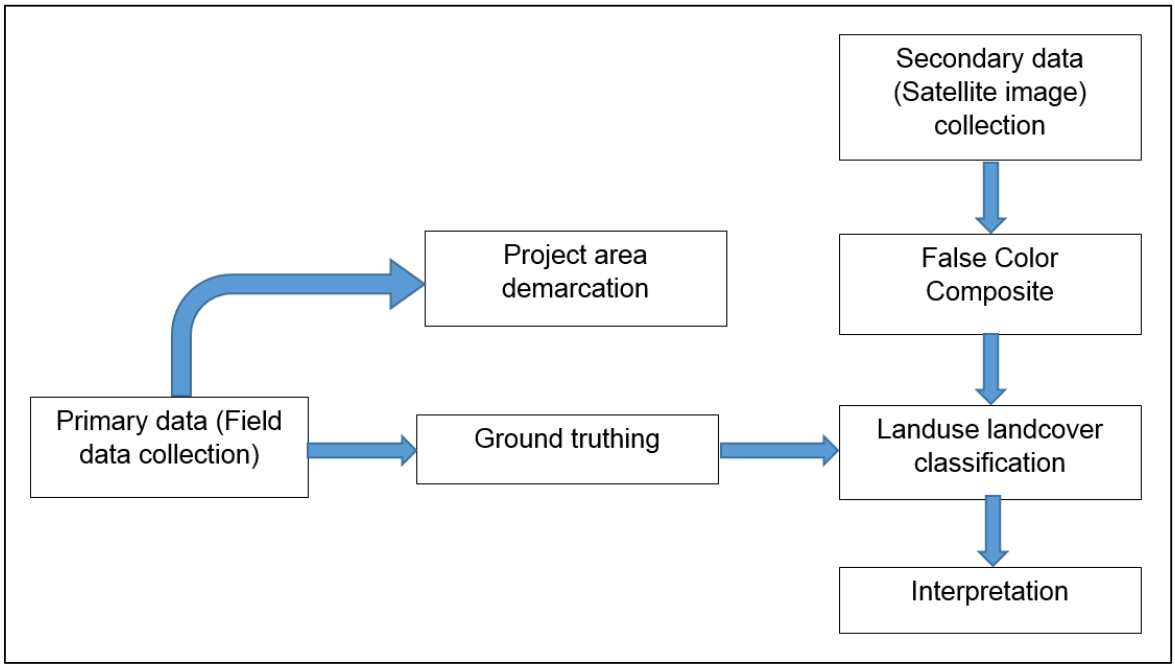


Figure 3- 13 Flow Chart: Methodology

- Primary Data: The coordinates along land features of project area is collected with the help of GPS device for ground truthing. This data is primary data. On the basis of this data, landuse landcover analysis is appropriate.
- Secondary Data: Satellite image (secondary data) is required to show the current land features of the project area and buffered area (10 km). Landsat 8 Satellite image is used, which is collected from open source. The path, row, date, resolution of satellite data used were as follows.

Path	142
Row	41
Date of pass	15 November 2022
Resolution (panchromatic)	15 Meter

Landsat 8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS) images consist of nine spectral bands with a spatial resolution of 30 meters for Bands

1 to 7 and 9. The ultra-blue Band 1 is useful for coastal and aerosol studies. Band 9 is useful for cirrus cloud detection.

- **False Color Composite (FCC):** False color (or false colour) refers to a group of color rendering methods used to display images in color which were recorded in the visible or non-visible parts of the electromagnetic spectrum. A false-color image is an image that depicts an object in colors that differ from those a photograph (a true-color image) would show. False-color image sacrifices natural color rendition in order to ease the detection of features. The FCC for 10 km buffer zone of the project area is shown in Figure 3-17.

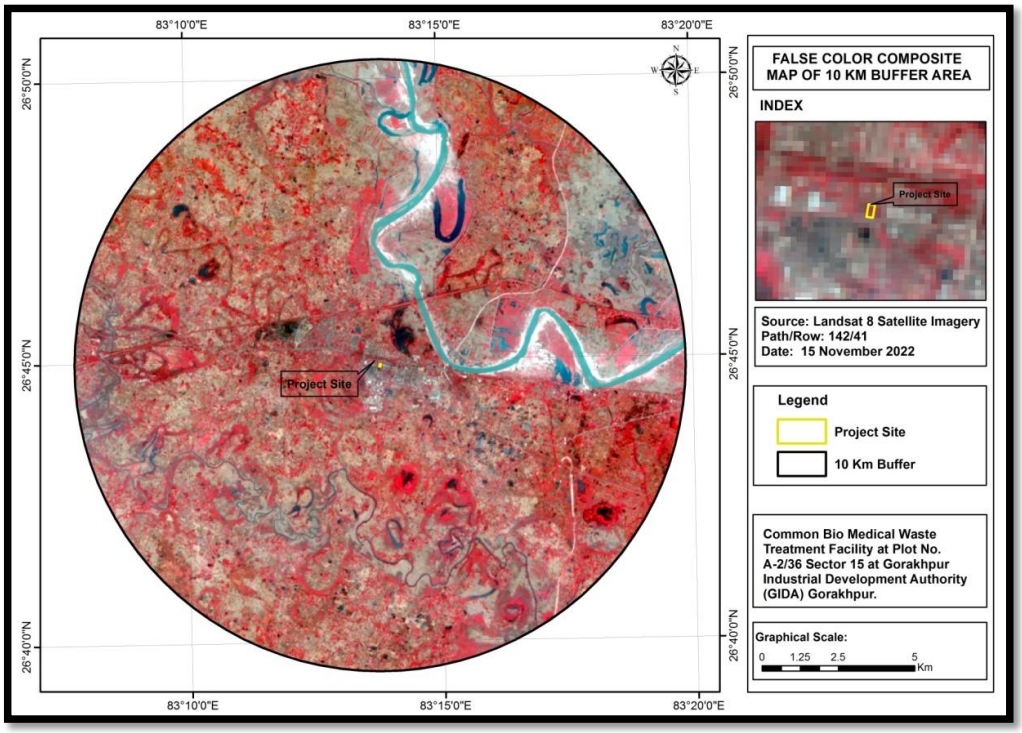


Figure 3- 14 Shows the False color Composite Map of the study area

- **Landuse landcover classification & Interpretation:** The classification approach is applied on the basis of various characteristics like colour, texture, shape, association etc. The Landuse landcover map for 10 km buffer zone of the project area is shown in figure 3.

The unsupervised classification approach was obtained for the Landuse and Landcover classification by using ERDAS Imagine software. In this approach, the pixels of the project area are clustered in several classes on the basis of spatial & spectral variation in pixel value which are following:

I. **Built-up land:** 2 per cent of the total project area is covered by built-up land. The entire built-up land comes under rural areas. This area is identified by grey color and square/rectangular shape in the satellite image. Built-up land can be described as an area of intensive use with much of the land covered by structures. Areas included in this category are cities, towns, villages, strip developments along with highways, transportation, power, and communications facilities, and other areas such as those occupied by mills, shopping centers, industrial and commercial complexes, and institutions that may, in some instances, be isolated from built-up areas.

II. **Agricultural land:** 35.22 per cent of the total project area is covered under agricultural land. Agricultural land may be defined as the land that is used primarily for the production of food and fiber. In the satellite imageries, cropland is identified by light pinkish to dark pinkish color or red, fine texture and rectangular/square shape.

III. **Agricultural fallow land:** It is the type of cropland which is not seeded for a season so as to allow the fields become fertile again. The practice of allowing fields to remain fallow dates back to ancient times when farmers realized that using soil over and over again depletes its of its nutrients. Agricultural fallow land covers 52.17 per cent of the total project area.

IV. **Open Land:** Open land is any degraded land or a land which is currently underutilized but can be brought under vegetative cover with reasonable efforts. This type of land covers 1.27 per cent of the total project area. This area is identified by off-white color and rough texture in the satellite image.

V. **River/Water Bodies:** All natural and man-made ponds, reservoirs, river come under this class. A river is a natural flowing watercourse, usually freshwater, flowing towards an ocean, sea, lake or another river. In some cases a river flows into the ground and becomes dry at the end of its course without reaching another body of water. This

feature is identified by dark blue to black color, fine texture in the satellite image and cover only 6.19 percent of the total project area.

VI. Riverbed: A riverbed or streambed is the channel bottom of a stream or river, the physical confine of the normal water flow. The riverbed of the project area is consist of sand and cover only 2.38 percent of the total project area. This area is identified by white color and fine texture in the satellite image.

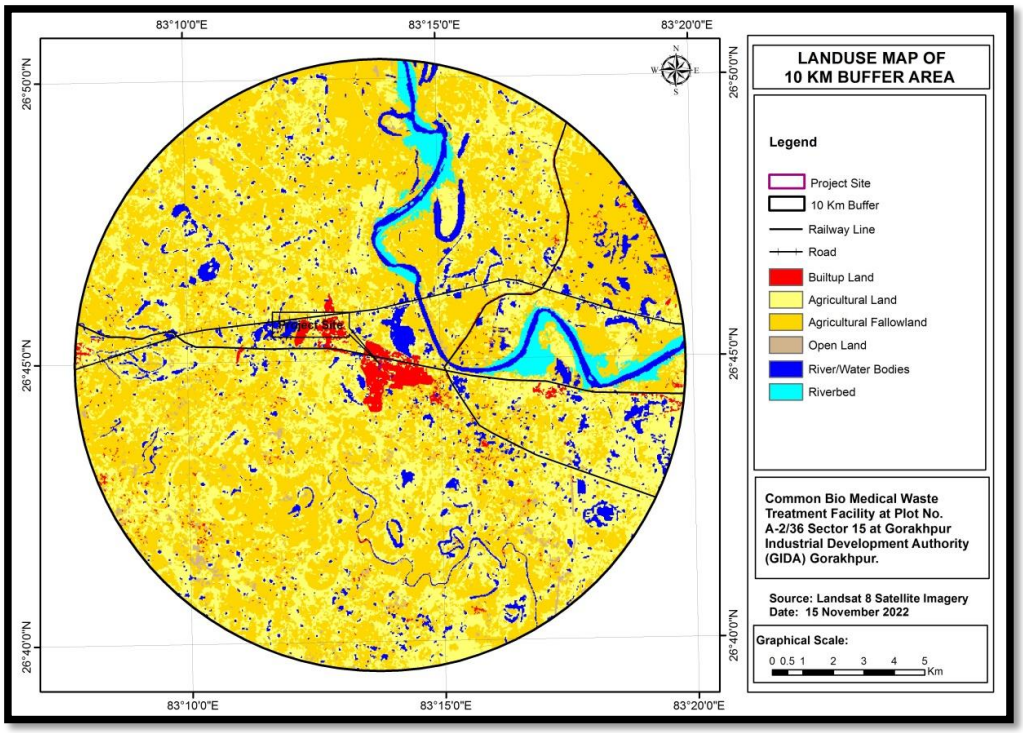


Figure 3- 15 shows Landuse landcover classification

On the basis of the landuse landcover classification, the areas of different land features are as follows:

Table 3- 21 Landuse Landcover classification of the study area

Class Name	Area (Ha)	Area (%)
Built-up Land	631.82	2.00
Agricultural Land	11148.20	35.22

Agricultural Fallowland	16514.90	52.17
Open Land	403.27	1.27
River/Water Bodies	2204.05	6.96
Riverbed	753.23	2.38
Total	31655.47	100.00

Impact Analysis:

This Construction project will have some anticipated impacts which are as follows

1. Creation of employment, quality shelter and improved infrastructure.
2. The surrounding land use pattern will be changed.
3. Road network will be developed.
4. Impact on the public utilities arising out of the utilities for the project activities.
5. Impact on the natural drainage system and soil erosion.

Mitigation measurement:

Mitigation measures are means to prevent, reduce or control adverse environmental effects of a project, and include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means. The mitigation measures are as follows:

1. Selection of suitable local plant species for greenbelt development in and around the sites.
2. Top soil conservation plan and its re-utilization depending on its quality
3. Recycling of recyclable non-biodegradable garbage and only non-recyclable portion shall be handed over to local authority to reduce the load on dumping grounds

3.14 Biological Environment

3.14.1 Introduction

Biological study is essential to understand the impact of industrialization and urbanization on existing flora and fauna of the study area. Studies on various aspects of ecosystem play an important role in identifying sensitive issues for under taking appropriate action to mitigate the impact, if required.

The biological study was under taken as a part of the EIA study report to understand the present status of ecosystem prevailing in the study area to compare it with past condition with the help of available data, to predict changes in the biological environment as a result of present activities and to suggest measure for maintaining its health.

A baseline survey was conducted to study floral and faunal diversity of the terrestrial and aquatic environment of the study area within in 10 Km radius of the plant site.

Some of the information was collected from the local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region. Survey of the wild plants as well as agriculture crop plants was done and all the available information was recorded. Night survey was also conducted with the help of spotlight to record nocturnal animals, birds and reptiles.

3.14.2 Interpretation of Flora and Fauna

No Schedule I species was found in the core as well as buffer zone. No endangered or endemic species (as notified in IUCN Red Data Book) are located within the study area. No migratory birds breed in the study area. No Tiger Reserve/ Elephant Corridor/ Turtle breeding place is located within 10 Km radius of the study area. The present baseline floristic study has been carried out to inventories floral composition in the study area. Sampling stations were selected from project site and buffer zone of 10 km radial area around the core zone for carrying out vegetation surveys and an inventory of various floral species. In order to understand the composition of the vegetation, most of the plant species were identified in the field itself whereas the species that could not be identified a specimen was collected along with their photographs for identification later with the help of available published literature and floras of the region. The inventory of flora and fauna is attached below. The study area has no protected forest or national park or sanctuaries. Therefore, the biodiversity is medium in the study area due to dominance of anthropogenic activity in the study area. No schedule I wild life species or rare and endangered species have been recorded from the study area.

3.14.2.1 Flora

A floral survey was carried out in the core as well as buffer zone of the proposed project site. The plant Species found in the area are given in table below:

Table 3- 22 List of Flora in the Study Area by Site Visit, Inputs from the Locals and Pursued from Secondary Data

S.No.	Botanical Name	Family	Common Name
Trees			
1.	*Acacia auriculiformis*	Mimosaceae	Australian Wattle
2.	*Acacia catchu*	Mimosaceae	Khair
3.	*Acacia nilotica*	Mimosaceae	Babul
4.	*Aegle marmelos*	Rutaceae	Bel
5.	*Ailanthus excels*	Simaroubaceae	Mahalimbo
6.	*Alangium salvifolium*	Alangiaceae	Ankula
7.	*Albizialebbeck*	Mimosaceae	Siris/Kala Sirus
8.	*Albizia procera*	Mimosaceae	Tentela (sirish-Dhala)
9.	*Alstonia scholaris*	Apocyanceae	Chhatiana
10.	*Annona squamosa*	Annonaceae	Seetaphal
11.	*Annona reticualta*	Annonaceae	Raamephal
12.	*Artocarpus heterophyllus*	Moraceae	Panas/ Kathal
13.	*Artocarpus lacucha*	Moraceae	Badhar
14.	*Azadirachta indica*	Mekiaceae	Neem
15.	*Bauhinia purpurea*	Caesalpiniaceae	Kanchan
16.	*Bauhinia racemosa*	Caesalpiniaceae	Ambansia

17.	*Bombax ceiba*	Bombacaceae	Semuk/Simili
18.	*Borassus flabellifer*	Arecaceae	Tal
19.	*Boswellia serrata*	Burseraceae	Salai
20.	*Bridelia retusa*	Phyllanthaceaea	Khaja
21.	*Butea monosperma*	Fabaceae	Palash
22.	*Capparis sepiaria*	Capparaceae	Wild caper bush
23.	*Cassia fistula*	Caesalpiniaceae	Simaro
24.	*Cassia siamea*	Caesalpiniaceae	Chakhunda
25.	*Crataeva religiosa*	Capparaceae	Barun
26.	*Dalbergia sisso*	Caesalpiniaceae	Shisham
27.	*Delonix elata*	Caesalpiniaceae	Radhachuda
28.	*Delonix regia*	Caesalpiniaceae	Gulmohur
29.	*Dendrocalamus strictus*	Poaceae	Bamboo
30.	*Eucalyptus tereticornsis*	Myrtaceae	Eucalyptus
31.	*Ficus benghalensis*	Moraceae	Banyan/Bata/Bad
32.	*Ficus racemosa*	Moraceae	Gular/clusterfig
33.	*Ficus religiosa*	Moraceae	Pipal/Aswatha
34.	*Gmelina arborea*	Verbenaceae	Gambhari
35.	*Grevillea robusta*	Proteaceae	Silver oak
36.	*Holoptelia intergriflora*	Ulmaceae	Dhauranja

37.	*Lagerstroemia parviflora*	Lythraceaea	Sidha/Sudha/Senha
38.	*Leucaena leucocephala*	Mimosaceaea	Subabul
39.	*Madhuca longifolia*	Sapotaceae	Mahul/Mahuva
40.	*Mangifera indica*	Anacardiaceae	Aam
41.	*Melia azadirachata*	Meliaceae	Buckain
42.	*Michelia cahmpaca*	Magnoliaceae	Champa
43.	*Moringa oleifera*	Moringaceae	Sajana (muniga)
44.	*Moringa tinctoria*	Moringaceae	Achhu
45.	*Neolamarckia cadamba*	Rubiaceae	Kadamb
46.	*Nyctanthes arbor-tristis*	Oleaceae	Gangasiuli
47.	*Phoenix sylvestris*	Arecaceae	Bankhajuri
48.	*Pithecellobium dulce*	Mimosaceae	Jungle jalebi
49.	*Phyllanthus emblica*	Euphorbiaceae	Amla
50.	*Polyalthia longofolia*	Annonaceae	Debadaru/ Ashok
51.	*Polyalthia pendula*	Annonaceae	Ashok
52.	*Populusdeltoides*	Salicaceae	Poplar
53.	*Prosopis spicigera*	Mimosaceae	Kejdi
54.	*Psidium guajava*	Myrtaceae	Guava/Amrood
55.	*Rynchostylis gigentia*	Orchideaceae	Gajra
56.	*Sapindus emarginatus*	Sapindaceae	Ritha

57.	*Shorea robusta*	Dipterocarpaceaea	Sal
58.	*Syzigium cumini*	Myrtaceaea	Jamun
59.	*Tamaindus indica*	Caesalpiniaceaea	Imli
60.	*Tectona grandis*	Verbenaceaea	Saguan
61.	*Terminalia arjuna*	Combretaceaea	Arjuna
62.	*Vitex negundo*	Verbenaceae	Begunia
63.	*Ziziphus marutiana*	Rhamnaceaea	Borkuli
64.	*Ziziphus nummularia*	Rhamnaceaea	Kontikoli
Shrubs/Climbers/Bushes			
65.	*Abrus precatorius*	Fabaceae	Kaincha
66.	*Aganosoma dichotoma*	Apocynaceae	Malati
67.	*Alotropis gigantean*	Asclepiadaceae	Arakha
68.	*Canthimum dicoccum*	Rubiaceae	Dalsingha
69.	*Crassia spinarum*	Apocynaceae	Karonda
70.	*Chromolaendorta*	Asteraceae	Siam weed
71.	*Cissus vitiginea*	Vitaceae	Vitaceae
72.	*Combretum decandrum*	Combretaceae	Atundi
73.	*Dioscorea pentaphylla*	Dioscoreaceae	Banaalu
74.	*Hemidesmus indicus*	Apocynaceae	Anantamul
75.	*Ipomoea carnea*	Convolvulaceae	Morning glory

76.	*Lantana camara*	Verbenaceae	Nagabari
77.	*Leptadenia reticulata*	Apocynaceae	Jiwanti
78.	*Pergulari adaemia*	Apocynaceae	Utaran
79.	*Quisqualis indica*	Plumbaginaceae	Burma Creeper
80.	*Randia dumetorum*	Rubiaceae	Salara (Mahana)
81.	*Randia uliginosa*	Rubiaceae	Telkor (Tilok)
82.	*Tylophora indica*	Apocynaceae	Indian lpecac
83.	*Wattakaka volubilis*	Apocynaceae	Green Milk weed
Herbs			
i	*Aristida depresa*	Poaceae	Safedalppa
85.	*Arundo donax*	Poaceae	Narkul
86.	*Bothriochloa pertusa*	Poaceae	Choiijargi
87.	*Cenchrus ciliaris*	Poaceae	Anjan
88.	*Chrysopogon montanus*	Poaceae	Chickwa
89.	*Cynodon dactylon*	Poaceae	Dub
90.	*Desmostachya bipinnata*	Poaceae	Dad
91.	*Dichanthium annulatum*	Poaceae	Janga

3.14.2.2 Fauna

Faunal survey was carried out in the core as well as buffer zone of the proposed project site.

No

Schedule- I fauna as per (IWPA) Indian Wildlife Protection Act, 1972 was recorded in the study area during field survey.

Details of faunal species found in the study area are given in the table below: -

Table 3- 23 List of Flora in the Study Area by Site Visit, Inputs from the Locals and Pursued from Secondary Data

S.No.	Scientific Name	Common Name	Schedule (WPA1972)	IUCN Status
Mammals				
01.	*Bandicota indica*	Large bandicoot Rat	V	LC
02.	*Canis aures*	Jackal	II	LC
03.	*Cynopterus sphinx*	Short-nosed fruit bat	IV	LC
04.	*Funambuluspalmarum*	Three striped squirrel	IV	LC
05.	*Golundaellioti*	Rat	IV	LC
06.	*Golundaellio timyothrix*	Indian Bush Rat	IV	LC
07.	*Herpestes edwardsi*	Indian grey mongoose	IV	LC
08	*Lepus nigricollis*	Indian hare	IV	LC
09.	*Macaca mulata*	Monkey	II	LC
10.	*Mus booduga*	Common Indian field mouse	V	LC
11.	*Mus musculus*	Home mouse	V	LC
12.	*Nosokia indica*	Bandicoot rat	V	LC
13.	*Oryctologus cuniculus*	Rabbit	IV	LC
14.	*Rattus rattus*	Common Indian rat	V	LC

15.	*Suncus murinus*	House shrew	V	LC
16.	*Sus scrofa*	Wild pig	III	LC
Amphibians				
01.	*Duttaphrynus melonosticatus*	Common Indian Toad	IV	LC
02.	*Hardellathurjii*	Brahminy river turtle	Not Listed	V
03.	*Batagurdhongoka Gray*	Dhongoksa turtle	Not Listed	NT
04.	*Polypedates maculatus*	Tree Frog	IV	LC
05.	*Rana breviceps*	Indian burrowing frog	IV	LC
06.	*Rana cyanophlyctis*	Skipper frog	IV	LC
07.	*Rana limnocharis*	Indian cricket frog	IV	LC
08.	*Rana tigrina*	Indian Bull frog	IV	LC
Reptiles				
01.	*Bungarus caeruleus*	Common Indian krait	II	LC
02.	*Calotes versicolor*	Garden Lizard	IV	LC
03.	*Chameleozylanicus*	Chameleon	IV	LC
04.	*Dryphisnasutus*	Whip Snake	II	LC
05.	*Echis carinatus*	Saw scaled viper	II	LC
06.	*Eutropis carinata*	Common Skink	IV	LC
07.	*Geochelone elegans*	Indian star tortoise	II	LC
08.	*Hemidactylus flavivirodis*	Indian wall lizard	IV	LC
09.	*Naja naja*	Nag/cobra	II	LC
10.	*Ptyas mucosa*	Dhaman/Indian Rat Snake	II	LC
11.	*Varanus bengalensis*	Common Indian	II	LC

		Monitor		
12.	*Viperarusseli*	Russell's viper	II	LC
Aves				
01.	*Acridotherestristis*	Common myna	IV	LC
02.	*Aegithiniatiphia*	Common lora	IV	LC
03.	*Alcedoatthis*	Small blue kingfisher	IV	LC
04.	*Andeolvgrayii*	Pond heron	IV	LC
05.	*Cerylerudis*	Lesser pied Kingfisher	IV	LC
06.	*Columba livia*	Blue rock pigeon	IV	LC
07.	*Coracias benghalensis*	Indian roller	IV	LC
08.	*Corvussplendens*	House crow	IV	LC
09.	*Dendrocittavagabunda*	Indian tree pie	IV	LC
10.	*Dendrocopus marhatensis*	Maratha Woodpecker	IV	LC
11.	*Dicurus rusmacrocerus*	Greater coucal	IV	LC
12.	*Dicurus macrocerus*	Black drongo	IV	LC
13.	*Egretta garzetta*	Little egret	IV	LC
14.	*Grawpila contra*	Asian pied starling	IV	LC
15.	*Halcyon smyrnensis*	White-Breasted King fisher	IV	LC
16.	*Lonchur apunctualata*	Red avadavat	IV	LC
17.	*Meropsorientalis*	Little Green Bee Eater	IV	LC
18.	*Milvus migrans*	Black Kite	IV	LC
19.	*Motacilla alba*	White wagtail	IV	LC
20.	*Oriolusoriolus*	Golden Oroile	IV	LC
21.	*Passer domesticus*	House sparrow	IV	LC

22.	*Phalacrocorax carbo*	Large Cormorant	IV	LC
23.	*Phalacrocoraxniger*	Little Cormorant	IV	LC
24.	*Perdix pondiceriamus*	Titar	IV	LC
25.	*Ploceusphilippinus*	Baya Weaver	IV	LC
26.	*Psittaculacyanocephala*	Blossom headed parakeet	IV	LC
27.	*Psittaculakrameri*	Rose ringed Parakeet	IV	LC
28.	*Pycnonotuscafer*	Red- vented bulbul	IV	LC
29.	*Saxicolodiesfulicata*	Indian robin	IV	LC
30.	*Streptopeliadecaocto*	Eurasian collared Dove	IV	LC
31.	*Streptopelia senegalensis*	Laughing dove	IV	LC
32.	*Streptopeliachinensis*	Spotted dove	IV	LC
33.	*Temenuchuspogodrum*	Brahminy myna	IV	LC
34.	*Tyto alba*	Barn owl	IV	LC
35.	*Upupa epops*	Common hoopoe	IV	LC
36.	*Venellus indicus*	Red wattled lapwing	IV	LC
Butterflies				
37	*Pseudocoladenia dan dan*	Fulvous pied flat	IV	LC
38	*Precis lemoniaslemonias*	Lemon pansy	IV	LC
39	*Precis hiertahierta*	Yellow Pansy	IV	LC
40	*Trosaristolochiae*	Common rose	IV	LC
41	*Aracaviolae*	Tawny costar	IV	LC
42	*Tirumala limniace*	Blue Tiger	IV	LC
43	*Euploeacorecor*	Common Crow	IV	LC
44	*Dananusaglea*	Glassy Blue Tiger	IV	LC
45	*Precis orithya*	Blue pansy	IV	LC

46	*Hypolimnasmisippus*	Danaid egg fly	IV	LC
47	*Neptishylas*	Common sailor	IV	LC
48	*Papiliacocaleus*	Lime butterfly	IV	LC
49	*Catopsiliacrocale*	Common emigrant	IV	LC
50	*Danaischrysippus*	Plain tiger	IV	LC
Other Insects				
51.	*Brachytronpratense*	Hairy dragonfly	Not listed	LC
52.	*Anax imperator*	Emperor dragonfly	Not listed	LC
53.	*Tettigoniaviridissima*	Common green grasshopper	Not listed	LC
54.	*Hieroglyphus banian*	Rice grasshopper	Not listed	LC
55.	*Papiliacocaleus*	Common painted	Not listed	LC
56.	*Nephotettixapicallis*	Paddy Jassids	Not listed	LC
57.	*Hybleapureamecheralis*	Skeletonizers	Not listed	LC
58.	*Hepaliamauritia*	Defoliators	Not listed	LC
59.	*Spodopter amauritia*	Swarming caterpillar	Not listed	LC
60.	*Rhopalosi phummaidis*	Aphids	Not listed	LC
61.	*Anax imperator*	Emperor dragonfly	Not listed	LC
Pisces				
62.	*Anabas testudineus*	Keu		
63.	*Catla catla*	Katla		
64.	*Channa punctatus*	Daulla / Murrel		
65.	*Channastriatus*	Striped snakehead		
66.	*Cirrhinus mrigala*	Mirgal		
67.	*Clarias batarachus*	Mangur / Cat fish		
68.	*Clupis omagarua*	River Cat fish		

69.	*Heteropneus tesfossilis*	Singhi		
70.	*Labeocalbasu*	Kari		
71.	*Labeorohita*	Rohu		
72.	*Macroganthus aculeatum*	Bam		
73.	*Mystuscavasius*	Tengna		
74.	*Oreochromis mossambicus*	Tilapia		

(Least Concern: LC, Near Threatened: NT & Vulnerable: V)

Source: *Survey in Study area*

3.14.3 Interpretation of Ecology & Biodiversity Study

There are no ecologically sensitive areas within the study area of 10 Km. During the study period the information on rare and endangered species was also collected from the study area and from District Forest Office, Gorakhpur. No Schedule I species was found in the core as well as buffer zone. There are no such rare or endangered species found in the study area listed under Indian Wild Life Act (1972) and IUCN (2006).

3.15 Socio- Economic Environment

Socio-economic Impact Assessment (SEIA) is an important component of Environment Impact Assessment of a project. SEIA refers to systematic analysis of various social and economic characteristics of human being living in a particular geographical area and to identify and evaluate potential socio-economic and cultural impacts of a proposed development intervention on the lives of the people, their families and their communities.

3.15.1 Objectives of the Study

- To identify and assess the socio-economic activities, which are significantly influenced by the project.
- To examine the perceptions of local communities on the project.
- To suggest interventions that can assist in mitigating the negative impacts of the project.

3.15.2 Scope of the Study

- To collect baseline data of the study area through primary and secondary research

- To comprehend socio-economic status of people living in the study area
- To identify and assess the likely impact of the project on social and economic life of the people in the study area
- To measure the impact of the project on Quality of life of the people living in the study area
- To ensure sustainability of positive impacts
- To recommend mitigation measures on adverse impacts

3.15.3 Methodology Adopted

The approach and methodology that was employed for the socio-economic assessment included desktop review of relevant documents and a field survey pertaining to the area of influence. Data/Information was collected through a combination of secondary sources (i.e. Census 2011, Government department, maps, literature research etc.) and primary sources (i.e. field survey and interviews/interactions). Primary data has been collected at village level and household level by questionnaires and interviews/interactions with the populace residing in the area. Socio-economic data comprised household composition, education levels, general health status, livelihood strategies, employment and income & expenditure.

3.15.4 Study Area

Study area (buffer zone) is the area within 10 km radius of the plant site. It covers 206 villages of 10 km radius study area which falls in Tehsil Sahjanwa, Khajni and Gorakhpur (Uttar Pradesh).

The district Gorakhpur occupies extreme North-Eastern part of Uttar Pradesh and lies between $26^0$15' and $27^0$06' N latitude and 83^0 06' and 83^0 45' E longitude. It is one of the major and largest districts of Uttar Pradesh. There are 7 tehsils and 20 blocks in the district. With the formation of the tehsil Maharajganj as a separate district, it marks the northern boundary of the district. On the west, the boundary is along district Sant Kabir Nagar and on the east adjoins district Deoria and Kushi Nagar.

3.15.5 Comparative Demography of Profile of the Study Area

The socio-economic parameters i.e. population growth, density, literacy etc. are important in determining the impact of the expansion activity directly or indirectly on the human population of the study area. The cumulative statistics showing the demography statistics of the state,

district and study area is given in Table – 3.24 and the demographic profile of the study area is given in Table – 3.25 below.

Table 3- 24 Demography Statistics of the State, District and Study Area

Particulars	Uttar Pradesh	Gorakhpur	Study Area
Area (in sq. kms.)	243,286	3483.8	28000
No. of Households	33448035	6,92,960	48412
Population	199812341	44,40,895	310514
Male	104,480,510	22,77,777	161505
Female	95,331,831	21,63,118	149009
Scheduled Tribes	1,134,273	18,172	823
Scheduled Castes	41,357,608	936061	66249
Literacy	67.7 %	70.8	60.63%
Sex Ratio (Females per 1000 Males)	912.0	950	923
Working Population (%)	33	30.4	30
Non-working population (%)	67	69.6	70

Source: Census of India, 2011

Table 3- 25 Demographic Profile of the Study Area

Name	Number of Household	Total Population	Total Population (M)	Total Population (F)	Sex Ratio	Total SC Population	Total ST Population	Literacy Rate (%)	Male Literacy rate (%)	Female Literacy rate (%)	Total Working Pop.	Total Main worker	Total Marginal worker	Total Non Worker
Primary zone (0 – 3.0 km)														
Tenuhari	123	844	432	412	954	110	0	68.96	78.94	58.50	325	224	101	519
Bhakasa	216	1421	770	651	845	502	0	62.07	72.47	49.77	429	347	82	992
Jigina	63	429	226	203	898	0	0	49.65	65.93	31.53	99	99	0	330
Sahijana	124	764	352	412	1170	33	0	57.20	67.61	48.30	430	239	191	334
Adilapar	266	1672	894	778	870	499	0	65.67	75.06	54.88	456	126	330	1216
Tinahra	116	691	376	315	838	60	0	71.92	81.38	60.63	194	182	12	497
Malhipur	191	1177	603	574	952	713	0	58.37	68.66	47.56	366	183	183	811
Tenua	331	2270	1186	1084	914	558	12	64.58	74.28	53.97	562	432	130	1708
Kharaila	367	2237	1191	1046	878	358	0	64.68	73.64	54.49	625	443	182	1612
Kaleser	370	2428	1315	1113	846	547	0	65.61	74.30	55.35	640	406	234	1788
Piprauli Buzurg	923	6270	3272	2998	916	519	0	65.09	72.62	56.87	1785	963	822	4485
Sahjanwa	6277	39156	20655	18501	896	5874	336	66.82	75.32	57.33	11101	6548	4553	28055
SUBTOTAL	**9367**	**59359**	**31272**	**28087**	**898**	**9773**	**348**	**65.95**	**74.65**	**56.26**	**17012**	**10192**	**6820**	**42347**
Secondary zone (3.0 – 5.0 Km)														

Name	Number of Household	Total Population	Total Population (M)	Total Population (F)	Sex Ratio	Total SC Population	Total ST Population	Literacy Rate (%)	Male Literacy rate (%)	Female Literacy rate (%)	Total Working Pop.	Total Main worker	Total Marginal worker	Total Non Worker
Rohua	112	664	374	290	775	56	0	35.39	46.79	20.69	265	55	210	399
Belpar Urf Guroo Nagar	69	608	314	294	936	0	0	42.76	53.50	31.29	235	140	95	373
Bela	165	1177	590	587	995	319	0	50.72	67.12	34.24	519	87	432	658
Baghari	8	35	15	20	1333	0	0	57.14	80.00	40.00	8	0	8	27
Jamuar	242	1509	802	707	882	571	0	54.61	65.84	41.87	433	351	82	1076
Kotha	33	170	97	73	753	95	0	61.76	72.16	47.95	42	25	17	128
Manjhria	189	1385	732	653	892	66	0	75.02	82.10	67.08	249	154	95	1136
Miwa	335	2016	1012	1004	992	352	0	53.82	64.53	43.03	397	141	256	1619
Tikaria	314	2132	1145	987	862	378	66	57.08	67.42	45.09	710	177	533	1422
Bhiti Rawot	1320	8554	4510	4044	897	3134	0	60.24	71.22	48.00	2303	678	1625	6251
Mahuapar Khas	330	2254	1199	1055	880	227	0	56.43	67.56	43.79	549	213	336	1705
Jonhia	154	1019	510	509	998	246	0	63.98	78.24	49.71	220	206	14	799
Rahimabad Khas	124	680	350	330	943	215	0	75.74	85.43	65.45	168	67	101	512
Daftari	57	383	197	186	944	377	0	51.17	58.88	43.01	170	7	163	213
Bhaghura	368	2136	1125	1011	899	572	0	64.70	74.76	53.51	909	196	713	1227
Semra	173	1164	594	570	960	437	0	64.69	72.73	56.32	438	181	257	726

Maktapar	159	847	466	381	818	695	0	68.24	78.76	55.38	475	207	268	372
Ujikhore	179	1221	633	588	929	182	0	70.43	83.73	56.12	328	155	173	893
Domhar	324	1874	907	967	1066	552	0	60.30	72.77	48.60	537	322	215	1337
Belhar Mafi	56	408	212	196	925	62	0	61.03	75.47	45.41	97	46	51	311
Mahui	46	283	139	144	1036	15	0	51.94	66.19	38.19	133	105	28	150
Ranipur	110	708	350	358	1023	394	0	52.97	67.43	38.83	219	182	37	489
Jagdishpur	211	1457	741	716	966	490	0	62.66	72.74	52.23	562	287	275	895
Bharsar	795	5094	2546	2548	1001	1095	0	55.83	65.55	46.11	1609	629	980	3485
Gopalpur	47	302	148	154	1041	115	0	56.29	64.19	48.70	62	62	0	240
Pharsa Dand	26	153	67	86	1284	22	0	53.59	62.69	46.51	22	22	0	131
Koluhe	193	1177	612	565	923	205	0	52.76	59.80	45.13	349	60	289	828
Usaka	78	501	273	228	835	0	0	76.65	82.42	69.74	152	152	0	349
Amtaura	264	1682	833	849	1019	68	0	65.87	76.23	55.71	439	126	313	1243
Banaura	292	2020	1081	939	869	423	0	62.08	72.34	50.27	479	114	365	1541
Deipar	255	1701	900	801	890	184	0	69.90	76.33	62.67	713	483	230	988
Jhungia	131	869	482	387	803	268	0	67.32	76.35	56.07	197	82	115	672
Kusmhi	109	640	323	317	981	322	0	59.53	71.52	47.32	160	21	139	480
Bharwal	5	23	10	13	1300	22	0	56.52	90.00	30.77	5	2	3	18
Tendua	71	475	240	235	979	48	0	61.05	70.83	51.06	124	71	53	351
Rautpar	291	1591	751	840	1119	288	0	54.62	69.37	41.43	452	301	151	1139

SUBTOTAL	**7635**	**48912**	**25280**	**23632**	**935**	**12495**	**66**	**59.99**	**70.68**	**48.57**	**14719**	**6107**	**8622**	**34183**
Outer zone (5.0 – 10.0 km)														
Name	**Number of Household**	**Total Population**	**Total Population (M)**	**Total Population (F)**	**Sex Ratio**	**Total SC Population**	**Total ST Population**	**Literacy Rate (%)**	**Male Literacy rate (%)**	**Female Literacy rate (%)**	**Total Working Pop.**	**Total Main worker**	**Total Marginal worker**	**Total Non Worker**
Usaka	298	1878	956	922	964	517	0	52.18	60.98	43.06	506	425	81	1372
Maina Bhagar	156	899	463	436	942	203	0	67.52	77.11	57.34	474	28	446	425
Dahla	376	2576	1354	1222	903	302	3	56.75	70.31	41.73	676	377	299	1900
Baur Deeh	200	1243	649	594	915	552	0	56.72	66.56	45.96	594	296	298	649
Banjarha	140	805	421	384	912	121	1	29.81	38.95	19.79	283	184	99	522
Kusahra	255	1544	763	781	1024	264	0	64.64	75.75	53.78	447	228	219	1097
Khutwa	102	551	218	333	1528	261	0	54.26	71.10	43.24	269	19	250	282
Tarngchak	151	965	516	449	870	412	0	55.23	66.09	42.76	417	316	101	548
Kazipur	339	2061	1059	1002	946	406	0	60.31	71.39	48.60	554	356	198	1507
Karnjahwa	232	1632	905	727	803	112	0	66.24	75.03	55.30	456	300	156	1176
Awaiepaker	156	926	503	423	841	311	0	57.56	69.58	43.26	286	45	241	640
Doharia	850	6003	3094	2909	940	1127	0	64.18	74.34	53.39	1461	1068	393	4542
Buriya Bari	289	2041	1051	990	942	204	0	59.04	69.17	48.28	567	534	33	1474
Bariarpur	186	1192	648	544	840	19	0	63.59	75.31	49.63	390	247	143	802
Narharpur Atraulia	35	151	89	62	697	0	0	19.21	22.47	14.52	81	73	8	70

Bhauramal	188	990	538	452	840	21	0	38.48	50.74	23.89	399	96	303	591
Chakra	132	818	419	399	952	0	0	49.88	58.95	40.35	278	149	129	540
Bhaw	26	152	76	76	1000	14	0	60.53	67.11	53.95	28	18	10	124
Tajdeeh	112	707	357	350	980	0	0	62.38	76.75	47.71	155	32	123	552
Jagatbela	126	799	418	381	911	24	0	54.94	65.79	43.04	225	131	94	574
Bhitani	411	3101	1634	1467	898	4	0	59.14	66.40	51.06	789	405	384	2312
Bhandari	557	3362	1823	1539	844	795	6	53.99	65.22	40.68	819	237	582	2543
Kalani Urf Barhni	150	987	532	455	855	52	0	55.22	68.98	39.12	254	146	108	733
Gaura Khas	246	1491	793	698	880	358	0	69.55	80.08	57.59	433	296	137	1058
Majhgaonwa	207	1398	739	659	892	338	0	66.95	76.45	56.30	397	222	175	1001
Manjharia	350	2463	1272	1191	936	151	0	53.27	65.96	39.71	701	559	142	1762
Ghunghunkotha	402	2476	1339	1137	849	199	0	48.38	58.18	36.85	535	174	361	1941
Makarhat	236	1357	699	658	941	352	0	66.54	76.82	55.62	340	28	312	1017
Usari	186	1213	605	608	1005	318	0	70.98	79.34	62.66	577	368	209	636
Belaura	75	422	235	187	796	73	0	75.36	82.98	65.78	148	27	121	274
Mohidinpur	93	677	357	320	896	112	0	75.48	84.31	65.63	192	169	23	485
Kodri	164	1011	537	474	883	424	0	60.53	68.34	51.69	232	90	142	779
Dariwa	131	837	462	375	812	295	0	60.10	69.48	48.53	310	27	283	527
Tharuwapar	98	685	371	314	846	280	0	64.96	76.01	51.91	303	52	251	382
Bishunpur	55	310	154	156	1013	281	0	53.87	64.94	42.95	104	7	97	206

Govindpur	263	1481	816	665	815	641	0	51.72	64.22	36.39	623	209	414	858
Keshwa Khore	111	679	361	318	881	9	0	57.44	66.48	47.17	105	4	101	574
Bhatwal	122	811	420	391	931	244	0	53.27	64.29	41.43	406	244	162	405
Dhuria Par Khas	314	2144	1112	1032	928	530	0	60.49	71.40	48.74	985	890	95	1159
Baluwa Manjhria	49	340	178	162	910	83	0	62.65	80.90	42.59	44	17	27	296
Maila	216	1373	719	654	910	367	0	58.63	70.24	45.87	721	38	683	652
Bhuwa Sahid	42	249	131	118	901	58	0	59.04	65.65	51.69	139	77	62	110
Bawandra	143	926	503	423	841	299	0	69.11	77.73	58.87	347	279	68	579
Bargo	287	1878	952	926	973	553	0	55.01	66.70	42.98	540	363	177	1338
Kolhui	16	132	71	61	859	0	0	82.58	94.37	68.85	40	19	21	92
Pati Dharamdas	105	684	333	351	1054	188	0	62.87	71.47	54.70	144	14	130	540
Koma	4	23	12	11	917	0	0	56.52	66.67	45.45	4	3	1	19
Bhaisla	132	792	417	375	899	60	0	55.81	65.95	44.53	229	83	146	563
Banauli	280	2026	1065	961	902	471	1	52.71	63.29	41.00	488	110	378	1538
Bagla Khore	26	182	100	82	820	81	0	40.66	49.00	30.49	36	15	21	146
Bankatia	200	1352	648	704	1086	427	0	52.00	67.90	37.36	696	373	323	656
Tandwa Kala	200	1337	674	663	984	432	0	50.56	59.20	41.78	698	221	477	639
Telaura	163	1221	684	537	785	213	0	70.68	77.92	61.45	428	272	156	793
Bharohia	136	815	434	381	878	273	0	71.90	79.72	62.99	308	111	197	507
Debipar Dugduia	164	1154	620	534	861	281	0	72.88	82.26	61.99	314	143	171	840

Mustafabad	285	1769	888	881	992	246	0	59.92	71.40	48.35	396	302	94	1373
Khajurhi Urf Jogia	82	458	238	220	924	113	0	59.61	69.75	48.64	71	28	43	387
Baraipar Khas	515	3328	1746	1582	906	780	0	59.77	69.47	49.05	835	398	437	2493
Bahilpar	230	1297	687	610	888	703	0	51.58	63.32	38.36	286	156	130	1011
Baraipar Tetaria	216	1311	675	636	942	197	0	59.80	67.56	51.57	313	162	151	998
Akuwapar	283	1666	883	783	887	314	0	69.81	77.24	61.43	556	353	203	1110
Madhopur	89	635	341	294	862	0	0	62.52	75.95	46.94	94	2	92	541
Karia	115	769	364	405	1113	317	0	53.45	66.48	41.73	158	102	56	611
Bikura	64	416	208	208	1000	43	0	48.80	60.58	37.02	95	67	28	321
Mudkatia	4	21	8	13	1625	0	0	61.90	75.00	53.85	3	3	0	18
Doharia Kala	244	1701	893	808	905	541	45	67.49	77.72	56.19	358	96	262	1343
Doharia Khurd	70	456	242	214	884	55	0	68.64	74.79	61.68	97	64	33	359
Narawli	162	1036	557	479	860	246	0	58.40	68.94	46.14	391	356	35	645
Sihapar	733	4851	2523	2328	923	538	0	61.06	73.05	48.07	1307	586	721	3544
Kashroul	176	1017	498	519	1042	163	0	62.14	72.69	52.02	209	194	15	808
Subhani	10	48	28	20	714	0	0	72.92	82.14	60.00	16	10	6	32
Hardi	318	2084	1085	999	921	547	0	59.21	71.24	46.15	579	317	262	1505
Gahira	3	13	7	6	857	0	0	69.23	85.71	50.00	3	0	3	10
Amauli	28	173	101	72	713	158	0	56.07	65.35	43.06	52	37	15	121
Bhimapar	144	965	500	465	930	277	0	68.70	75.00	61.94	384	157	227	581

Achiapar	95	665	339	326	962	239	0	57.44	71.39	42.94	203	88	115	462
Piprahi	31	192	99	93	939	0	0	54.17	71.72	35.48	66	14	52	126
Kunda Kodara	194	1460	754	706	936	341	0	70.62	81.03	59.49	461	195	266	999
Kesho Kurha	102	681	359	322	897	225	0	66.52	74.93	57.14	250	183	67	431
Jura Kodri	83	538	263	275	1046	138	0	68.03	78.71	57.82	127	28	99	411
Domandand	45	325	171	154	901	49	0	55.08	64.91	44.16	74	13	61	251
Khiridand	282	1991	1038	953	918	1076	1	60.97	71.97	49.00	629	435	194	1362
Kuwal Kala	220	1442	734	708	965	724	0	65.40	75.07	55.37	310	209	101	1132
Kuwal Khurd	69	543	292	251	860	0	0	67.03	79.11	52.99	134	125	9	409
Jogia Kol	291	1796	925	871	942	346	0	59.52	69.84	48.56	502	476	26	1294
Titanpar	150	975	518	457	882	215	0	60.82	72.59	47.48	224	145	79	751
Chak Chohra	4	28	14	14	1000	28	0	71.43	85.71	57.14	6	6	0	22
Telia Dih	139	759	349	410	1175	130	0	49.28	61.89	38.54	151	149	2	608
Budhat Khas	563	3711	1865	1846	990	787	42	64.46	75.82	52.98	1348	615	733	2363
Harpur	241	1643	787	856	1088	438	67	59.77	69.38	50.93	619	339	280	1024
Anantpur	262	1712	927	785	847	44	0	48.89	61.70	33.76	587	242	345	1125
Siswa	43	266	144	122	847	86	0	61.65	75.69	45.08	55	52	3	211
Jabraila Bibikhore	168	1337	705	632	896	293	0	61.18	74.47	46.36	438	346	92	899
Katai Tikar Khas	421	2804	1413	1391	984	819	0	60.02	71.27	48.60	695	394	301	2109
Rampur Garthauli	232	1502	723	779	1077	337	0	55.86	64.32	48.01	480	393	87	1022

Barouli	274	1633	816	817	1001	654	0	60.01	71.57	48.47	503	161	342	1130
Pakri	90	628	310	318	1026	0	0	69.59	77.10	62.26	148	86	62	480
Koni	78	468	234	234	1000	441	0	57.48	65.81	49.15	142	15	127	326
Chandpar	140	846	429	417	972	371	0	59.57	70.16	48.68	213	82	131	633
Majhaura	349	2115	1024	1091	1065	437	0	51.58	61.82	41.98	555	258	297	1560
Piparhema	175	1252	645	607	941	720	0	60.06	69.77	49.75	705	377	328	547
Madariya	92	533	256	277	1082	225	0	53.85	62.11	46.21	215	48	167	318
Chhapiya	72	444	225	219	973	31	0	64.86	69.78	59.82	146	98	48	298
Gadar	115	662	326	336	1031	79	0	56.65	66.87	46.73	217	24	193	445
Khanipur	523	3063	1578	1485	941	418	0	64.22	74.21	53.60	895	347	548	2168
Mujaila	3	37	19	18	947	0	0	64.86	57.89	72.22	16	2	14	21
Nagwa	656	4147	2129	2018	948	1481	25	61.80	72.05	50.99	1156	712	444	2991
Jaitpur	538	3644	1901	1743	917	497	68	62.54	72.28	51.92	1365	860	505	2279
Belwa Dari	320	1764	760	1004	1321	457	0	57.82	68.29	49.90	657	172	485	1107
Katka	99	553	217	336	1548	16	31	61.12	76.50	51.19	202	178	24	351
Manjhria Khurd	1	6	2	4	2000	0	0	83.33	100.00	75.00	1	1	0	5
Bargahan	648	4278	2322	1956	842	707	68	58.16	67.44	47.14	940	560	380	3338
Barwar Bujurg	69	434	229	205	895	73	0	65.90	75.98	54.63	125	63	62	309
Barwar Khurd	87	559	292	267	914	177	0	61.18	72.26	49.06	153	119	34	406
Sathipar	187	1233	645	588	912	253	0	53.61	66.98	38.95	513	220	293	720

Saraya	304	1808	948	860	907	198	0	59.02	67.62	49.53	712	194	518	1096
Kolia Mafi	652	3820	2021	1799	890	304	0	49.08	56.36	40.91	1144	681	463	2676
Ekdanga	112	644	357	287	804	0	0	58.70	67.79	47.39	234	51	183	410
Nandapar	342	2153	1110	1043	940	668	17	54.20	62.70	45.16	415	269	146	1738
Barour	28	228	120	108	900	74	0	54.39	66.67	40.74	113	4	109	115
Chak Fateh	94	539	285	254	891	245	0	59.93	72.63	45.67	142	99	43	397
Kakana	26	148	77	71	922	22	0	68.24	80.52	54.93	34	19	15	114
Siar	204	1219	641	578	902	366	0	49.88	59.75	38.93	275	223	52	944
Kandrai	359	2319	1198	1121	936	499	7	59.03	69.78	47.55	570	374	196	1749
Gurauli Khurd	2	12	7	5	714	0	0	66.67	85.71	40.00	5	1	4	7
Gurauli Buzurg	298	1394	713	681	955	53	0	58.18	69.42	46.40	385	116	269	1009
Bhilora Buzurg	36	267	149	118	792	0	0	73.78	75.17	72.03	37	33	4	230
Pewanpur	304	2017	1043	974	934	264	0	56.62	67.59	44.87	501	422	79	1516
Ahirauli Ptakhroli	159	1000	525	475	905	37	0	47.10	59.62	33.26	234	129	105	766
Chhapia	419	2889	1524	1365	896	617	0	65.97	74.80	56.12	796	417	379	2093
Talnaur	590	3597	1888	1709	905	117	0	47.65	58.95	35.17	936	414	522	2661
Tikaria	533	3311	1680	1631	971	1479	0	51.80	61.67	41.63	1570	475	1095	1741
Mohiuddin Pur	164	1120	569	551	968	201	0	65.98	76.63	54.99	177	46	131	943
Mohanapur	265	1415	748	667	892	255	0	64.59	75.40	52.47	384	69	315	1031
Baryabhar Urf	138	1008	525	483	920	163	0	58.33	66.67	49.28	271	154	117	737

Nakaha														
Kuee Kol	215	1275	668	607	909	673	0	54.59	65.72	42.34	399	215	184	876
Ahirowlee	277	1830	961	869	904	236	0	50.98	63.27	37.40	558	175	383	1272
Charnad	165	999	517	482	932	265	0	68.87	79.69	57.26	275	151	124	724
Bigahi	335	2453	1321	1132	857	850	0	56.50	68.43	42.58	672	522	150	1781
Gathuakhore	100	721	367	354	965	44	0	58.25	70.57	45.48	215	132	83	506
Madanpura	111	847	444	403	908	64	0	65.53	73.20	57.07	357	142	215	490
Tikariya Nathsingh	106	759	378	381	1008	111	0	61.40	73.28	49.61	235	232	3	524
Dumraila	166	1256	671	585	872	215	0	60.75	72.88	46.84	385	315	70	871
Raut Dadee	180	1341	686	655	955	274	0	62.64	76.09	48.55	624	297	327	717
Doro	139	867	455	412	905	93	0	73.01	81.10	64.08	236	121	115	631
Satuabhar	306	1824	976	848	869	503	0	62.28	70.29	53.07	577	229	348	1247
Barpar Dargha	205	1374	739	635	859	158	0	63.54	76.86	48.03	543	366	177	831
Dhandhupar	149	976	521	455	873	42	0	50.00	61.80	36.48	299	86	213	677
Bihari Bujurag	99	630	305	325	1066	215	18	60.95	69.51	52.92	168	167	1	462
Sakhadar Pandey	123	881	447	434	971	221	8	61.86	73.15	50.23	196	73	123	685
Rampurwa	112	698	362	336	928	247	0	63.90	76.52	50.30	195	33	162	503
Ashapar	241	1755	940	815	867	413	0	58.80	68.62	47.48	543	253	290	1212
Binayaka	41	286	132	154	1167	0	0	61.54	72.73	51.95	62	30	32	224
Raksanara	123	620	293	327	1116	0	0	62.90	72.70	54.13	111	46	65	509

Chatai	309	2093	1119	974	870	652	0	64.60	72.83	55.13	869	579	290	1224
Mahuadan	5	50	29	21	724	0	0	68.00	82.76	47.62	29	29	0	21
Bharohia	193	1207	628	579	922	340	0	67.94	78.98	55.96	266	237	29	941
Bhitaha	46	326	178	148	831	3	1	33.13	42.70	21.62	131	64	67	195
Manjharia Taluk Dhyanpur	30	262	139	123	885	98	0	59.92	69.06	49.59	125	59	66	137
SUBTOTAL	**31410**	**202243**	**104953**	**97290**	**927**	**43981**	**409**	**59.22**	**69.64**	**47.98**	**61409**	**32177**	**29232**	**140834**
GRAND TOTAL	**48412**	**310514**	**161505**	**149009**	**923**	**66249**	**823**	**60.63**	**70.78**	**49.63**	**93150**	**48476**	**44674**	**217364**

3.15.6 Population Distribution

The population as per 2011 Census records is 3, 10,514 (for 10 km radius buffer zone). Table – 3.25 below shows population profile of study area that total population in primary, secondary and outer zone is 59359, 48912 and 202243 respectively. The Population Composition of the Study Area is shown in Figure – 3.14 below.

Table 3- 26 Population Profile of Study Area

Zone	No. of Villages/ Town	Total Household	Total Population	Total Male Population	Total Female Population
Primary Zone (0 - 3 Km)	15	9367	59359	31272	28087
Secondary Zone (3 - 5 Km)	38	7635	48912	25280	23632
Outer Zone (5 - 10 km)	184	31410	202243	104953	97290
Study Area (10 Km)	237	48412	310514	161505	149009

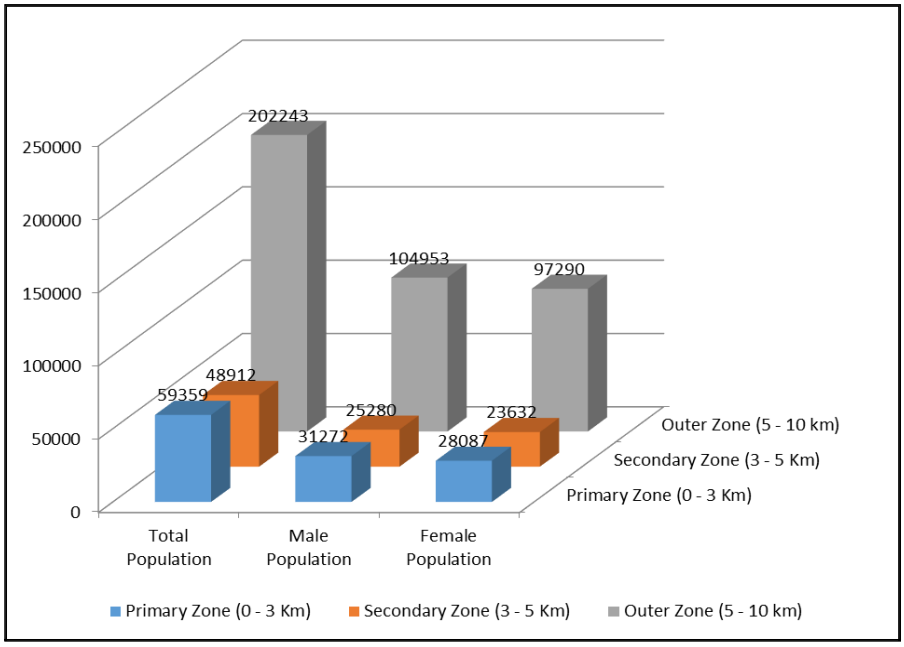


Figure 3- 16 Population Composition of the Study Area

3.15.7 Vulnerable Group

While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups and special attention has to be given towards these groups. In the observed villages, schedule caste (S.C.) population is 21.34% and Schedule Tribe population 0.27% and remaining 78.40% population observed as others. Graphical Presentation of SC/ST Population in Study Area is shown in figure below:-

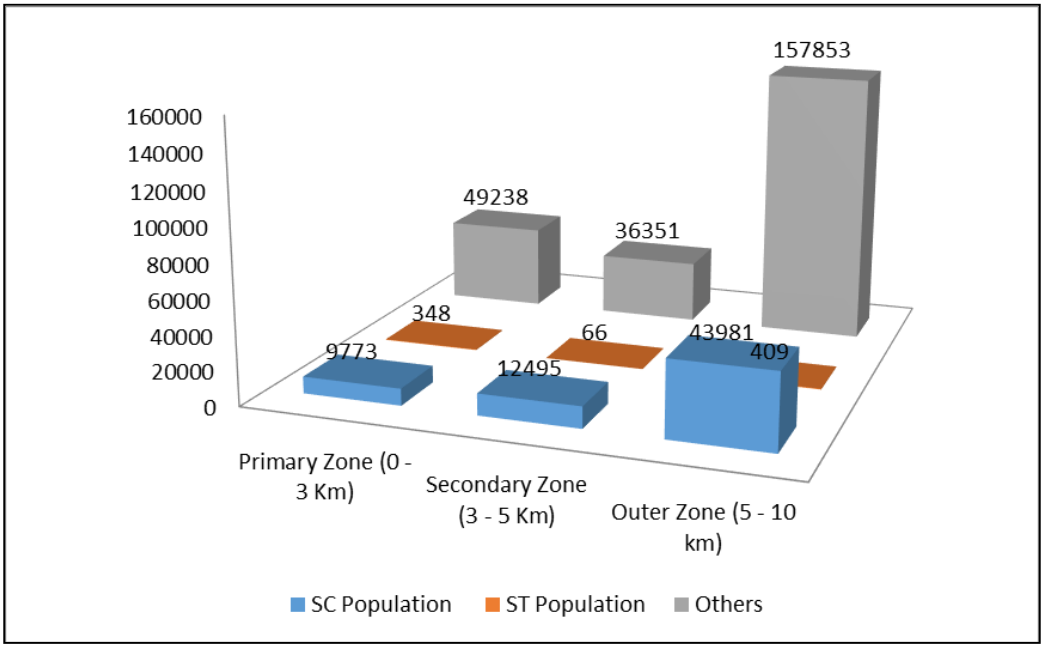


Figure 3- 17 Graphical Presentations of SC / ST Population in Study Area

3.15.8 Literacy Rate

Literacy Rate is the percent of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius study area demonstrates a literacy rate of 60.63% as per survey data of census of India 2011. The male literacy rate in the study area works out to be 70.78 % whereas the female literacy rate, which is an important indicator for social change, is observed to be 49.63% in the study area. This indicates that there is a need to focus in sociological aspect in the region and enhance further development.

In the present study, there is a literacy rate gap between male and female in the study area. Male and Female literacy rate of villages are varying place to place. Female literacy is one of major issues to focus in the study area and also reduction in the difference between male and female literacy rate should be focused. Graphical Presentation of Male/Female Literacy Rate in Study Area is shown in figure – 3.16 below.

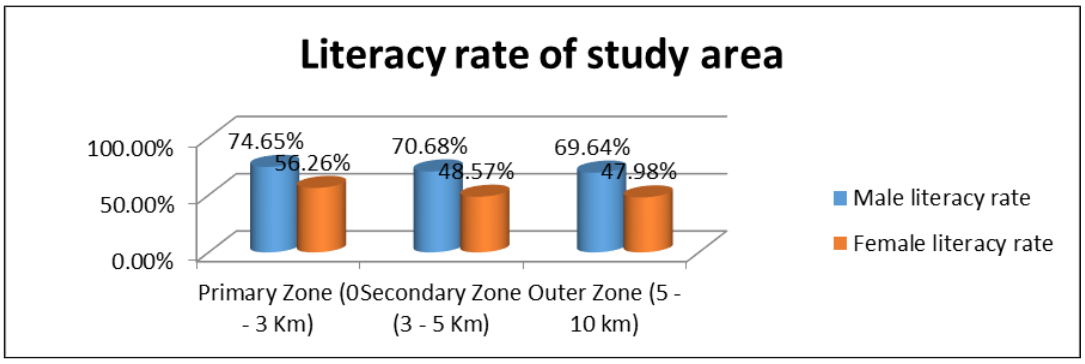
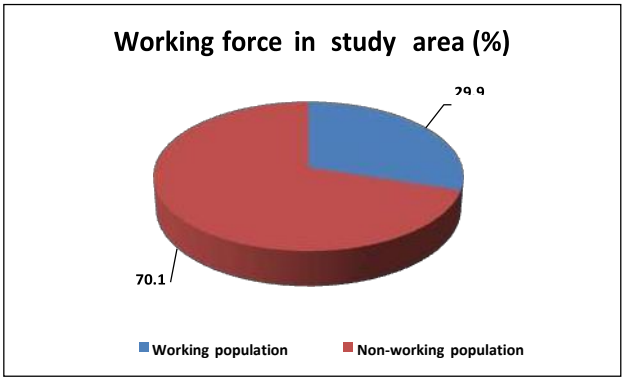


Figure 3- 18 Graphical Presentation of Male/Female

3.15.9 Working Forces in the Study Area

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., main workers, marginal workers and non-workers. The main workers include cultivators, agricultural laborers, those engaged in household industry and other services. The marginal workers are those engaged in some work for a period of less than 180 days during the reference year. The non-workers include those engaged in unpaid household duties like, students, retired persons, dependents, beggars, vagrants etc. besides institutional inmates or all other non- workers who do not fall under the above categories. The percentage of total working population and non-working population is 29.9% and 70.1% respectively of whole population of observed villages. As per the analysis of all the villages the ratio of non-working population is more than working population. Graphical Presentation of Working and Non-Working Population is shown in Figure – 3.17 below.



3.15.10Baseline Data & Analysis of Surveyed Villages

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operative) is essential for the development of the rural economic.

A review of infrastructure facilities available in the area has been done based on the information from base line survey of the study area. In this review, the villages which fall within 10.0 km radius round the site has been considered. Baseline data was collected and analyzed by conducting a survey of the study area. The villages surveyed were 16 in number. Two formats are provided where one is filled by Sarpanch of the village constituting the whole village data and the others are filled household wise. There are 9 villages in Primary zone, 4 villages in Secondary zone and 3 villages in outer zone which are surveyed. Various factors depicting the present situation of villages has been taken into account and presented graphically with proper details by secondary data (Census, 2011 basic amenities) and survey formats.

3.15.11Population Distribution

On the basis of primary data, the total population of 15 surveyed villages is 26489 and comprises of 4029 households. The population distribution varies from place to place.

The demographic details comprising of population and sex ratio are given subsequently. The Zone Wise Population of the Surveyed Villages is shown in Figure – 3.18 below.

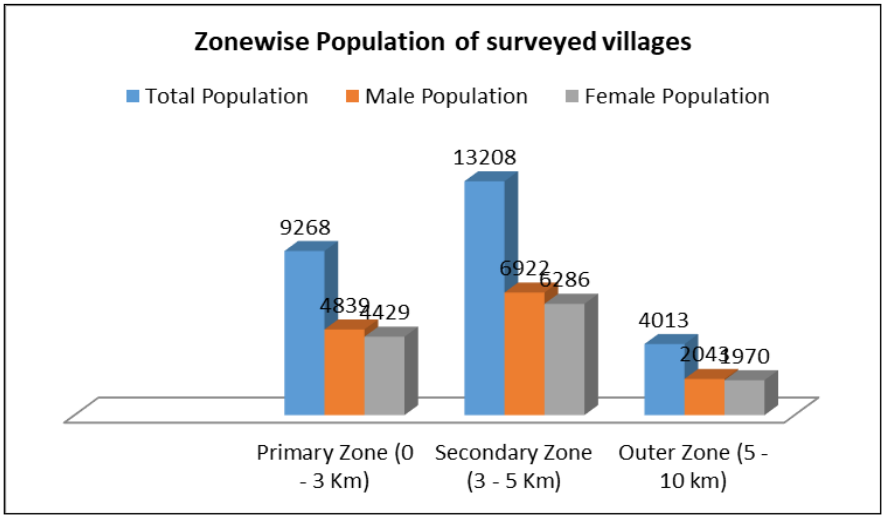


Figure 3- 19 Zone Wise Population of the Surveyed Villages

3.15.12Vulnerable groups

On the bases of surveyed villages, it has been observed that the surveyed area comprises of 7639 schedule caste population and 12 schedule tribe populations. Majority consists of other population. The Vulnerable Groups in the Surveyed Villages is shown in Figure –3.19 below.

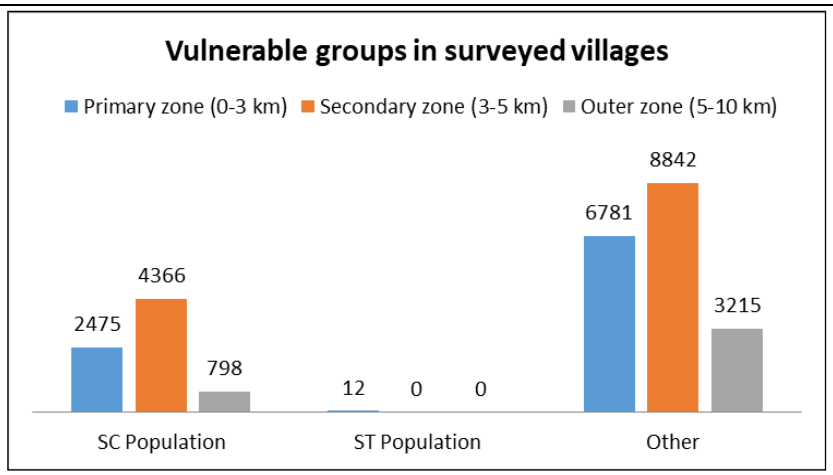


Figure 3- 20 Vulnerable Groups in the Surveyed Villages

3.15.13Literacy rate

Literacy Rate is the total percentage of the population of an area at a particular time aged seven years or above who can read and write with understanding. The analysis of the literacy levels has been done in the study area. As per the 2011 Census of India, the male literacy rate, i.e., the percentage of literate males in the surveyed villages works out to be 71.20%. Whereas, the female literacy rate which is an important indicator for social change, is observed to be 48.68%. Zone wise literacy rate is given in Figure – 3.20 below.

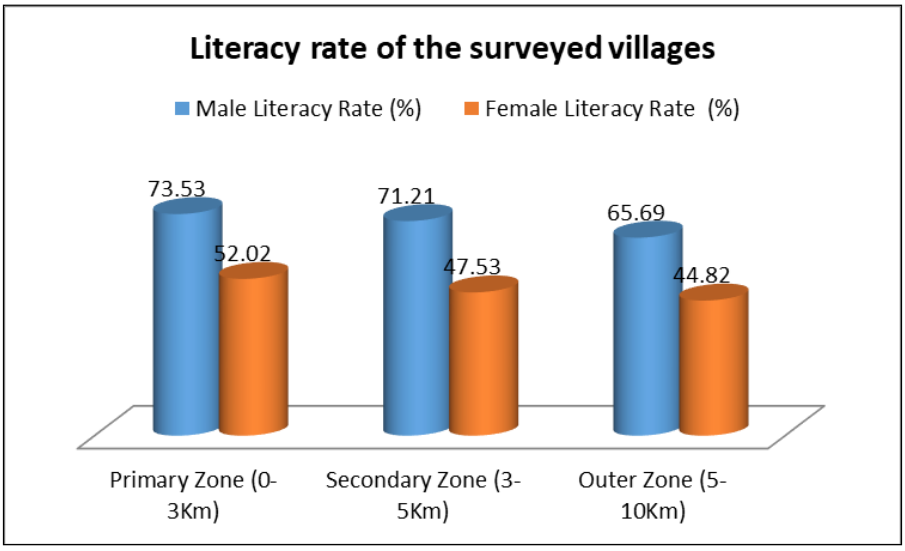


Figure 3- 21 Literacy Rate of the Surveyed Villages

3.15.14Economic Activities of surveyed villages

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., main workers, marginal workers and non-workers. The workers include cultivators, agricultural laborers, those engaged in household industry and other services. While the marginal workers are those workers engaged in some work for a period of less than 180 days during the reference year. The non- workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars, vagrants etc. besides institutional inmates or all other non-workers who do not fall under the above categories. The percentage of total working population and non-working population is 30.25 % and 69.75 % respectively in the surveyed villages. The workforce data of the surveyed villages is given in Table – 3.27 and graphical representation of the same is shown in Figure – 3.22 below.

Table 3- 27 Workforce data of the surveyed villages

	Total working population	Main workers	Marginal workers	Total non-working population
Primary zone (0-3 km)	2861	1832	1029	6407
Secondary zone (3-5 km)	3863	1166	2697	9345
Outer zone (5-10 km)	1288	751	537	2725

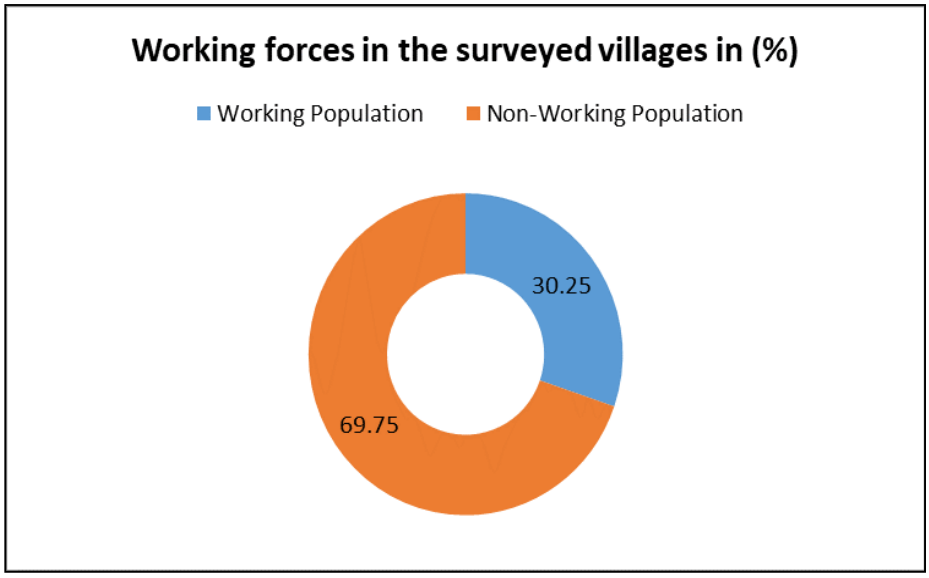


Figure 3- 22 Working Forces in the Surveyed Villages

As per the analysis of data of surveyed villages, non-working population is higher than working population in most villages. A major portion of working age people are not ideal workers because of limited sectors in which they are engaged with less training and lesser awareness of new sectors & work opportunities.

3.15.15Socio-Economic Status

3.15.15.1 Annual income from various source

The Income & Expenditures of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to income sources. Most of the people are involved in agriculture and wage labor as occupational pattern, while some are earning from government services, private business, poultry farming etc. for livelihood in study area.

3.15.15.2 Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation) is essential for the development of the rural economics. A review of infrastructure facilities available in the area has been done based on

the information from base line survey of the study area. The data on various aspects are given zone wise and basic amenities available in the area are described in the subsequent sections.

3.15.15.3 Educational Facilities

According to data, Primary Schools are available in most villages, Middle, Secondary and Senior Secondary Schools (depending on population size) are also available in densely populated villages. For higher education people have to commute the Gorakhpur, Degree College are available in tehsil Gorakhpur. The details of Educational facilities in the Surveyed villages are given in Table –3.28 below.

Table 3- 28 Educational facilities in the Surveyed villages

Study Area (Surveyed villages)	Pre-Primary School		Primary School		Middle School		Secondary School		Senior Secondary School	
	Govt.	Private	Govt.	Private	Govt.	Private	Govt.	Private	Govt.	Private
0 - 3 Km	0	0	7	1	2	0	1	0	1	0
3 - 5 Km	1	2	5	2	1	2	1	1	1	0
5 - 10 Km	0	0	3	0	2	0	0	0	0	0
Total	**1**	**2**	**15**	**3**	**5**	**2**	**2**	**1**	**2**	**0**

Source: Field Survey and Census 2011

3.15.15.4 Health Facilities

In the surveyed villages health facilities are not at all satisfactory and no registered health facility is available. In the surveyed area the common diseases are: Chickengunia, Dengue and Skin diseases. The details of health facilities in the study area are given in Table – 3.29 below.

Table 3- 29 Health Facilities in the Surveyed Villages

S. No.	Zones	Primary Health Centre	Primary Health Sub Centre	Maternity And Child Welfare Centre	Hospital Allopathic	Hospital Alternative Medicine Doctors
1	0 - 3 Km	NA	NA	NA	NA	NA

2	3 - 5 Km	NA	NA	NA	NA	NA
3	5 - 10 Km	NA	NA	NA	NA	NA

3.15.15.5 Other Infrastructure Facilities

Infrastructure of any area reveals the internal and external progress of it. If the infrastructure is not well developed then people who are residing there have to find certain options outside that place and in turn loss is incurred in one way or the other. There is a hindrance factor in economy that grows rapidly if proper measures are not taken. The district has low availability of good infrastructure facilities and the surveyed villages too are lagging behind in such benefits. The details of infrastructure facilities in the study area are given in Table – 3.30 below.

Table 3- 30 Details of Infrastructure Facilities in the Study Area

Zone	Post Office/Sub PToesletpOhfofincee	(landlines) &Mobile Phone	Internet Cafes / Common Service Centre (CSC)	Public Bus Service	Railway Station	Auto/Modified Autos	Taxi Status	Vans Status	National Highway	State Highway	Major District Road	Commercial Bank	Cooperative Bank	Public Distribution System(PDS) Shop	Nutritional Centers-Anganwadi Centre	Community Centre with/without TV	Public Library	Power Supply for Domestic Use	Power Supply for Agricultural Use
0-3 km	NA	A	NA	NA	N A	NA	NA	NA	A	N A	NA	N A	N A	A	A	NA	NA	A	A
3-7 km	A	A	A	A	N A	A	A	A	N A	N A	A	N A	N A	A	NA	NA	N A	A	A
7-10 km	NA	A	NA	N A	N A	N A	A	A	N A	N A	NA	N A	N A	A	NA	NA	N A	A	A

3.15.15.6 Transport Facilities

The study area is served by road transport. Most of the villages are connected by bus/other transport services. The area has average road network, which includes Sahjanwa Railway Station.

3.15.15.7 Post and Telegraphs

The study area has an average level of post services. The study area is served by adequate telephone and mobile network.

3.15.15.8 Electrification in the area

All villages in the study area are electrified. Electricity is available for domestic, commercial, industrial, agricultural and public lighting purposes.

3.15.15.9 Drinking Water Facility

Village people are availing drinking water facilities generally from the Hand pump, open well, tube well and tap. The water is also supplied through tanker in few villages. Water Facility in the Surveyed Villages is given in Table – 3.31 below.

Table 3- 31 Water Facility in the Surveyed Villages

S. No.	Zones	Tap Water	Hand Pump	Tube Wells/Borehole	River/ Canal	Tank/Pond /Lake	Open Drainage
1	0 - 3 Km	A	A	A	A	A	A
2	3 - 5 Km	NA	A	A	A	A	A
3	5 - 10 Km	A	A	A	A	A	A

3.15.16Inference of the Studied Surrounding Area

The socio-economic condition of the study area assessed on the base of surveyed villages gives clear picture of its population, average household size, literacy rate, sex ratio etc. As far as the literacy rate is concerned of the study area is comparable to state average literacy rate. Schedule caste population is significantly higher in comparison to schedule tribe. A part of population is suffering from the lack of permanent job to run their day to day life and get basic facility. Most of villages have road connectivity and government bus facilities available. Some private bus

operators operate transport service. The infrastructure and amenities available in the area denotes the economic well-being of the region. The study area as a whole possesses average infrastructural facilities. In comparison with the facilities available in other parts of the districts; amenities like maternity health, portable drinking water could be strengthened. The socio-economic analysis of the study area shows that in terms of education and employment sectors could be improved. With a high dependency ratio, the overall socio-economic status of the target population could improve with increase in work participation rate. The expansion of this Plant would lead to direct and indirect employment opportunities.

3.16 Identification of Needs

A random survey of 15 villages in the study area was conducted i.e 8 villages in the core zone (0-3 km), 4 villages in the secondary zone (3-5 km) and 3 villages in the outer zone (5-10km) which helped to assess the basic needs of villagers. It briefed about the socio- economic condition of the villagers, existing infrastructure facilities, needs of various sections of the community and accordingly formulate the strategies leading to the development of the area based on the findings of the study. Therefore, village wise detailed need assessment is done and given in table – 3.32 below.

Table 3- 32 Need Based Assessment Study of Surveyed Villages

S. No.	Surveyed Village	Need based Assessment
Primary Zone (0 – 3 km)		
1	Tenuhari	Hospitals and health centers, Employment opportunities, Banking facilities, Education facilities, Transport facilities
2	Bhakasa	Employment opportunities, education facilities, hospitals and health centers, Banking facilities, Improvement of transportation facilities
3	Jigina	Educational facilities, Employment facilities, Vocational training for farmers, Heath centers and hospitals
4	Sahijana	Educational facilities, Employment facilities, Vocational training for farmers, Heath centers and hospitals

5	Adilapar	Better educational facilities, health centers and hospitals, Banking facilities, vocational training for farmers, provision of community centers
6	Tinahra	Employment opportunities, education facilities, hospitals and health centers, Tap water facilities, Banking facilities, Improvement of transportation facilities
7	Malhipur	Educational facilities, Employment facilities, Vocational training for farmers, Heath centers and hospitals
8	Tenua	Employment opportunities, education facilities, hospitals and health centers, Banking facilities, Improvement of transportation facilities
		Secondary Zone (3 - 5 km)
10	Jagdishpur	Employment opportunities, education facilities, hospitals and health centers, Tap water facilities, Improvement of transportation facilities
11	Bhiti Rawot	Employment opportunities, education facilities, hospitals and health centers, Provision of transportation facilities, vocational training for farmers, Banking facilities
12	Banaura	Better educational facilities, health centers and hospitals, Banking facilities, vocational training for farmers, provision of community centers
13	Bela	Educational facilities, Employment facilities, Vocational training for farmers, Heath centers and hospitals
Outer Zone (5 - 10 km)		
14	Kesho Kurha	Hospitals and health centers, Employment opportunities, Banking facilities, Education facilities, Transport facilities
15	Rampur Garthauli	Educational facilities, Employment facilities, Vocational training for farmers, Heath centers and hospitals
16	Ahirowlee	Better educational facilities, health centers and hospitals, Banking facilities, Better transportation facilities
17	Kesho Kurha	Hospitals and health centers, Employment opportunities, Banking facilities, Education facilities, Transport facilities

18	Rampur Garthauli	Educational facilities, Employment facilities, Vocational training for farmers, Heath centers and hospitals

3.16.1 Recommendation and Suggestion

Thus, based on the based assessment of the area following suggestions are made for the area:

- Effort should be made to improve the female literacy rate in the rural areas, which is the most important need for rural development.
- Vocational training could be encouraged amongst the rural people, including women and unemployed youth, to get training in various activities and generate self-employment or skills for various job opportunities in the study and nearby areas.
- Plant proponent could conduct professional skills development programme for business opportunities for the local people.
- Knowledge and Awareness camps could be organized to provide knowledge of Government schemes and loan or subsidies for self-employment, agriculture and allied activities in the area.
- Provide health care and ambulance facility in more villages to make the people get easy access to medical facilities.
- Maternity facilities in the area need improvement to avoid going too far off places.
- On the basis of qualification and skills local youths shall be employed by expansion of Plant with employment generated in the construction and operational phases.
- Explore providing awareness of veterinary facilities/treatment in the region
- Provide water treatment plant for good and healthy drinking water.

3.16.2 Inference

The socio-economic study of the study area on behalf of observed villages gives clear picture of its population, average household size, literacy rate, sex ratio, schedule tribe and schedule castes etc. A major part of population is suffering from the lack of permanent job to run their day to day life and get basic facility.

The infrastructure and amenities available in the area denotes the economic well-being of the region. The study area as a whole possesses average of infrastructural facilities. However, in comparison with the facilities available in other parts of the districts this area higher level of amenities likes higher education, drinking water and communication network. The area is well connected with road transport and communication facilities.

3.17 CONCLUSION

The environment baseline study was conducted in the project area by both secondary data and primary data collections. Abiotic factors including air, water and soil were studied for the core and buffer zone. It was found that most of the parameters were within the limits as per the Standards. In general, there is no major threat to the quality of the major components of environment. Similarly, the study for the biotic factors was conducted. It can be concluded that the present environment status of the study area is good enough for the project expansion activity. Adoption of adequate pollution control measures will protect the surrounding environment.

3.18 Traffic Analysis

Traffic Survey and Projection for Common Biomedical Waste Treatment Facility, Gorakhpur

The traffic density survey was conducted at NH - 28 passing at a distance of approx. 0.20 km in North direction from the plant site. The Details of the existing traffic density are shown below.

Table 3- 33 Traffic Survey and Projection on NH 28 near Project Site

Classification of Traffic	Adopted PCU Value	Existing Traffic on the NH 28 - 2021		Operational Phase on the NH 28 (Dec 2023)		
		ADT	PCU	ADT	Traffic due to Project	PCU
Cars	1	1621	1621	1788	2	1790
Three-Wheeler	0.5	154	77	170	0	85
Two-wheeler	0.5	2024	1012	2232	10	1121
Buses/Trucks	3	687	2061	758	1	2277

Hevay Vehicles	3	290	870	320	0	960
Tractors	1.5	322	483	356	0	534
Total PCUs per day			**6124**			**6767**
Capacity as per IRC:64-1990 (PCU/day)			**15000**			
V/C (Existing)			**0.408**	**V/C (Proposed)**		**0.45**

Level of Service (LoS)

The design service volume of Two-lane highway in PCUs per day in plain area (c=15000 PCU) has been adopted from IRC:64-1990.

The following guidelines of IRC have been followed:

Table 3- 34 Guidelines of IRC for Judging LOS Vs 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
0.6-0.8	D	Below Average
0.8-1.0	E	Poor
1.0-1.2	F	Very Poor

As per the V/C ratio mentioned in the Table 3, it can be easily interpreted that the LoS in the present case and operational phase will be Good as the v/c ratio falls between 0.4 -0.6 in the existing and operational phase of the project on the NH 28.

4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 General

Environmental Impact Assessment (EIA) is a planning tool generally accepted as an integral component of sound decision making. EIA is to give the environment its due place in the decision making process by clearly evaluating the environmental consequences of the proposed activity before action is taken. Early identification, characterization and quantification of critical environmental impacts allow the public and the government to form a view about the environmental acceptability of a proposed developmental project and what conditions should apply to mitigate or reduce those risks and impacts. The aim is to ensure that potential environmental problems are foreseen and avoided at an early stage in planning cycle so as to preempt problems.

The EIA mechanism is applied to the project in the following order of priority project in the following order of priority:

- Avoid adverse environmental impact
- Minimize and control adverse environmental impact
- Mitigate adverse environmental impact

The environmental impact assessment has been performed to predict the quantitative and qualitative impaction the following broad environments which broadly describe the whole gamut of environment. Further there would be two phases of generation i.e. during the construction phase and the operational phase.

4.2 Potential Impacts

The potential significant environmental impacts associated with the project are grouped as below.

Air Environment

- Impacts on ambient air quality
- Impacts on ambient odor
- Impacts on ambient noise

Water Environment

- Impacts on surface& ground water quality
- Impacts on aquatic life

Land Environment

- Impacts on land use
- Impacts on soil fertility

Socio Economics

- Impacts on infrastructure
- Impacts on employment
- Indirect Impacts
- Impacts on public health and safety
- Impacts on aesthetics

4.3 Prediction of Impacts

The impact assessment is carried out for the following phases and presented in the following paragraphs.

- Impacts during development phase or construction phase
- Impacts during operation phase

4.4 Impacts during Development Phase or Construction Phase

Air Environment

The air environment may be described in terms of parameters of ambient air quality such as ground level concentration of particulate matter (PM10) representing suspended particulates which are less than 10 micron size which easily get into our respiratory tracts. Further the particulate matter (PM2.5) denotes that fraction of finer particulates which are deposited in our lungs and cause respiratory diseases and also affect metabolism.

All of the developmental activity viz. Construction work , operation of diesel driven equipment and machinery, excavations, loading and unloading of materials, haulage of materials, dumping and stacking of construction material and debris cause generation of fugitive dust particulates over the proposed area and in the neighborhood. Further movement of vehicles because both emission of exhaust gases and also wheel laden fugitive dust particulates. The fugitive particulate

load generated daily depends upon the duration of construction activities which may be said to be temporary lasting for a few months. After the completion of this phase all of the sources stated above stop functioning.

Gaseous Pollutants

The gaseous pollutants namely CO, SO_2, and NO_X released due to vehicular exhausts are noxious in nature. As said earlier, the construction phases are temporary and ceases after a few months. As such the load of gaseous pollutants generated shall be for a limited period of time. The deployment of transportation trucks for haulage of building materials and other machinery shall emit gaseous pollutants.

Noise Environment

The construction phase involves developmental activities and entails usage and deployment of machinery and equipment which would generate noise substantially. The assessment of the impacts of noise on the surrounding community depends upon:

- Characteristics of noise source (instantaneous, intermittent, or continuous in nature, with the latter contributing the least to noise pollution);
- There is no blasting or heavy machinery involved in the installation of incinerator hence there is no instantaneous source of noise pollution from the site.
- Intermittent source of noise shall be movement of vehicles used in construction activities. This shall be temporary in nature.

Water Environment

Sources of water pollution on building sites include: diesel and oil; paint, solvents, cleaners and other harmful chemicals; and construction debris and dirt. Silt and soil that runs into natural waterways turns them turbid which restricts sunlight filtration and destroys aquatic life. Waste water will be generated from cleaning of vehicles, cleaning of equipment's etc.

4.5 Impacts during Operation Phase

Air Environment

During this phase, the sources of fugitive dust are due to movement of medical waste laden trucks to and fro the processing plant. Along with the vehicular pollution emissions from the stack of incinerator is be observed.

Air Pollution Impact Prediction through Modeling
Objective

Atmospheric modelling is used by air quality managers to make decisions on effective and efficient ways to implement the National Ambient Air Quality Standards (NAAQS) and improve air quality. Air quality modelling is done to estimate the relationship between sources of pollution and their effects on ambient air quality, predict the impacts from potential emission sources, and simulate ambient pollution concentrations under different policy scenarios. They are critical for determining the relative contributions from different sources, monitoring compliance of air quality regulations, and making policy decisions.

The Air Quality Model

In order to estimate the ground level concentrations due to the emissions from the proposed project, EPA approved American Meteorological Society/Environmental Protection Agency Regulatory Model - AERMOD View 10.0.1 dispersion Model has been used. AERMOD View dispersion Model provides option to model emissions from a wide range of sources that are present at a typical industrial source complex. The model considers the sources and receptors in undulated terrain as well as plain terrain and the combination of both. The basis of the model is the steady state Gaussian Plume Equation, with modifications to model simple point source emissions from stacks that experience the effect of aerodynamic down wash due to nearby buildings, isolated vents, multiple vents, storage piles etc. AERMOD View dispersion model with the following options has been used to predict the cumulative ground level concentrations due to the proposed emissions. Area being rural, the rural dispersion parameters are considered as below:

- Predictions have been carried out to estimate concentration values over radial distance of 10 km around the sources.
- Cartesian receptor network has been considered.
- Emission rates from the sources were considered as constant during the entire period.
- The ground level concentrations computed were as in basis without any consideration of decay coefficient.

- Calm winds recorded during the study period were also taken into consideration.
- 24-hour mean meteorological data, extracted from the meteorological data collected during the study period as per guidelines of IMD/CPCB has been used to compute the mean ground level concentrations to study the impact of proposed activity.
- Stability class was evaluated based on wind direction fluctuation.
- The mathematical equations used for the dispersion modelling assumes that the earth surface acts as a perfect reflector of plume and physico-chemical processes such as dry and wet deposition and chemical transformation of pollutants are negligible.
- Washout by rain is not considered.
- Source of emission is continuous and at steady state.

Emission Calculation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. The general equation for emissions estimation is:

E = A x EF x (1- ER/100)

Where;

E = emissions in (gm/sec);

A = activity rate (Tonnes/Hr);

EF = emission factor (Kg/Tonnes), and

ER = Overall emission reduction efficiency, %

Sources of Pollution/Emission

Point Source:

1. DG Set of 1 x 82.5 KVA
2. Incinerator – 300 kg/hr

Emission rate of pollutants from operation of DG sets are computed based on research paper of Emission Inventory of Air Pollutants from Diesel Generator Used at Selected Locations in Jaipur City, India *by Suthar Gaurav et al.* International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES) Volume 4, Issue 12, December-2018.

Emission rate for Incinerator of the Bio Medical Waste is calculated based on the Source Apportionment Study by CPCB. As per the emission factors published in the above documents, the emission rate has been computed and is provided below**.**

Table 4- 1 Emission rate

S.No.	Source	Stack Height, m	Exit Velocity, m/s	Internal Diameter. m	Maximum Working Hours per day
1	Incinerator (300 KG/HR)	30	18.5	0.2	2
2	DG Set 82.5 KVA	15	16.5	0.1	2

- **Air Pollution Control Device**
  - Venturi Scrubber in Incinerator to control NOx emission.
  - Not Applicable as only DG sets will be operated as back-up power supply and the operation will be limited to max 2 hr per day when there will be no power supply.

Table 4- 2 Air Pollution Control Device Emission

Source	Avrg Fuel Consumption,	Emission Rate			
		PM10, g/sec	NOx, g/sec	SO2, g/sec	CO, g/sec
DG 82.5 KVA	15 L/Hrs	0.012	0.189	0.085	0.13
Incinerator	300 kg/hr	0.194	0.074 (APCD-Venturi Scrubber)	0.091	0.25

Quantitative estimation of impacts on air environment

An attempt has been made to predict the incremental rise of various ground level concentrations (GLCs) above the baseline status in respect of air pollution due to Incinerator and DG sets operations. The mathematical model used for predictions in the study is USEPA approved AERMOD View 10.0.1 software which is designed for point source, line source and area sources for the prediction of impacts due to Incinerator and DG set operations. For estimation of the GLC in worst case scenario, the Incinerator and DG Sets operations are assumed to be carried out on the flat terrain. The predicted GLC computed using AERMOD View developed by Lakes Environment model is plotted on isopleths and are shown in Figure given below.

Meteorological Data

The meteorological data recorded continuously during season of Winter Season (Jan-March) on hourly basis for wind speed, wind direction, relative humidity, precipitation and temperature and the same is processed to extract the 24-hour mean meteorological data as per the guidelines of IMD and MoEF for application of AERMOD Version 10.0.1 model. Stability classes computed for the mean hours are based on the guidelines issued by CPCB on modelling. Mixing heights representative of the region have been taken from the available published literature.

Stability Classification

Wind direction fluctuation method (CPCB PROBES/70/1997-1998) is adopted for hourly stability as determined by wind direction fluctuation method as suggested by Slade (1965).

$$\sigma_\Theta = Wdr/6$$

Wdr: the overall wind direction fluctuation or width of the wind direction in degrees, over the averaging period.

σ_Θ : the standard deviation of wind direction fluctuation.

The stability classes are as detailed below:

Table 4- 3 Slades Stability Classification based Wind direction fluctuation

Stability Class	σ_Θ (degree)
A (Extremely Unstable)	>22.5
B (Moderately Unstable)	22.4-17.5
C (Slightly Unstable)	17.4-12.5
D (Neutral)	12.4-7.5
E (Slightly Stable)	7.4-3.5
F (Stable)	<3.5

Dispersion Parameters

The area is classified as urban when more than 50% of land inside a circle of **3 km** radius around the source can be considered built up with heady or medium industrial, commercial or residential units. The site is located **out of the city**, the area is considered **rural** and dispersion coefficient for **rural** are used in the modelling.

Table 4- 4 Brigg`s Dispersion Parameters σy (m) and σz (m) (100m<x<10000m)

S.No.	Stability Class	σ_y(m)	σ_z(m)
For Rural Conditions			
1	A	$0.22x(1+0.0001x)^{-0.5}$	0.2x
2	B	$0.16x(1+0.0001x)^{-0.5}$	0.12x
3	C	$0.11x(1+0.0001x)^{-0.5}$	$0.08x(1+0.0002x)^{-0.5}$
4	D	$0.08x(1+0.0001x)^{-0.5}$	$0.06x(1+0.0015x)^{-0.5}$
5	E	$0.06x(1+0.0001x)^{-0.5}$	$0.03x(1+0.0003x)^{-1}$
6	F	$0.04x(1+0.0001x)^{-0.5}$	$0.016x(1+0.0003x)^{-1}$
For Urban Conditions			
1	A-B	$0.32x(1+0.0004x)^{-0.5}$	$0.24x(1+0.001x)^{-0.5}$
2	C	$0.22x(1+0.0004x)^{-0.5}$	0.20X
3	D	$0.16x(1+0.0004x)^{-0.5}$	$0.14x(1+0.0003x)^{-0.5}$

4	E-F	$0.11x(1+0.0004x)^{-0.5}$	$0.08x(1+0.0015x)$

Where x is the downwind distance in meters.

Mixing Height

As site specific mixing height were not available, mixing height based on CPCB publication, "Spatial Distribution of Hourly Mixing Depth over Indian Region", PROBES/88/2002-03 has been considered for model to establish the worst-case scenario.

Monthly Wind Speed and Wind Direction

The weather is one of the main factors affecting the air quality. Weather can help to clear away pollutants from atmosphere to improve air quality, or it can make air pollution extremely worse by helping to form highly polluted regions. The concentration of air pollutants in ambient air is governed by the meteorological parameters such as atmospheric wind speed, wind direction, relative humidity, and temperature. Rainfall can effectively remove atmospheric particulate pollutants, and the removal rate of PM10 is greater than the removal rate of PM2.5. In general wind speed more than 7 m/s can lift dust. Heavier particles will settle near the source area, with the smaller ones settling farther away. The site-specific weather data has been collected by installation of weather monitoring station at site.

Table 4- 5 Weather Monitoring Data of the Site

Month	Temp(^{0}C) average		Relative Humidity (%)	Wind Speed(m/h)	Predominant wind direction(blowing from)
	Minimum	Maximum			
January, 2021	6.7	26.7	76.0	0.5	West
February, 2021	7.8	31.7	67.4	0.48	West
March, 2021	15.0	37.2	50.73	0.56	West

Table 4- 6 Meteorological Parameters (Jan-March 2021)

Meteorological Parameters (Jan-March)			
Parameter	Min. Value	Max. Value	Mean Value
Temperature (°C)	6.7	37.2	24.5
Wind Speed (m/s)	1.5	12.5	2.45
Relative Humidity (%)	21	75	48
Solar Radiation (W/m2)	5000	5500	5300
Rainfall	Total rainfall (mm)	No. of rainy days	Average annual rainfall (mm)
	0	0	1169

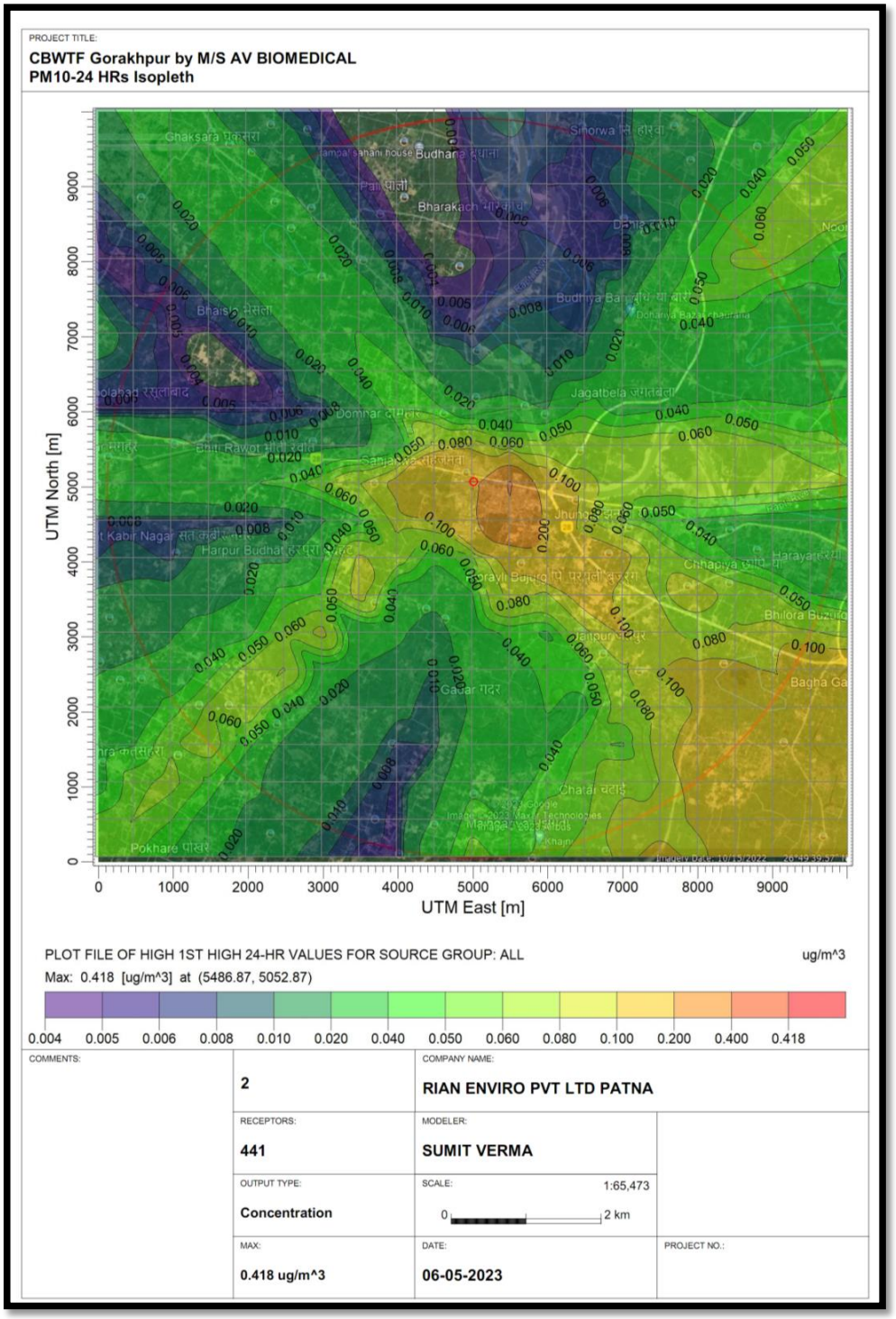


Figure 4-1: PM 10 Isopleth

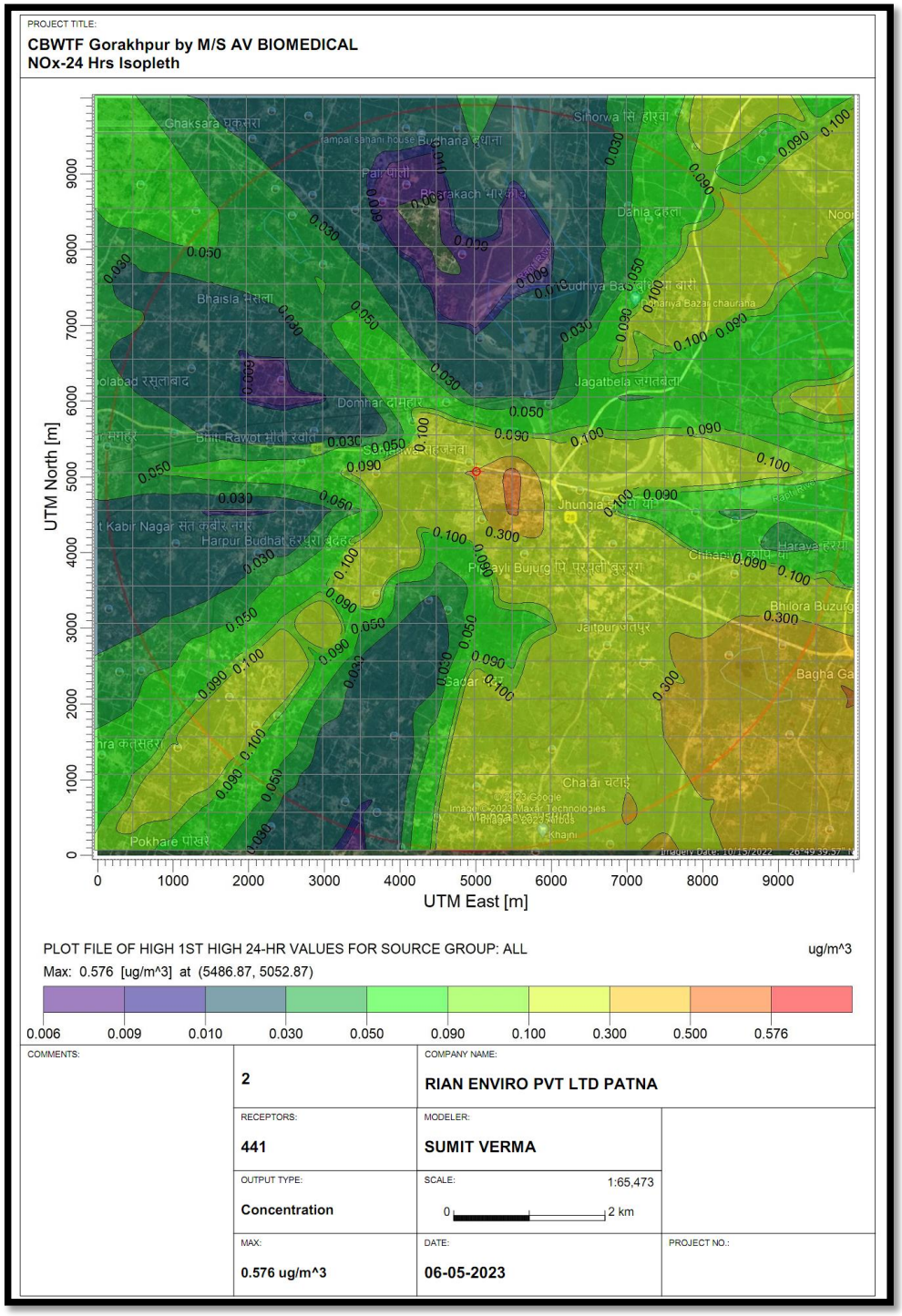


Figure 4-2: NOX Isppleth

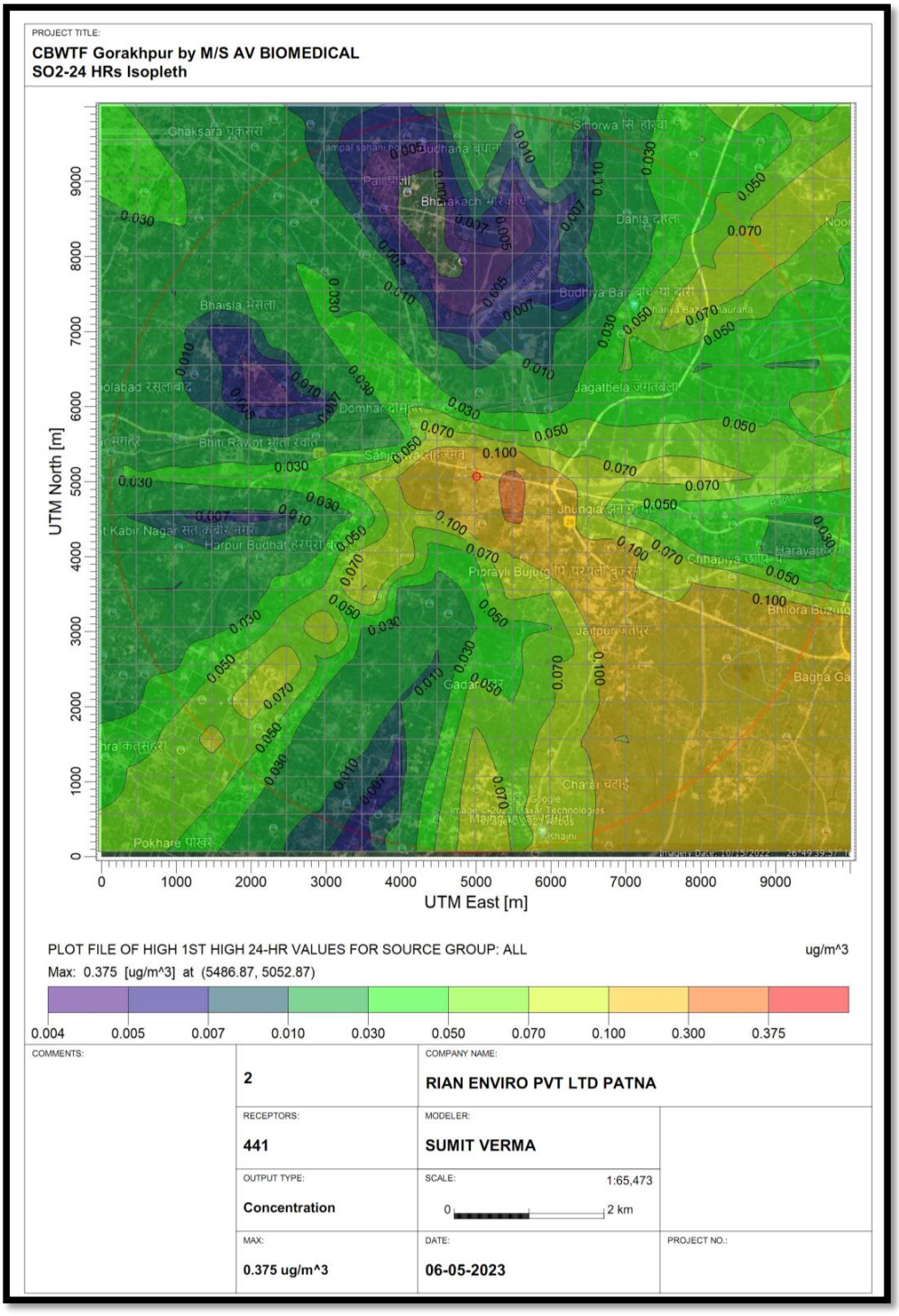


Figure 4-3: SO2 Isopleth

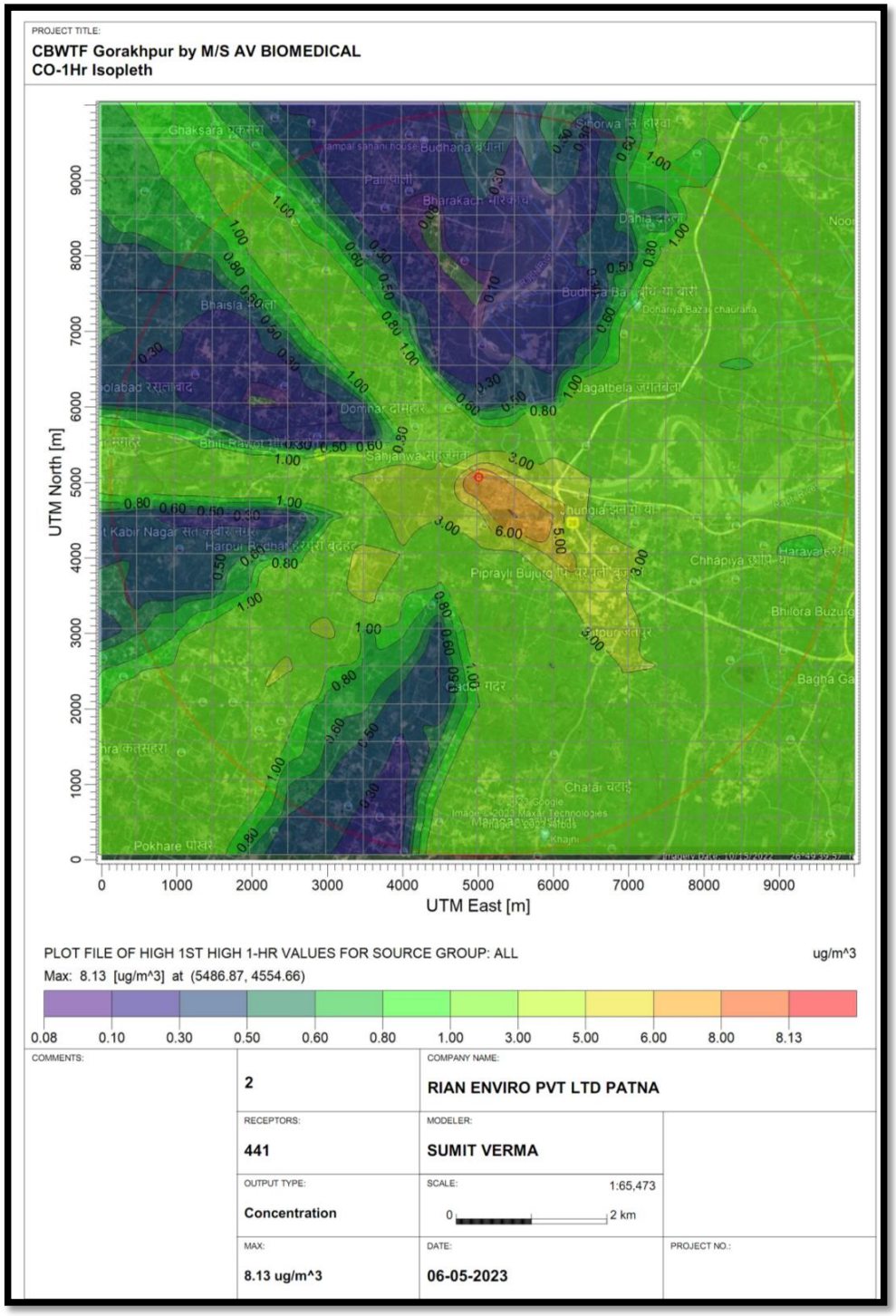


Figure 4-4: CO Isopleth

Gaseous Pollutants

The gaseous pollutants Particulate matter, Nitrogen Oxides NO and NO2, HCl, Total Dioxins and Furans, Hg and its compounds will be emitted from the incinerator.

Noise Environment

This phase shall see a lesser usage of machinery and equipment than the construction phase and as such the noise generated by various machineries shall be comparatively lesser than the levels during Construction Phase for example in the case of working of shredders.

Water Environment

As the whole process is somewhat dry in nature the probable source of waste water generation will be from venturi scrubbers, cleaning of equipments and vehicles. In general the impact can also be understood with the help of impact matrix which is given as.

4.6 Mitigation of Impacts

Air Environment

Installation of ACPDS

Air pollution control devices are a series of devices that work to prevent a variety of different pollutants, both gaseous and solid, from entering the atmosphere primarily out of industrial smokestacks. These control devices can be separated into two broad categories - devices that control the amount of particulate matter escaping into the environment and devices that control acidic gas emissions. It is important to understand that the extraction methods for each specific type of pollutant can differ, so the only the major methods are discussed. Although complex, these devices have shown to be effective in the past with the overall levels of emissions for many pollutants dropping with the implementation of these control devices.

Table 4- 7 Air Pollution Sources, Fuel Consumption and Chimney Height Details

SI. No.	Stack attached	Fuel used	Fuel consumption	No. of stacks	Stack height	Air pollution control Unit	Predicted emissions
1.	Proposed Green insulated DG set of capacity 82.5 KVA (01 No.)	HSD	15.0 Lit/hr Approx.	01	1.5 m above from nearest Building	Stack	SO_2, NOx, SPM

					HT		
2.	Incineration Unit	HSD	300kg/hr Approx.	01	30 m AGL	Venturi Scrubber & Stack	SO_2, NOx, SPM, Flue Gas

In the current project ventruri scrubbers are to be used for mitigation of the impact to be caused by installation of incinerator.

Venturi Scrubber

A **venturi scrubber** is designed to effectively use the energy from the inlet gas stream to atomize the liquid being used to scrub the gas stream. This type of technology is a part of the group of air pollution controls collectively referred to as wet scrubbers.

Process description

A **venturi scrubber/quenching** consists of a converging section, a throat (the narrowest part of the venture tube) and a diffuser. The dust/gas mix flows through the venturi tube and reaches top speed in the throat section. Thereafter, the mixture passes into the diffuser where the speed drops again. Liquid is added to the gas flow either in the throat section or prior to it. Intensive mixing takes place between the gas and the liquid in the throat section of the venture tube. Due to the high speed realized by the gas and liquid, water is released in fine water droplets.

The venturi scrubber itself has a low volume. The dimensions of the installation are primarily determined by the droplet separator, which can be a few times larger than the scrubber.

Venturi scrubbers can be used to remove small particles (< 1 μm) from a gas stream. However, they can also be used for larger particles, though energy use is relatively high in such cases. Even at very high pressure drops, some types of dust cannot be separated. In some venturis it is possible to vary the width of the throat section, thus allowing the separator to be adjusted for varying flow volumes – thus retaining a high yield.

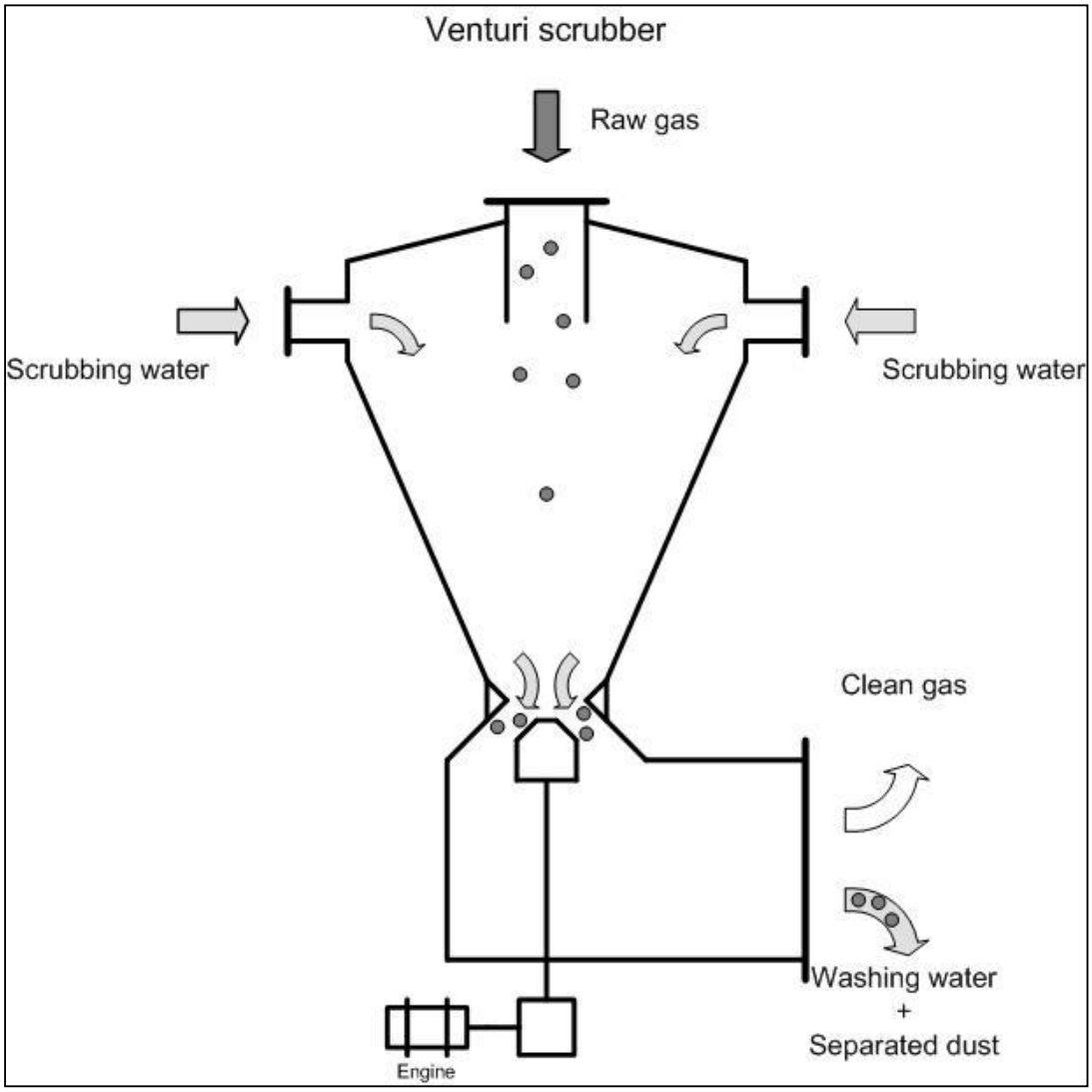


Figure 4-5: Design of Venturi Scrubber

4.7 Gaseous Pollutants

The use of Bharat Stage –IV compliant diesel machinery shall reduce the air pollution in various qualitative and quantitative aspects effectively. Also it shall ensure lesser consumption of diesel which shall be cost effective too.

Noise Environment

The following measures shall enable to minimize and control noise pollution due to operations in the landfill site.

- Periodic maintenance of the machineries and equipment as well as the haul trucks/tractors involved shall be done as per the manual requirement.
- The operators, semiskilled workers and drivers of the vehicles and machinery involved shall be trained for the job requirements and their skills shall be updated and monitored regularly for smoother functioning for maintaining clean environment.
- A dense green belt with fast growing floral species as recommended by CPCB with climatologically adaptability shall be developed along the periphery of the landfill site.
- The development of the green belt shall be such that bushes and shrubs shall be placed inwards towards the site while the taller species shall be placed on the outer area towards the boundary. This shall ensure development of a barrier both for noise and dust particulates. The fully developed green belt shall present an appealing landscape and would be scientific also in purpose.

Also the natural wall will act as a barrier for noise. As there are no major sources of noise pollution critical impacts to neighboring communities and wild animals is not envisaged.

Water Environment

The wastewater discharge from various operations from venturi scrubbers, cleaning of equipment's, cleaning of vehicles and usage of water in toilets will be discharged either in public sewer or will be used for landscaping only after processing through proper effluent treatment plant.

Waste water (4.75 KLD) is being generated from the Industrial Process will be subjected to Proposed ETP (Capacity- 10.0 KLD). Treated water from (3.90 KLD) will be reused in scrubber for cooling purpose and green belt purpose.

The entire system shall be a zero discharge system in terms of wastewater discharge from the process as recirculated through ETP.

Domestic Wastewater shall be treated in a soak pit/septic tank.

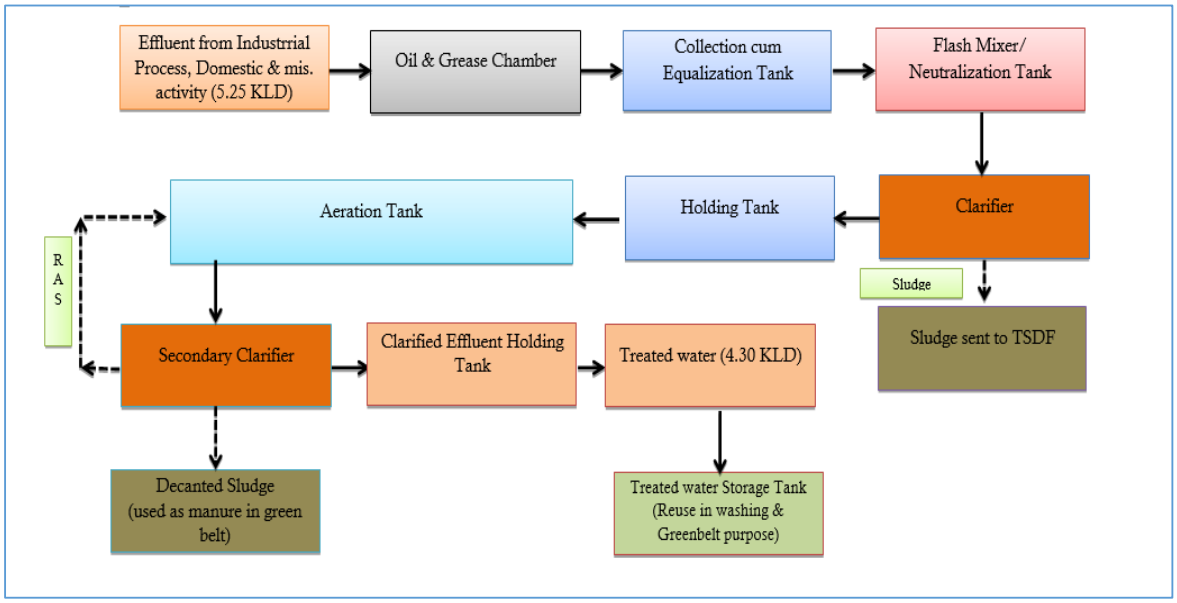


Figure 4-6: Schematic Flow Diagram of Proposed STP cum ETP (10.0 KLD)

4.8 Waste Generation and Its Management

Table 4- 8 Details of Solid waste

Total No. of Employees	20
Assuming per capita solid waste generation rate as 0.2 kg/capita/day	
Quantity of solid waste generated	4.0 kg/day
Organic solid waste : 60 % of the total waste	2.40 kg/day

Inorganic solid waste : 40 % of the total waste	1.60 kg/day
Disposal of domestic solid waste	Domestic wastes are segregated at source, collected in bins and composted.

The domestic wastes (4.0 kg/day approx.) will be segregated at source and collected in bins & disposed as per CPCB Norms.

Ash from incinerator (5.0 MTPA approx.) and flue gas cleaning residue will be send to TSDF / Co processing industries.

Hazardous Waste Generation and Its Management

Table 4- 9 Hazardous Waste Generation and Its Management

Sl. No.	Source	Quantity of hazardous waste Generated (Approx.)	Category according to Schedule I of hazardous waste	Treatment/ Disposal
1.	Spent Oil from DG set	5.0 MTPA	5.1	Handed over to authorized recyclers/re-processors
2.	Discarded Containers /Barrels	100 Nos./Annum	33.1	Handed over to authorized recyclers/re-processors
3.	Sludge from Wet Scrubbers	1.0 MTPA	37.1	Send to TSDF / Co processing industries.
4.	Ash from incinerator and flue gas cleaning residue	5.0 MTPA	37.2	Send to TSDF / Co processing industries.

4.9 Ecology and Biodiversity

There is no notified/protected ecologically sensitive area including national park, sanctuary, Elephant/Tiger reserves existing in the study area. The impact due to proposed activity on the ecological parameters like natural vegetation, cropping pattern and aquatic life, forests and species diversity is as summarized below.

The site of proposed Common Biomedical waste treatment facility, which is a non-agriculture land and there will not be any cutting of the plantation at the site. During construction phase, due to generation of fugitive dust emission there will be slight impact on natural vegetation of the surrounding area. Emission shall be within limit by incorporating EMP provisions. Therefore, the adverse impact over any of the ecological components of the environment is negligible.

Since the proposed project activity is on non-agricultural land, it is not likely to alter the crop production and pattern of the area, either during the construction phase or the operation phase. Further, the necessary environmental protection measures will be planned under EMP e.g. air pollution control systems designed to take care of even emergency releases of the gaseous pollutants like PM, SO2 and NO2 regular environmental surveillance, etc; so as not to have any short-term or cumulative effect on the crops and the natural vegetation of the area.

The details of Flora/Fauna species and the wildlife habitat in the area covering 10 km radius have been collected to determine the existence of rare and/ or endangered species. There is no reserved forest, national park or sanctuary within 10 km radius of the plant.

4.10 Land Environment

Potential impacts on land environment due to the identified activities are given below:

- Change in Land Use Pattern
- Change in people‘s activity due to changed land-use
- Nuisance effect

As the project site is on non-agriculture land so impact on land use shall be of no significance. However, positive impact will be there as project proponent will provide the employment to the workers from nearby villages, which will further affect (positively) the occupational structure of the Area.

Mitigation Measures

- Necessary efforts will be made during preparation of site to minimize disruption of current land use to the extent possible.
- Proper restoration of site will be carried out to bring the physical terrain, soils and vegetation, as closely possible, to their original condition.
- Temporary new approach roads can be constructed and existing roads can be improved, if required, for smooth and hassle free movement of personnel as well as machines and machineries.
- Optimization of land requirement through proper site layout design will be basic criteria at the design phase.

5 ANALYSIS OF ALTERNATIVE

The proposal is for setting up of Common Biomedical Waste Treatment and Disposal Facility (CBWTF) includes Incinerator, Autoclave, Shredder and Effluent Treatment Plant at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh by **M/s AV Bio Medical Waste Services**. It is proposed to utilize 0.28 ha land for setting up of Biomedical Waste Treatment Facility. Proposed project of setting up of the Common Bio-medical Waste Treatment Facility for treatment of 5 tone per day of bio medical waste, includes Incinerator, Autoclave, Shredder, Storage and Effluent Treatment Facility. The proposed project is meeting the guidelines of CBWTF issued by MoEFCC.

5.1 Site Selection

Environmentally sound management of biomedical wastes would require common bio medical waste management facilities for health care facilities spread all over the country, as it is not possible to have waste management facility for each unit. Hence common facilities become more necessary in the wake of our country, which either have no funds or space for development of biomedical waste management facility. The proposed project is going to be established in Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh by **M/s AV Bio Medical Waste Services** and was diverted for the purpose of biomedical waste treatment facility, so no alternate sites were considered. The proposed project site is meeting site selection criteria of CPCB guidelines. The following areas have to excluded or rejected (knock out Criteria) for this type of industries.

1. Areas with unstable geological features like unstable or weak soils; organic soil, soft clay or clay-sand mixtures, soils that lose strength with compaction or with wetting, clays with a shrink-swell character, sand subjected to subsidence and hydraulic influence.
2. Subsidence: e.g. owing to subsurface mines, water, oil or gas withdrawal or solution prone subsurface.
3. Wet lands.
4. Historical migration zones.
5. Flood prone areas
6. Area with 500 m from water supply zone and within 200 m from property line
7. Natural depression and valleys where water contamination is likely

8. Areas of ground water recharge and extremely high water table zone
9. Unique habitation areas, close to national parks with scenic beauty and formerly used landfills
10. Areas with high population, unique archaeological, historical, paleontogical and religious interests,
11. Agricultural and forests lands and existing dump sites,
12. Atmospheric conditions that would prevent safe disposal of an accidental release
13. Major natural hazards, e.g. volcanic activity, seismic disturbance, etc.
14. Sensitive locations, e.g. storing flammable or explosive materials, airports
15. An unfavorable local hydro-geological situation, e.g. springs or drinking water well within very close proximity to the chosen area
16. Extremely bad access i.e. no existing access roads to the selected site which may involve Long distance more than 5 km from main roads.
17. Great differences in altitude between the area of waste collection and the selected site.

6 ENVIRONMENTAL MONITORING PROGRAM

6.1 Introduction

An environmental monitoring plan provides a delivery mechanism to address the adverse environmental impacts of a project during its execution, to enhance project benefits, and to introduce standards of good practice to be adopted for all project works. An environmental monitoring program is important as it provides useful information and helps to:

- Assist in detecting the development of any unwanted environmental situation, and thus, provides opportunities for adopting appropriate control measures, and
- Define the responsibilities of the project proponents, contractors and environmental monitors and provides means of effectively communicating environmental issues among them.
- Define monitoring mechanism and identify monitoring parameters.
- Evaluate the performance and effectiveness of mitigation measures proposed in the Environment Management Plan (EMP) and suggest improvements in management plan, if required,
- Identify training requirement at various levels.

6.2 Need for Environmental Monitoring

- Verify and support compliance with applicable Central & State environmental laws, regulations, permits, authorization, consent to operate, protocols and orders.
- Monitoring is essential because it gives a final signal about the success of treatment.
- Establish baselines and charaterize trends in the physical, chemical, and biological condition of environmental media / matrix.
- Identify potential environmental problems and evaluate the need for remedial actions or measures to mitigate the problems.
- Detect, characterize, and report unplanned releases.
- Evaluate the effectiveness of flue gas from incinerator & leachate treatment and control, and pollution abatement programs.
- Determine compliance with commitments made in environmental impact statements, Form V – environmental statements, assessments

- EMS- ISO: 14001, safety analysis reports, or other official documents or for due diligence.

M/s AV Bio Medical Waste Services is established with the objective to prevent environment pollution hazard and to observe existing laws on environment and pollution control.

M/s AV Bio Medical Waste Services has adequate qualified and experienced staffs and NABL accredited lab for monitoring of environmental parameters.

6.3 Aim of Environmental Monitoring

During operation of the proposed CBWTF, environmental monitoring of the following parameter shall be carried out:

1) Air quality
2) Water & waste water quality
3) Noise levels
4) Soil quality

To evaluate the effectiveness of environmental management programme, regular monitoring of important environmental parameters will be taken up to find out any deterioration in environmental quality. Monitoring of the proposed project will be regularly conducted. The schedule, duration & parameters to be monitored are given in **Table 6.1.**

Table 6- 1 Monitoring Schedule of Environmental Parameters

Sr. No.	Particulars	Duration of Sampling	Important Monitoring Parameters
1	Air Pollution and Meteorology		
	Air Quality		
	A. Stack Emission		
		Once in a every three month	Respirable Particulate Matter (PM_{10}),Fine particulate ($PM_{2.5}$)Sulphur dioxide (SO_2), Oxides of nitrogen (NO_x), Hydro Cloric acid (HCl).
	B. Ambient Air Quality		

Sr. No.	Particulars	Duration of Sampling	Important Monitoring Parameters
	-	Once in a Six month	Respirable Particulate Matter (PM_{10}),Fine particulate ($PM_{2.5}$)Sulphur dioxide (SO_2), Oxides of nitrogen (NO_x),
2.	Water Environment		
	A. Ground Water		
	-	Once in a season	pH, Colour, TDS, TSS,Conductivity, Turbidity, TOC, Sulphates,Chlorides, Color, Total Hardness (as $CaCO_3$),Total Alkalinity (as $CaCO_3$),TKL, Chlorides (as Cl), Nitrate, (as NO_3), Fluoride, Lead (as Pb), Cadmium (as Cd), Copper (Cu), total Chromium (as Cr), Mercury (as Hg),Nickel (as Ni), Cyanide (as CN),Manganese (as Mn), Iron (as Fe), Zinc (as Zn), BOD, COD, and Pesticides (Organo Chlorine, Organo Nitrogen, Synthetic Pyrethrold, Carbamates)
	B. Surface Water		
	-	Once in a season	pH, Colour, TDS, TSS,Conductivity, Turbidity, TOC, Sulphates,Chlorides, Color, Total Hardness (as $CaCO_3$),Total Alkalinity (as $CaCO_3$),TKL, Chlorides (as Cl), Nitrate, (as NO_3), Fluoride, Lead (as Pb), Cadmium (as Cd), Copper (Cu), total Chromium (as Cr), Mercury (as Hg),Nickel (as Ni), Cyanide (as CN),Manganese (as Mn), Iron (as Fe), Zinc (as Zn),BOD, COD, and Pesticides (Organo Chlorine, Organo Nitrogen, Synthetic Pyrethrold, Carbamates)
3	Noise Environment		
	Noise	Once in a Six month	Noise level in dB(A)leq
4.	Soil Environment		
	Soil at project site	Once in six months at project site	Analysis of pH, TDS, Conductivity, TOC,Fluoride, Lead (as Pb), Cadmium (as Cd), Copper (Cu), Total Chromium (as Cr), Mercury (as Hg),Nickel (as Ni), Cyanide (as CN),Manganese (as Mn), Arsenic (as As), Zinc (as Zn), Poly Aromatic Hydrocarbon (as PAH)

7 ADDITIONAL STUDIES

7.1 Public Hearing

The proposed project is exempted from Public Hearing as per revised guideline of CBWTF. The project falls in industrial area.

7.2 Risk Assessment

7.3 Biomedical Waste:

The waste produced by hospitals is known as 'biomedical waste'. This waste is different from all other waste, mainly because of its hazardous nature. Since this waste is directly generated from the human body and animals, it is the content more than the quantity which makes it dangerous and risky. Hospitals are institutions that form a part of the category of emergency services. They are frequented by people from every layer of the society. Despite technological advancement, and the progress made in terms of knowledge, there has been no reduction in the amount or form of waste produced by hospitals. Strict prohibition of reuse of medical equipment only adds to the problem. Naturally, this has led to an increase in the use of disposable medical supplies, causing an increase in the quantity of biomedical waste. The hazardous nature of biomedical waste came to the limelight in the 1980s and the 1990s. Till then, it was not considered a life-threatening issue. In the 1980s and 1990s, the exposure to HIV and Hepatitis B virus increased the awareness of biomedical waste. It also brought forth the potential risks involved in bio-medical waste. Not only is biomedical waste a risk to the society and the environment, but people who collect, segregate and dispose it are at potential risk from this waste too. Needles, blades and other sharp instruments that are not disposed of properly or not disinfected can infect them or harm them. Also, the high temperatures and toxic gases released during waste disposal pose a health hazard to the workers. Surprisingly, 80% out of the total quantity of biomedical waste is non-hazardous. Only 15% is harmful or infectious. If biomedical waste is allowed to mix with municipal solid waste and dumped in the garbage bins meant for other waste, then the entire mass becomes infectious and can pose a potential risk to the nearby residents. Since this will be disposed of at landfills, the environment will also be harmed. If incinerators are not operated properly, environmental degradation is inevitable. Considering the hazardous nature of biomedical waste and the risks associated with it, the Ministry of Environment and Forests notified new the

Biomedical Waste Management Rules in 2016 superseding earlier notifications. The BMW Rules, clearly define various terms including 'biomedical waste', 'occupier' and biomedical waste treatment facility. They cover important areas like treatment and disposal, segregation, packaging, transportation and storage of biomedical waste. They clearly state that the government of every state will establish a prescribed authority.

Effective Biomedical waste disposal at CBWTF can be ensured by:

- Training the hospital staff on safe biomedical waste handling practices
- Segregating and storing on a regular basis and not as and when needed.
- Making it mandatory for all healthcare facilities to register with the CBWTF for effective biomedical waste management and disposal.
- Ensuring that biomedical waste is not mixed with other waste as it damages the equipment used for its disposal.
- Transporting biomedical waste to the disposal plant during the night to avoid heavy traffic and crowded places.
- Monitoring hospitals and also CBWTF periodically (CPCB & PCB) to ensure proper biomedical waste handling and disposal.

Risk Management at CBWTF Segregation refers to the basic separation of different categories of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.

Segregation is the most crucial step in biomedical waste management. Effective segregation alone can ensure effective bio-medical waste management. The BMWs must be segregated in accordance to guidelines laid down under schedule 1 of BMW Rules, 2006.

How does segregation help?

- Segregation reduces the amount of waste needs special handling and treatment
- Effective segregation process prevents the mixture of medical waste like sharps with the general municipal waste.
- Prevents illegally reuse of certain components of medical waste like used syringes, needles and other plastics.
- Provides an opportunity for recycling certain components of medical waste like plastics after proper disinfection.
- Recycled plastic material can be used for non-food grade applications.

- Of the general waste, the biodegradable waste can be composted within the hospital premises and can be used for gardening purposes.
- Recycling is a good environmental practice, which can also double as a revenue generating activity.
- Reduces the cost of treatment and disposal (80 per cent of a hospital's waste is general waste, which does not require special treatment, provided it is not contaminated with other infectious waste) Proper labeling of bins The bins and bags should carry the biohazard symbol indicating the nature of waste to the patients and public. Label shall be non-washable and prominently visible.

Collection

The collection of biomedical waste involves use of different types of container from various sources of biomedical wastes like Operation Theatre, laboratory, wards, kitchen, corridor etc. The containers/ bins should be placed in such a way that 100 % collection is achieved. Sharps must always be kept in puncture-proof containers to avoid injuries and infection to the workers handling them. Storage once collection occurs then biomedical waste is stored in a proper place. Segregated wastes of different categories need to be collected in identifiable containers. The duration of storage should not exceed for 8- 10 hrs in big hospitals (more than 250 bedded) and 24 hrs in nursing homes. Each container may be clearly labeled to show the ward or room where it is kept. The reason for this labeling is that it may be necessary to trace the waste back to its source. Besides this, storage area should be marked with a caution sign.

Transportation

The waste should be transported for treatment either in trolleys or in covered wheelbarrow. Manual loading should be avoided as far as for as possible. The bags/Container containing BMWs should be tied/ lidded before transportation. Before transporting the bag containing BMWs, it should be accompanied with a signed document by Nurse/ Doctor mentioning date, shift, quantity and destination. Special vehicles must be used so as to prevent access to, and direct contact with, the waste by the transportation operators, the scavengers and the public. The transport containers should be properly enclosed. The effects of traffic accidents should be considered in the design, and the driver must be trained in the procedures he must follow in case of an accidental spillage. It should also be possible to wash the interior of the containers

thoroughly. Personnel safety devices the use of protective gears should be made mandatory for all the personnel handling waste.

Gloves:

Heavy-duty rubber gloves should be used for waste handling by the waste retrievers. This should be bright yellow in color. After handling the waste, the gloves should be washed twice. The gloves should be washed after every use with carbolic soap and a disinfectant. The size should fit the operator.

Aprons, gowns, suits or other apparels:

Apparel is worn to prevent contamination of clothing and protect skin. It could be made of cloth or impermeable material such as plastic. People working in incinerator chambers should have gowns or suits made of non-inflammable material.

Masks:

Various types of masks, goggles, and face shields are worn alone or in combination, to provide a protective barrier. It is mandatory for personnel working in the incinerator chamber to wear a mask covering both nose and mouth, preferably a gas mask with filters.

Boots:

Leg coverings, boots or shoe-covers provide greater protection to the skin when splashes or large quantities of infected waste have to be handled. The boots should be rubber-soled and anti-skid type. They should cover the leg up to the ankle.

Cleaning Devices

Brooms:

The broom shall be a minimum of 1.2 m long, such that the worker need not stoop to sweep. The diameter of the broom should be convenient to handle. The brush of the broom shall be soft or hard depending on the type of flooring.

Dustpans:

The dustpans should be used to collect the dust from the sweeping operations. They may be either of plastic or enameled metal. They should be free of ribs and should have smooth contours, to prevent dust from sticking to the surface. They should be washed with disinfectants and dried before every use.

Mops:

Mops with long handles must be used for swabbing the floor. They shall be of either the cloth or the rubber variety. The mop has to be replaced depending on the wear and tear. The mechanical-screw type of mop is convenient for squeezing out the water.

Vacuum cleaners:

Domestic vacuum cleaners or industrial vacuum cleaners can be used depending on the size of the rooms.

Storage Devices

Dustbins:

It is very important to assess the quantity of waste generated at each point. Dustbins should be of such capacity that they do not overflow between each cycle of waste collection. Dustbins should be cleaned after every cycle of clearance of waste with disinfectants. Dustbins can be lined with plastic bags, which are chlorine-free, and color coded as per the law. Handling devices Trolleys the use of trolleys will facilitate the removal of infectious waste at the source itself, instead of adding a new category of waste.

Wheelbarrows:

Wheelbarrows are used to transfer the waste from the point source to the collection centers. There are two types of wheelbarrow – covered and open. Wheelbarrows are made of steel and provided with two wheels and a handle. Care should be taken not to directly dump waste into it. Only packed waste (in plastic bags) should be carried. Care should also be taken not to allow liquid waste from spilling into the wheelbarrow, as it will corrode. These are ideal for transferring debris within the institution. Wheelbarrows also come in various sizes depending on the utility.

Chutes:

Chutes are vertical conduits provided for easy transportation of refuse vertically in case of institutions with more than two floors. Chutes should be fabricated from stainless steel. It should have a self-closing lid. These chutes should be fumigated everyday with formaldehyde vapors. The contaminated linen (contaminated with blood and or other body fluids) from each floor should be bundled in soiled linen or in plastic bags before ejecting into the chute. Alternately, elevators with mechanical winches or electrical winches can be provided to bring down waste containers from each floor. Chutes are necessary to avoid horizontal transport of waste thereby

minimizing the routing of the waste within the premises and hence reducing the risk of secondary contamination.

7.4 Occupational Health Hazards

The health hazards due to improper waste management can not only affect the occupants in institutions, but also spread in the vicinity of the institutions. Occupational health concerns exist for janitorial arid laundry workers, nurses, emergency medical personnel, and refuse workers. Injuries from sharps and exposure to harmful chemical waste and radioactive waste also cause health hazards to employees in institutions generating bio-medical waste. The problem of occupational health hazards due to bio-medical waste is not publicized as there is lack of information. Hence, the Bio-Medical Waste Management Rules. 2016 prescribe a form to report such incidences in order to develop a database. There is plenty of scope for research in this field. Proper management of waste can solve the problem of occupational hazards to a large extent.

The health hazards due to improper bio medical waste management can affect:

- The occupants in institutions and spread in the vicinity of the institutions
- People happened to be in contact with the institution like laundry workers, nurses, emergency medical personnel, and refuse workers.
- Risks of infections outside hospital for waste handlers, scavengers and (eventually) the general public
- Risks associated with hazardous chemicals, drugs, being handled by persons handling wastes at all levels
- Injuries from sharps and exposure to harmful chemical waste and radioactive waste also cause health hazards to employees.

Management of bio medical waste for refuse workers:

Employees who handle medical waste are considered to have occupational exposure. In general, the employers require to develop exposure control plans, to adopt engineering controls and work practices that minimize exposures, to provide hand washing facilities and personal protective equipment, to provide training to workers, to provide hepatitis B vaccines free of charge, to provide medical evaluation and follow-up to exposed workers, and to keep medical and training records.

- Employers are required to employ "engineering and workplace controls" wherever possible to minimize or eliminate employee exposure.
- Engineering controls either remove the hazard or isolate the worker from exposure. An example of an engineering control is the use of a ventilated cab on earth-moving equipment to protect workers from dust and aerosols.
- Employers are required to examine, maintain, and replace engineering controls on a regular basis to insure their effectiveness.
- Personal Protective Equipment Appropriate personal protective equipment must be used to reduce risk of worker exposure.
- Employers must make readily available at no cost to employees appropriate specialized clothing or equipment to protect against exposure to blood and other potentially infectious materials.
- Personal protective equipment must prevent such materials from passing through to an employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time that the equipment is in use.
- Personal protective equipment consists of, but is not limited to, gloves, face shields, masks, and eye protection, gowns, aprons, and similar items.
- Employers must ensure that appropriate personal protective equipment is used and used correctly.
- Employers must also see to it that personal protective equipment is properly cleaned, laundered, repaired, replaced, or disposed as needed, at no cost to the employee.

The employer must ensure that employees observe precautions for handling and using personal protective equipment, including:

- removal of garments penetrated by blood and other infectious material as soon as possible;

- placing contaminated protective equipment in designated areas or containers for storing, washing, decontaminating, or discarding each day or shift;

- Replacing gloves if torn, punctured, contaminated, or if their ability to function as a barrier is compromised;
- Utility gloves may be decontaminate for re-use if the integrity of the glove is not compromised. However, they must be discarded if they are cracked, peeling, torn, etc.;
- Wearing appropriate face and eye protection such as goggles, glasses with solid side shields or chin-length face shields when splashes, sprays, spatters, or droplets of infectious materials pose a hazard to the eyes, nose, or mouth.

Hand washing and Hygiene

- Employers must provide hand washing facilities that are readily accessible to all employees. When this is not feasible, they must provide antiseptic towelettes.
- Employers must ensure that employees wash their hands as soon as possible after removing gloves and other personal protective equipment, or after contact with potentially infectious material.

7.5 Disposal Methods for Medical Waste at Health Care Facilities

- The rules provide requirements for handling contaminated sharps, including a requirement that they be placed in closed, puncture-resistant, leak proof, color-coded (or biohazard-labeled) containers prior to disposal. If the container can leak, it must be placed in a second closed, leak proof container.
- Blood and other potentially infectious material (other than sharps) must be placed in leak proof, color-coded (or biohazard-labeled) container before it leaves the facility. If outside contamination occurs, or if the container is punctured, it must be placed in another leak proof, labeled or color-coded container.
- Disposal of medical wastes must be in accordance with all applicable federal, state, and local regulations.
- Training all persons with a potential for exposure must be provided with adequate training and information including general explanation of the modes of transmission, symptoms, epidemiology, warning signals relating to possible exposure, and procedures to follow if exposure occurs.

- Hepatitis B Vaccine Covered employers must make available, free of charge, and at a reasonable time and place, the hepatitis B vaccine and vaccination series to all employees who are at risk of occupational exposure.
- If an Exposure Incident Occurs Employees should immediately report exposure incidents. The employer is responsible for establishing the procedure for evaluating exposure incidents.

Recordkeeping

- The employer must keep medical records and records of training sessions. Medical records must be kept confidential (though an employee and his or her representative may see and copy his own record on request) and must be maintained for thirty (30) years after employment has ended.
- Training records, including the dates, content, names and qualifications of trainers, and names and job titles of trainees, must be kept for three (3) years.

Safe work practices to be followed by every worker in the bio medical facility:

- Each waste handling facility should have standard operating procedures (SOPs) for accepting, rejecting, and handling medical waste
- Follow your employer's SOPs and your supervisor's instructions about reporting and handling medical wastes.
- Be alert to potential hazards.
- Wear person protective equipment under circumstances in which you might be exposed. Boots should have steel toes and puncture-resistant soles.
- 6" lace-up boots provide added protection for the ankles.
- Gloves should be worn whenever the hands may come in contact with hazards; leather provides better protection than rubber against punctures.
- Arms and other skin surfaces should be covered whenever the skin might be exposed to infectious agents.

- Safety glasses and hard hats may also provide protection to the head and face from splashes.
- Special equipment, such as respirators, face shields, dust masks, boot covers, or impervious clothing may be necessary if a spill occurs, if splashing or splattering is expected, or if another unusual hazard arises.
- Cover all cuts, abrasions, and other areas of non-intact skin while on duty.
- Avoid physical contact with medical wastes, whether they are in red bags or sharps containers or not.
- If you are required to move these items-for example, to separate them for pickup-use a shovel or other implement.
- Never handle any wastes with your bare hands.
- Be aware of the possible presence of medical wastes when handling all wastes and when cleaning all machinery and equipment, and try to avoid contact.
- In particular, be aware that sharps can become stuck in the wheels and tracks of landfill vehicles, and can pose hazards to operators and maintenance workers.
- Where possible, use some implement or cleaning method other than your hands.
- If you do have to use your hands to clean or maintain equipment, make sure that you are wearing gloves that minimize the chance of being cut, and NEVER REACH WHERE YOU CAN'T SEE.
- Avoid handling personal items, like pens, combs, etc., while wearing gloves.
- Always wash your hands after removing your gloves, even if the gloves have not been cut or punctured.
- Always wash before eating, drinking, smoking, or putting anything in your mouth, and before leaving work.
- Change your clothes and boots immediately after work so that you do not contaminate family members.
- If you come in contact with infectious waste (for example, if you are splashed with blood or blood-containing bodily fluids), wash your hands and any exposed skin thoroughly in warm water and soap, or in waterless antiseptic cleaner, if soap and water are unavailable.

- Remove clothing, boots, and gloves that have been in contact with infectious waste as soon as possible, taking care to avoid contact with exposed skin surfaces. Use gloves to remove other items of clothing.
- The risk of disease from clothing soiled with medical waste is very low, but it should still be handled as little as possible. While wearing gloves, place it in a leak proof bag prior to cleaning. Soiled clothing should be handled with gloves and laundered according to manufacturer's instructions. Boots and leather goods may be brush-scrubbed with soap and hot water to remove contamination.

Report All Exposures Immediately

With proper preventative care, safe work practices, prompt reporting of exposures, and post-exposure medical attention and follow-up, there is little likelihood that medical waste will harm you on the job.

7.6 Disaster Management

Since times immemorial India has been highly prone to natural calamities.

Disasters are characterized as:

- They are disruptive to individuals and communities.
- They are not part of day to day experience and are outside normal life expectations.
- They are unpredictable in occurrence and effects can be of sudden onset.
- They require a response for which normal local resources may be inadequate.
- They have a wide range of effects and impacts on the human and physical environment.

Disaster Management Cycle

Three major functional areas were recognized as necessary components of a comprehensive approach; prevention, response and recovery. Without these areas, the key responsibilities of agencies include:

Planning: - The analysis of requirements and the development of strategies for resource utilization.

Preparedness: - The establishment of structures, development of systems and testing and evaluation by organizations of their capacity to perform their allotted roles

Co-ordination:- The bringing together of organizations and resources to ensure.

Objectives

Disaster Management Plan is a comprehensive plan, which optimally utilizes men, material and available resources to prevent loss to lives and minimizes loss to property. It ensures fastest approach for rescue and rehabilitation. Disaster Management Plan guides the entire machinery engaged in relief operation and induces courage amongst the community to face the eventuality boldly.

The key objectives of the Disaster Management Plan are:

- To improve the preparedness for disaster through risk assessment and vulnerability analysis.
- To evolve a suitable mitigation strategy so as to minimize the impact of disaster in terms of men and material loss.
- To give professional guidance to the relief machinery engaged in relief operations.
- To create awareness amongst the community to face the disaster in case of an eventuality.
- To involve the voluntary organizations & NGO's in awareness creation and in relief operations.
- To enable quick restoration of the public service system affected by the disaster.
- To prevent the spread of post-disaster epidemics.

Identification and Prioritization of Hazards

- Earthquake
- Terrorist Attack
- Fire
- Chemical Hazards.
- Flood
- Accidents (Road, Railways, Air, Building Collapse)

- Road Blockade

Disaster Management Strategy

Optimum strategy is to be followed in accordance with the comprehensive District Disaster Management Plan to combat the effects of the disaster and to minimize the loss of life and property. Different stakeholders from district administration, public, NGO sector, civil defense, interest groups are required to play a major role in disaster mitigation. Broadly it has been divided into three major strategies viz Pre-Disaster Phase, Impact Phase and Post Disaster Phase.

1. Pre-Disaster Phase- Preparedness in "No Disaster Situation".

In the Pre-Disaster Phase – prevention, Mitigation and Preparedness activities are undertaken. The key activities are: -

- Formation of the District Disaster Management Committee.
- Formulation of District Disaster Management Plan for running year.
- Risk Assessment and Vulnerability Analysis.
- Resource Inventory.
- Allocation of responsibilities to the individual actors/Groups/Institutions/Organizations.
- Training and capacity building etc.

2. Impact Phase- Emergency Relief Measures

This phase includes measures taken immediately after the disaster.

The key activities are:-

- Rescue operation/Evacuation by teams (already identified) and providing basic infrastructure and movement to rescue centers.
- Functioning of District Control Room (DCR) & other Sub Divisional/Block/Tehsil/Line Departmental Control Rooms.
- Coordination meeting with officials at District Control Room at each 12 hours interval to take stock of the situation.
- Management of Rescue Shelters

- Monitoring Disaster Management by ensuring a line of control through Police & Paramilitary forces, Civil Defense, Fire services, Civilians, PSUs, NGOs etc
- Administration of Relief

3. Post Disaster Phase- Damage Assessment and Long term relief.

All measures at this stage aim at speedy return of the affected areas to normalcy and to mitigate the long-term consequence of the disaster.

The key activities are:-

- Assessment & enumeration of damage.
- Developing a Reconstruction and Rehabilitation plan.
- Monitoring Relief Operation organized by outside agencies/ UN Agencies/ Red Cross/ NGOs/ PSUs/ other states etc through District Administration.
- Restoration of Communication- Roads, Railways, Electronic Communication etc.
- Maintenance of Law & Order.
- Provision of Medical facilities, Minimum sanitation, drinking water, free kitchen etc.
- Removal of debris and disposal of carcasses.
- Meeting officers of both District level and Field level in every 24 hours to take stock of the situation.
- Collection of Information and submission of daily situation report to Government through District Collector.
- Documentation of the entire event – Black & white/ Audio & Video.

In disaster situations, a quick rescue and relief mission is inevitable; however damage can be considerable minimized if adequate preparedness levels are achieved. Indeed, it has been noticed in the past that as and when attention has been given to adequate preparedness measures, the loss to life and property has considerably reduced.

The team members & workers will be trained according to the identified natural disaster by an experienced training professional so that loss of lives and property is at its minimum at operational as well as construction phase.

7.7 Social Impact Assessment

The impacts of development projects occur in different forms. While significant benefits result for the society, the project area people may often bear the brunt of adverse impacts. This can happen, for example, when they are forced to relocate to make way for such interventions. There is now a growing concern over the fate of the displaced people. This has given rise to the need to understand beforehand the implications of adverse project impacts so that mitigation plans could be put in place in advance.

In the current project of biomedical waste plant the major benefit to the society will be in the form of proper disposal of infectious bio medical waste i.e. in public of city beautiful will be safe against the harmful infectious waste that can cause serious epidemic to the society.

Along with the safe guarding against the threat of bio medical waste various employment opportunities will be generated from the implementation of the project like plant operators, drivers, direct and in direct employment opportunities.

8 PROJECT BENEFITS

8.1 Physical Infrastructure

The beneficial impact of proposed project on the civic amenities will be substantial after the commencement of project activities. The basic requirement of the community needs will be strengthened by extending healthcare to the community, building/strengthening of existing roads in the area which will help in uplifting the living standards of local communities.

8.2 Employment Opportunities

The project will create opportunities for employment. Skilled and unskilled manpower will be needed. Secondary jobs are also bound to be generated to provide day-to-day needs and services to the work force. This will also temporarily increase the demand for essential daily utilities in the local market. Due to this proposed project, relevant to this project other job opportunities may generate which will improve the socio economic status of the area. Neighboring villagers of the project will get its benefits more by giving preference to them in relation to direct employment associated with the various project activities. Construction and operation phase of the proposed project will involve a certain number of laborers, contractors and construction workers. There is a possibility that local people will be engaged for this purpose. The operation phase will involve a number of skilled and unskilled workers.

The total 25 manpower will be required for this project. There is a possibility that local people will be engaged for this purpose to the extent possible and hence improve the existing employment scenario of the region. First preference will give to localize people for all kind of required employment in the project and especially for unskilled employment the company will take localize people.

8.3 Socio-Economic Development Activities

An obligation, beyond that required by the law and economics, for a firm to pursue long term goals that are good for society the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as that of the local community and society at large. The basic amenities viz. roads, transportation, electricity, proper sanitation, medical facilities etc will be developed as far

as possible; and overall the proposed project will change/improve the socio-economic conditions of the area.

8.4 Corporate Social Responsibility (CSR)

The Company shall continue to have among its objectives the promotion and growth of the national economy through increased productivity, effective utilization of material, manpower resources and continued application of modern scientific and managerial techniques, in keeping with the national aspiration; and the company shall continue to be mindful of its social and moral responsibilities to consumers, employees, shareholders, society and the local community. The company shall earmarks ~ 2% of total project cost for social development and welfare measures in the surrounding villages like education, health facility, infrastructure facilities, etc, this fund shall be utilized over a period of 5 years.

9 ENVIRONMENT COST & BENEFIT ANALYSIS

9.1 Environmental Cost and Benefit Analysis

The upcoming project will generate direct and indirect employment opportunities for the local people. The project will create employment including skilled as well as semi-skilled staff directly or indirectly. The secondary employment in the form of providing services to the employed manpower will also be developed in the neighboring villages.

The organization will also provide the helping hand in the development of the nearby villages by arranging regular medical checkup camp for the employees.

The project will generate a fair amount of direct, indirect and induced employment in the study region. The local economy will receive a boost due to employee spending and services generated by applicant.

10 ENVIRONMENTAL MANAGEMENT PLAN

10.1 Introduction

An environmental management plan (EMP) has been prepared for the proposed facility, to minimize negative impacts and is formed on the basis of prevailing environmental conditions and likely impacts of this project on various environmental parameters. This plan will also facilitate monitoring of environmental parameters. Preparation of EMP is required for the formulation, implementation and monitoring of environmental protection measure. EMP includes schemes for proper and scientific treatment and disposal mechanism for air, liquid and solid hazardous pollutants. Apart from this, green belt development, safety aspect of the workers, noise control, fire protection etc. are also included in it. The various components of the EMP are outlined in subsequent sections.

10.2 Purpose of Environmental Management Plan

Various purposes of the environmental management plan are:

- To treat and dispose of all the pollutants viz. air, liquid, gaseous and solid waste so as to meet statutory requirements (Relevant Pollution Control Acts) with appropriate technology.
- To support and implement work to achieve environmental standards and to improve the methods of environmental management.
- To promote green-belt development.
- To encourage good working conditions for employees.
- To reduce fire and accident hazards.
- Budgeting and allocation of funds for environment management system.
- To adopt cleaner production technology and waste minimization program.

10.3 Details of Environmental Management Plan

10.4 During Construction Phase

Air Environment

Construction phase will be for a short period and hence the impacts will also be for a short and temporary period. During construction activities, mainly emission of dust and gases from

movement of vehicles and construction activity is expected. However, following measures will be taken to reduce / contain such emissions:

- Water will be sprinkled on loose top soil to prevent re-suspension of dust into ambient air due to movement of vehicles etc.
- Separate civil construction material storage yard will be created within the site and it will be enclosed.
- Transport vehicles and construction equipments / machineries will be properly maintained to reduce air emissions.
- Vehicles and equipments will be periodically checked for pollutant emissions against stipulated norms.
- Idle running of vehicles will be minimized during material loading / unloading operations
- Exhaust vent of D.G. set will be kept at proper height to ensure quick dispersal of gaseous emissions
- All construction workers will be provided appropriate PPEs like dust mask, ear plug,

10.5 Water Environment

There will be no housing facilities at site for construction workers and hence a major source of impact on water environment will be avoided. Proper and sufficient sanitary facilities will be provided to construction workers to maintain all hygienic conditions at site. Storm water drains compatible with the local hydrological pattern of the area which will be provided to carry-off, any run-off or storm water from the premises. Care shall be taken during construction work and will not create any obstruction / dips in the topography which can lead to accumulation of water within premises leading to undesirable consequences like health and hygiene problems etc.

10.6 Solid Waste

Main solid waste generation during construction phase will be construction debris like rubble, brick bats, steel scrap, wooden scrap, sand, gravel etc. However, these materials are inert in nature and will not result into leaching of any substance or constituent. These materials will be properly sorted and will be used within premises for filling of low lying areas. Wooden scrap, steel scrap will be given to scrap dealers. On completion of civil work, all debris etc. will be completely removed from the site to avoid any incompatibility with future use.

The end products of incineration ie ash shall be disposed through authorized TSDF .The autoclaved plastic waste shall sent to registered recycler strictly according to laws and under expert supervision.

10.7 Noise Environment

Following measures are proposed during construction period to mitigate adverse impacts:

- Construction machinery and vehicles will undergo periodic maintenance to keep them in good working condition.
- All machineries to be used for construction purpose will be of highest standard of reputed make and compliance of noise pollution control norms by these equipments will be emphasized by company.
- Feasibility of putting up acoustic enclosure / temporary barrier around areas with high noise levels will also be explored.
- All construction workers working in high noise areas will be provided appropriate PPEs like ear muffs and made to wear them during working hours.
- Possibility of raising green belt along with construction activity will also be explored so as to serve as a noise barrier.

10.8 Land Environment

Following steps are proposed to take care of impact of construction activity on project land area:

- On completion of civil works, all debris etc. will be completely removed from site to avoid any incompatibility with future use.
- Other materials like paint, diesel etc. will be properly stored and handled to prevent any spillage on land.
- All the wastes will be stored at a designated site within the premises to prevent scattered discharge on land.

ECOLOGY

Proposed facility will not involve any trees cutting exercise so, there will be no major impact on ecology is anticipated.

10.9 Socio-Economic

As there will be no temporary housing colony for construction workers, neither socio - economic impact due to the same is envisaged. Overall socio - economic effect of construction phase will be positive due to direct and indirect employment opportunity for the local livings. Local people will be employed for construction work to the maximum extent possible.

10.10 During Operation Phase

Air Environment

The air pollutants in the plant may be classified broadly into particulate matter like dust, fumes etc. and gases like Sulphur dioxide, Nitrogen oxide and Hydrogen chloride etc. The measure to control the air pollution will ensure the ambient air quality standards as laid down by Central Pollution Control Board for industrial areas. The system proposed for air pollution control will provide acceptable environment condition in the working areas and abate air pollution in the surrounding area of the plant. The technological equipment and processes have been selected with the above objectives. Depending on quality of emission from different sources, suitable air pollution control system will be provided. The chimney height will be as per CPCB norms to ensure ground level concentration of different pollutants within permissible limit. Once the hopper lid and enclosure door is closed, shredder operates as a closed system. This also avoids any dust generation etc.

Following measures are proposed to mitigate negative impact of operation phase of the project on the surrounding air environment:

- Height of all the stacks will be as per statutory requirement.
- All the stacks will have stack monitoring facility (SMF) consisting of sampling port-hole, platform and access ladder.
- Adequate spares of critical components of dust collection systems will be kept to ensure trouble - free operations and continuous compliance to emission norms.
- A comprehensive plan for fugitive emission control based on CPCB guidelines will be followed.
- Transport vehicles will be properly maintained to reduce air emissions.
- Vehicles will be periodically checked for pollutant emissions against stipulated norms.

- Idle running of vehicles will be minimized during material loading / unloading operations.

Control and Monitoring of Secondary Fugitive Emissions

Fugitive emissions from the proposed facility would be insignificant as there will be air pollution due to activities like handling of biomedical waste, transfer points of biomedical waste and movement of vehicles. These operations generate a few quantity of dust. Good housekeeping, proper maintenance, wetting of dusty areas, use of enclosed storage wherever feasible etc., would considerably reduce fugitive dust. For effective prevention and control of fugitive emissions has implemented following:

- Enclosures are provided for all the loading and unloading operations, if possible.
- All transfer points are fully enclosed.
- Airborne dust is controlled by sprinkling of water.
- Preventive measures are employed to minimize dust build up on road.
- Maintenance of air pollution control equipment is done regularly.
- All the workers are provided with the dust mask.
- Green belt will be developed around the plant to arrest the fugitive emissions.
- Regular training is given to the personnel operating and maintaining fugitive emissions control systems.

Water Environment

Total water requirement for the proposed facility would be 11 KLD which will be sourced from Bore well. Water conservation measures shall be taken to optimize the fresh water requirement. Moreover, record of water consumption for different usages shall be maintained.

Noise Environment

Following precautionary measures will be adopted to control the noise level:

- Noise generating sources and their platforms will be maintained properly to minimize noise vibrations generated by them.
- Personnel working near the noisy machines in different plant locations, will be provided with well-designed ear muffs / plugs (effective noise reduction 10-15 dBA)
- Green belt will be developed to act as a noise barrier.
- Noise barriers / shields in the form of walls, beams will be provided around the units wherever found feasible.

- Training to personnel will be imparted to generate awareness about effects of noise and usage of protective gears.

Land Environment

Treated effluent will be utilized for gardening/plantation after ensuring norms specified by pollution control board by which impact on soil and ground water will be insignificant.

Solid Waste

Solid wastes shall be generated in the form of Incineration ash from Incinerator, ETP sludge from ETP process and used oil from the plant utility. Following steps shall be taken;

- Incineration ash from incinerator will be disposed to the nearest authorized TSDF site.
- Incineration ash and ETP sludge will be sent to authorized TSDF site
- Used oil will be properly stored and it will be re-used as lubricants in the machineries within the premises only.
- Record of solid waste generation and disposal shall be maintained.
- All Necessary precaution shall be taken during handling, loading and unloading of solid waste.

Socio - Economic Environment

Management Plan for the socio-economic aspects can be prepared by managing all the other aspects like Air pollution, water pollution, Noise pollution, etc. When all pollutions will be managed properly and socio economic status of the area will be improved through CSR activities then only socio-economic environment will be managed properly**.**

General Considerations

For good housekeeping of the proposed facility, following measures will be planned:

- Maintaining cleanliness of roads to prevent accumulation of dust and waste material.
- Inculcating positive attitude among employees for good house-keeping.
- Maintaining hygienic conditions in canteens, near drinking water source and toilets.

Recycle/reuse/recover: Wastewater generated from the proposed facility shall be reutilized in the gardening and green belt development after giving suitable treatment. The Incineration ash shall be disposed to nearest authorized TSDF site.

Energy conservation: Reduction in usage of traditional light bulbs with Light Emitted Diode (ELDs) means reduction in usage energy consumption. Usage of Solar energy at different locations in the plant like parking light, roadside light etc. will be explored.

10.11 Environmental Management Cell

In addition to preparing an EMP, it is also necessary to have a permanent organizational set up to ensure its effective implementation. Hence, proposed facility will create a team consisting of officers from various departments to co-ordinate the activities concerned with management for reporting of noncompliance / violations of environmental norms and implementation of the environmental control measures. This team will undertake the activity of monitoring the stack emissions, ambient air quality, noise level, etc. either departmentally or by appointing external agencies wherever necessary. Regular monitoring of environmental parameters will be carried-out to find out any deterioration in environmental quality and also to take corrective steps, if required, through respective internal departments. The Environmental Management Cell will also collect data about health of workers, green belt development etc. EMC will have qualified employees for hazardous operations and monitoring of the occupational injury to works as well as impact on the worker.

The cell will also be responsible for monitoring of the plant safety and safety related systems which include:

- Checking of safety related operating conditions.
- Visual inspection of safety equipments.
- Preparation of a maintenance plan and documentation of maintenance work specifying different maintenance intervals and the type of work to be performed.

Other responsibilities of the cell will include followings:

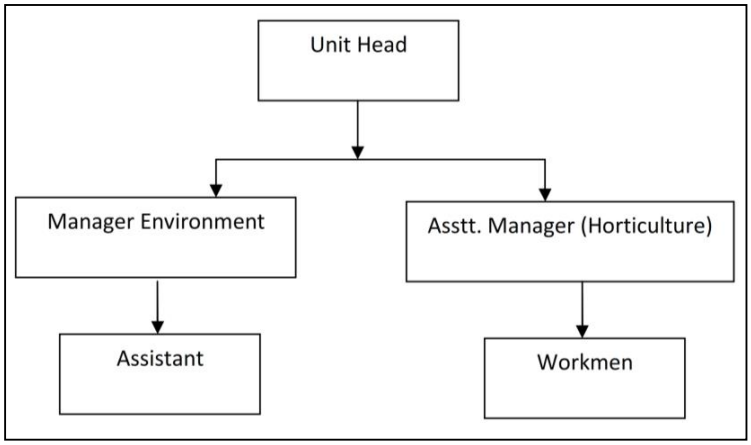
- Conduct and submit annual Environmental Audit. A SPCB registered agency will be retained to generate the data in respect of air, water, noise, soil and meteorological data and prepare the Environmental Audit report. Timely renewal of Consolidated Consents & Authorization (CC & A) will also be taken care of.

- Submitting environmental monitoring report to SPCB. Data monitored by the cell will be submitted to the Board regularly and as per the requirement of SPCB. The cell will also take mitigative or corrective measures as required or suggested by the Board.
- Keeping the management updated on regular basis about the conclusions/results of monitoring activities and proposes measures to improve environment preservation and protection.
- Conducting regular safety drills and training programs to educate employees on safety practices. A qualified and experienced safety officer will be responsible for the identification of the hazardous conditions and unsafe acts of workers and advise on corrective actions, organize training programs and provide professional expert advice on various issues related to occupational safety and health.
- Conducting safety and health audits to ensure that recommended safety and health measures are followed.

They manage mental manpower will comprise of the following:

The Company already has the technocrats and specializes people in the respective field of management of Common Bio Medical Waste Treatment Facility are as below:

Table 10- 1 Details of Organizational Setup



Similarly beside of the above, the Company is already having the existing operational staff and would deploy other technical and qualified manpower i.e. engineers and Supervisors for the operation & monitoring of the plant sections during the up-gradation and installation of the incinerator plant at Common Bio Medical Waste Treatment Facility.

10.12 Budgetary Provisions for EMP

Adequate budgetary provisions have been made by project proponent Management for execution of environmental management plans. The details of capital and recurring (per annum) budget earmarked for pollution control / monitoring equipment; operation and maintenance of pollution control facilities, for greenbelt development and maintenance.

Table 10- 2 Cost for EMP during construction phase

Sr. No.	Particulars	Approx. Capital Cost (Rs Lac)	Approx. Recurring Cost (Rs Lac)	Items Covered
1.	Toilets for workers	1	0.1	Toilets with septic tank
2.	Wind breaking curtains	0.5	0.1	Wind breaking walls at vulnerable areas
3.	Sprinklers for suppression of dust	0.5	0.2	Sprinklers, Pipeline
	Total	**2**	**0.4**	

Table 10- 3 Cost for EMP during Operational phase

Sr. No.	Particulars	Approx. Capital Cost (Rs Lac)	Approx. Recurring Cost (Rs Lac)
1.	APCD (Ventury Scrubber)/quenching	28.00	1.5
2.	Effluent Treatment Plant	10.00	1.0
3.	Green Belt	2.00	0.50

	Total	**40**	**3**

11 SUMMARY AND CONCLUSION

11.1 Project Details

Medical care is vital for our life and health, but the waste generated from medical activities presents a real problem. Improper management of waste generated in health care facilities causes a direct health impact on the community, health care workers, and the environment. Indiscriminate disposal of biomedical waste (BMW) or hospital waste and exposure to such waste pose serious threats to the environment and human health; hence, such waste requires specific treatment and management prior to its final disposal. Awareness about the need of BMW management among the health care personnel is of paramount importance.

11.2 Project Requirement

The general break down of the requirement of the project is as follows.

Table 11- 1 Project Requirements

<table>
<tr><td>1.</td><td>Total area of the Plant</td><td>0.28 ha</td></tr>
<tr><td>2.</td><td>Capital Cost</td><td>Rs. 3.87 Crores</td></tr>
<tr><td>3.</td><td>Location</td><td>Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh</td></tr>
<tr><td>4.</td><td>Coordinates of the Site</td><td><table><tr><th>S.No</th><th>Latitude</th><th>Longitude</th></tr><tr><td>01</td><td>26°44'53.39"N</td><td>83°13'48.66"E</td></tr><tr><td>02</td><td>26°44'55.65"N</td><td>83°13'49.01"E</td></tr><tr><td>03</td><td>26°44'55.86"N</td><td>83°13'47.87"E</td></tr><tr><td>04</td><td>26°44'53.53"N</td><td>83°13'47.49"E</td></tr></table></td></tr>
<tr><td rowspan="3">5.</td><td colspan="2">Water Requirement/Source</td></tr>
<tr><td>Water Requirement (KLD)</td><td>Total – 11.00 KLD
Fresh – 7.10 KLD
Recycled – 3.90 KLD</td></tr>
<tr><td>Source of water</td><td>Ground water Supply (Water will be abstracted only after getting NOC from CGWA)</td></tr>
</table>

Waste Water Generation

Entire waste water generated from the facility will be treated through proposed ETP and treated water will be use development of internal green belt development purposed to follow zero discharge concept.

Air Emission & Air Pollution Control Measures

The air emission from the proposed facility would be SPM, SO2, NOX and HCl from Incinerator stack. To control air emission Venturi scrubber as a pollution control system with adequate stack height will be installed.

Solid Waste Generation & Disposal

Incineration ash, used oil and ETP sludge will be generated from proposed facility. Used oil will be re-used as a lubricant in the machineries within the premises only. Incineration ash and ETP sludge will be sent to authorize land filling site.

Baseline Environment

The baseline environmental quality of Air, water, soil, noise, socioeconomic status and ecology has been assessed in the period of 1st January 2021 to 31st March 2021 in a study area of 10 km radial distance from the project site

The ambient air quality monitoring was carried at 8 locations to monitor PM10, PM2.5, SO2 and NOx concentration, which are found well below the NAAQS of CPCB.

Total 8 nos. of ground water, 8 nos. surface water samples were collected from the study area. The result of the all water sample collected shows that the water quality of the area is good. Values of the parameters found within the permissible limit of Indian standards/specifications for Drinking water.

Background noise levels were measured at 8 locations. Noise levels found within norms at all the location. Land use within 10 km radius of the study area has been determined with the help of satellite imagery, and broadly consists of settlements, Industrial land, Tank/River, land with scrub, land without scrub, area and predominant land use.

During the eco-biological study, endangered and endemic species is not observed in the stud area.

The total population of the study area was 217337 as per census 2011. All the villages were having almost all the infrastructure facilities like, educational, drinking, sanitation, health, etc.

Environmental Impacts during Construction Phase

During construction phase there will be minor reversible impact envisage on the air, water and noise environment.

Environmental Impact during Operation Phase & Mitigation Measures

Due to this proposed project, there will be minor increment in the air pollution due to the air emissions like, PM, SO2, NOx and HCl from the stake attached to incinerator facility. Entire waste water generated from the process will be reused for the internal green belt development to follow Zero discharge concept. Solid waste generated in the form of incineration ash, used oil and ETP sludge will be disposed as per guideline to reduce impact on soil environment.

A regular monitoring of the environment parameters like air, water, noise and soil, etc. will be carried out periodically as recommended.

11.3 Corporate Social Responsibility (CSR)

Rs. 0.0774 Cr which is 2% of total project cost has been allotted for social development and welfare measures like education, health facility, infrastructure facilities, etc, this fund shall be utilized over a period of 5 years.

11.4 Environmental Management Plan

The management team is very much concern about environmental issues. All the environmental components will be looked out by Environmental Management Cell (EMC). Mitigation of environmental impacts has to be implemented according to the suggestions and will be monitored regularly to prevent any lapse.

Company has committed to implement all the pollution control measures to protect the surrounding environment. The project can definitely improve the regional, state and national environment and reduce health hazards. Projects like this will certainly improve the living standard of local people. The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area.

12 DISCLOSURE OF CONSULTANTS

12.1 Introduction

The EIA/EMP Report for Environmental Clearance for Proposed Common Biomedical waste Treatment Facility by **M/s AV Bio Medical Waste Services** is located at Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh has been prepared by Environment Management Division of M/s India Glycols Limited, Kashipur. The company has a team of dedicated and well-experienced professional including Engineers, Technologists and Environmentalists with in-depth knowledge and profound experience in the field of Environment Management. The company was accredited by NABET, QCI for the EIA consultancy services & the details are as follows:

Name of the Consultant	Environment Management Division of M/s India Glycols Limited, Kashipur
Address	A- 1 Industrial Area, Bazpur Road, Kashipur, Uttarakhand. Tel: 9837242463
Accreditation Date	06/18/2021
Accreditation Validity	19/07/2024
Certificate Number	NABET/EIA/2124/IA0078

Name of the Laboratory	**ENVIRO-TECH SERVICES**
Laboratory Address	Plot No. 1/32, South Side G.T. Road Industrial Area Ghaziabad (UP)-201001.
E-mail	etslab2012@gmail.com
Website	www.etslab.in

12.2 EIA Team

The EIA Team engaged in the preparation of EIA report consist of professionals with multidisciplinary skills and relevant experience required for undertaking the projects. This EIA/EMP report has been prepared under the guidance of the following Coordinator & Functional Area Experts.

EIA Coordinator: Muzaffar Ahmad

Signature:

Date: - 06-02-2023

Functional Area Experts Engaged:

S. No.	Functional Area	Name of the experts	Involvement Period and Task	Signature
1.	SHW	Mr. Mayur Sharma (Team Member)	Inventory of Municipal Solid Waste, suggesting treatment options viz; organic waste convertor technology.	
2.	SC	Mr. Deepak Sati	Proposing the soil management practices during construction and operation phase of project.	
3.	AP	Dr. Chakresh Pathak	Collected the meteorological data and AAQ data through secondary sources and suggested air pollution control station around Core and Buffer Zone.	
4.	NV	Dr. Chakresh Pathak (Noise Only) & Mr. Sarang Khati	Collected the ambient noise data through secondary sources and suggested Noise pollution control measures during both phases of project	 
5.	AQ	Mr. Sarang Khati	Prediction of air pollution and its management.	
6.	WP	Mr. Muzaffar Ahmad	Estimating water	

			requirements based on population, suggesting wastewater treatment/disposal schemes and developed the plan for rain water harvesting	
7.	LU	Mr. Radhakrishnamoorthy Periyaswamy	Collection of secondary data as well as drafting of report with respect to Geological Aspect.	
8.	Geo		Collection of secondary data as well as drafting of report with respect to Geological Aspect.	
9.	HG		Collection of secondary data as well as drafting of report with respect to Hydro-geological condition in around the study.	
10.	EB	Mr. Deepak Sati	Generating the ground truthing ecological assessment with secondary data from different departments, earmarking rare and endangered species.	
11.	SE	Mr. Rajveer Singh Yadav & Dr. Aditya Gautam	Collected the primary and Secondary data, livestock inventory/ impacts, identified village-wise amenities/ needs.	
12.	RH	Dr. Rajeev Kumar Sharma	Identification of hazards materials, Fire accidents from Diesel storage and lethality damages, DMP and EPP for onsite & offsite were provided	

Team Members:

Sr. No	Name of the Team Members	EC/FAE/TM	Functional Area
1.	Mr. Rahul Kumar	TM	SE
2.	Mr. Mayur Sharma	TM	EB & SHW
3.	Mr. Shashikant Sharma	TM	EB

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION/AUTHORIZED PERSON

I, Sudhir Agarwal, hereby, confirm that the above-mentioned experts prepared the Final EIA Report for the proposed Proposed Common Biomedical waste Treatment Facility by **M/s AV Bio Medical Waste Services is located at Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh**.

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

Date: 06-05-2023

Signature:

Name: Sudhir Agarwal

Designation: Head

Name of the EIA Consultant Organization: Environment Management Division of M/s India Glycols Limited, Kashipur

The accreditation certificate by NABET, QCI for M/s India Glycols Limited and Notification of MoEF&CC recognized laboratory engaged is presented below in Figure respectively.

Quality Council of India

National Accreditation Board for Education & Training

Certificate of Accreditation

Environmental Management Division of India Glycols Ltd.

A- 1 Industrial Area, Bazpur Road, Kashipur, Udham Singh Nagar, Uttarakhand-244713

Accredited as Category – 'B' organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA/EMP reports in the following sectors:

Sl. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals -opencast mining only	1	1 (a) (i)	B
2.	Thermal power plants	4	1 (d)	B
3.	Synthetic organic chemicals industry	21	5 (f)	A
4.	Distilleries	22	5 (g)	A
5.	Bio-medical waste treatment facilities	32A	7 (da)	B
6.	Building and construction projects	38	8 (a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IA AC Minutes dated June 1, 2021 and supplementary assessment minutes dated August 13, 2021 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/21/1979 dated September 24, 2021. The accreditation needs to be renewed before the expiry date by Environmental Management Division of India Glycols Ltd., Kashipur following due process of assessment.

Sr. Director, NABET	*Certificate No.*	*Valid till*
Dated: September 24, 2021	**NABET/EIA/2124/IA0078**	**July 19, 2024**

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

ANNEXURE R2/4

ENVIRONMENTAL CLEARANCE

PARIVESH

(Pro-Active and Responsive Facilitation by Interactive, and Virtuous Environmental Single-Window Hub)

Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), UTTAR PRADESH)

To,

The Partner
M/S AV BIOMEDICAL WASTE SERVICES
1 F 964 Vardan Khand, Gomti Nagar Extension -226010

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/UP/INFRA2/428481/2023 dated 08 May 2023. The particulars of the environmental clearance granted to the project are as below.

1.	**EC Identification No.**	**EC23B057UP110682**
2.	**File No.**	7866-7762
3.	**Project Type**	New
4.	**Category**	B
5.	**Project/Activity including Schedule No.**	7(d)(a)Common Bio-Medical Waste Treatment Facility
6.	**Name of Project**	Common Bio Medical Waste Treatment Facility (CBWTF) M/s AV Bio Medical Waste Services Plot No. A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur
7.	**Name of Company/Organization**	M/S AV BIOMEDICAL WASTE SERVICES
8.	**Location of Project**	UTTAR PRADESH
9.	**TOR Date**	N/A

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 01/07/2023

(e-signed)
Member Secretary
Member Secretary
SEIAA - (UTTAR PRADESH)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

This is a computer generated cover page.

State Level Environment Impact Assessment Authority, Uttar Pradesh

Directorate of Environment, U.P.
Vineet Khand-1, Gomti Nagar, Lucknow- 226010
E-Mail- doeuplko@yahoo.com, seiaaup@yahoo.com
Phone no- 0522-2300541

Reference- MoEFCC Proposal no- SIA/UP/INFRA2/428481/2023 & SEIAA, U.P File no-7866-7762

Sub: Environmental Clearance for Proposed Common Bio Medical Waste Treatment Facility (CBWTF) at Plot No. A-2/36, Sector-15, Gorakhpur Industrial Development Authority (GIDA) District- Gorakhpur, Uttar Pradesh M/s AV Biomedical Waste Services.

Dear Sir,

This is with reference to your application / letter dated 04-04-2023, 08-05-2023, 16-05-2023, 08-06-2023 on above mentioned subject. The matter was considered by 761st SEAC in meeting held on 07-06-2023 and 744th SEIAA meeting held on 16-06-2023.

A presentation was made by the project proponent along with their consultant M/s Environment Management Division of M/s India Glycols Limited, Kashipur to SEAC on 07-06-2023.

Project Details Informed by the Project Proponent and their Consultant

The project proponent, through the documents and presentation gave following details about their project –

1. The environmental clearance is sought for Common Bio Medical Waste Treatment Facility (CBWTF) at Plot No. A-2/36, Sector-15, Gorakhpur Industrial Development Authority (GIDA) District- Gorakhpur, Uttar Pradesh M/s AV Biomedical Waste Services.
2. The standard terms of reference in the matter were issued through online Parivesh Portal on 06/04/2023.
3. The public hearing for project was exempted due to location falling under the Industrial Area as per MoEF&CC, Govt. of India O.M. Dated 04/04/2016.
4. Final EIA report submitted by the project proponent on 08/05/2023.
5. The proposed project of setting up the Common Bio-medical Waste Treatment Facility (CBWTF) having an capacity of 5 tons per day and which includes Incinerator with Air Pollution Control Device (APCD), Autoclave, Shredder and Effluent Treatment Plant.
6. Brief project details:

<table>
<tr><td>Category of Projects</td><td colspan="3">Category “B” and Schedule- 7(da)</td></tr>
<tr><td>Proposed plant capacity</td><td colspan="3"><table>
<tr><td>Equipment</td><td>Capacity</td><td>Number</td></tr>
<tr><td>Incinerator</td><td>300 kg/hr</td><td>2</td></tr>
<tr><td>Autoclave</td><td>1000 kg/Batch</td><td>2</td></tr>
<tr><td>Shredder</td><td>150 kg/hr</td><td>1</td></tr>
<tr><td>Chemical Disinfection Tank</td><td>1500 Ltr</td><td>1</td></tr>
<tr><td>Effluent Treatment Plant</td><td>10 KLD</td><td>1</td></tr>
</table></td></tr>
<tr><td>Number of working days</td><td colspan="3">365</td></tr>
<tr><td>Total Plot Area</td><td colspan="3">0.28 Ha.</td></tr>
<tr><td>Plot Number</td><td colspan="3">Plot No.A-2/36</td></tr>
<tr><td>Location</td><td colspan="3">Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh.</td></tr>
<tr><td>Coordinates of the Plant</td><td colspan="3">26°44'53.39"N 83°13'48.66"E</td></tr>
</table>

	26°44'55.65"N 83°13'49.01"E 26°44'55.86"N 83°13'47.87"E 26°44'53.53"N 83°13'47.49"E
Elevation	94 meter- 101 meter
Nearest habituated area	Bokta, Approx. 0.64 km towards NNE
Nearest Main Public Road	Gorakhpur Road, approx. 0.19 km in North direction
Nearest Railway station/Airport	Sahjanwa Railway Station, approx. 2.15 km towards North direction. Gorakhpur Airport is located at 21.15 Km in ESE direction
Nearest water body	Rapti River, approx. 2.12 km in East direction Ami River, approx. 3.56 km in SSW direction
Water requirement	Water requirement for the proposed CBWTF project is 11 KLD. Fresh- 7.10 KLD Recycled- 3.90 KLD
Source of water	Water requirement will be met through bore wells
Wastewater Generation	Waste water generated from the treatment of Biomedical waste during autoclaving, washing of floors, and domestic purpose etc. is 5.25 KLD and it shall be treated in effluent treatment plant and reuse in process.
Man Power	During Construction phase, the labors and workers will be hired from nearby villages. Total 20 persons are proposed to hire for plant operation including officers, skilled and unskilled workers.
Air Pollution Control Device	Wet Scrubber, Cyclone and Bag Filter, Venturi Scrubber
Nos. of Stack	2
Power requirement	DG Set of 82.5 KVA is proposed for the project and lines will be taken from the authorized electricity board. ~ 1% of the total power load will meet through solar energy.
Alternative site	No Alternative site is examined
Land form, Land use and land ownership	The land for project is Plot No.A-2/36 Sector 15 at Gorakhpur Industrial Development Authority (GIDA) Gorakhpur, Uttar Pradesh.
Estimated cost	Rs. 3.87 Cr.

7. Water requirement details:

S. No.	Requirement for	Water Consumption	Process Losses	Waste water generation	ETP losses	Recycled/ Reuse
A.	Process (Scrubbing)	2.40	1.40	1.00	0.20	0.80
B.	Steam Generation (Autoclaving)	0.20	0.05	0.15	0.05	0.10
C.	Miscellaneous i.e., Floor washing, Vehicle washing etc.	3.80	0.20	3.60	0.60	3.0
D.	Domestic Purpose	0.60	0.10	0.50	0.00	0.00
E.	Green Belt	4.0	4.0	0.00	0.00	0.00
Total (KL/Day)		11.0 7.10 (Fresh) + 3.90 (Recycle)	5.75	5.25	0.85	3.90

- Wastewater (4.75 KLD) is being generated from the Industrial Process will be subjected

to Proposed ETP (Capacity- 10.0 KLD). Treated water from (3.90 KLD) will be reused in scrubber for cooling purpose and green belt purpose. ▪ The entire system shall be a zero discharge system in terms of wastewater discharge from the process as recirculated through ETP. ▪ Domestic Wastewater shall be treated in a soak pit/septic tank.

8. Solid/hazardous waste details:

Total No. of Employees	20
Assuming per capita solid waste generation rate as 0.2 kg/capita/day	
Quantity of solid waste generated	4.0 kg/day
Organic solid waste : 60 % of the total waste	2.40 kg/day
Inorganic solid waste : 40 % of the total waste	1.60 kg/day
Disposal of domestic solid waste	Domestic wastes are segregated at source, collected in bins and composted.

9. The project proposal falls under category–7(da) of EIA Notification, 2006 (as amended).

Based on the recommendations of the State Level Expert Appraisal Committee Meeting (SEAC) held on 07-06-2023 the State Level Environment Impact Assessment Authority (SEIAA) in its Meeting held 16-06-2023 and recommended grant of environmental clearance on the proposal as above alongwith standard environmental clearance conditions prescribed by MoEF&CC, GoI and following additional conditions:

Additional Conditions:

1. Proposed CBWTF shall comply with the revised guidelines issued by CPCB on December 21st 2016 with respect to location criteria.
2. In case, the number of beds is exceeding >10,000 beds in a locality and the existing treatment capacity is not adequate, in such a case, a new CBWTF may be allowed in such a locality in compliance with various provisions notified under the location. Environment (Protection) Act, 1986, to cater services only to such additional bed strength of the HCFs.
3. In compliance to Hon'ble Supreme Court order dated 13/01/2020 in IA no. 158128/2019 and 158129/2019 in Writ petition no. 13029/1985 (MC Mehta Vs. GoI and others) anti-smog guns shall be installed to reduce dust during excavation.
4. Proponent shall comply with the action plan and CSR plan submitted by PP/consultant at the time of EIA presentation.
5. The project proponent should develop green belt in the CBWTF unit as per the plan submitted and also follow the guidelines of CPCB/Development authority for green belt as per the norms.
6. Project proponent should invest the CSR amount as per the proposal and submit the compliance report regularly to the concerned authority/Directorate of environment.

Standard Environmental Clearance Conditions prescribed by MoEF&CC:

I. Statutory compliance:
   1. The project proponent shall obtain forest clearance under the provisions of the Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
   2. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
   3. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and be 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. The 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)

4. The project proponent shall obtain Consent to establish/Operate under the provisions of the Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
5. Transportation and handling of Bio-medical Wastes shall be as per the Biomedical Wastes (Management and Handling) Rules, 20016 including section 129 to137 of Central Motor Vehicle Rules1989.
6. The project shall fulfill all the provisions of hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2016 including collection and transportation design etc and also guidelines for Common Hazardous Waste Incineration — 2005, issued by CPCB Guidelines of CPCB/MPPCB for Bio-medical Waste Common Hazardous Wastes incinerators shall be followed.
7. The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
8. A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project should be obtained.
9. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department shall be obtained, as applicable by project proponents from the respective competent authorities

II. Air quality monitoring and preservation:

1. The project proponent shall install an emission monitoring system including Dioxin and furans in monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 and connected to SPCB and CPCB online serves and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.
2. Periodical air quality monitoring in and around the site including VOC, HC shall be carried out.
3. Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, to achieve Total Organic Carbon (TOC) content in the slag and bottom ashes less than 3% or their loss on ignition is less than 5% of the dry weight of the material.
4. Venture scrubber (alkaline) should be provided with the incinerator with stack of adequate height (Minimum 30 meters) to control particulate emission within 50 mg/Nm3.
5. Appropriate Air Pollution Control (APC) system shall be provided for fugitive dust from all vulnerable sources, so as to comply with prescribed standards. All necessary air pollution control devices (quenching, Venturi scrubber, mist eliminator) should be provided for compliance with emission standards.
6. Masking agents should be used for odour control.

III. Water quality monitoring and preservation:

1. The project proponent shall install effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.
2. Waste water generated from the facility shall be treated in the ETP and treated waste water shall be reused in the APCD connected to the incinerator. The water quality of treated effluent shall meet the norms prescribed by State Pollution Control Board. Zero discharge should be maintained.
3. Process effluent/any waste water should not be allowed to mix with storm water.

4. Total fresh water use shall not exceed the proposed requirement as provided in the project details. Prior permission from the competent authority shall be obtained for use of fresh water.
5. A sewage Treatment Plant shall be provided to treat the wastewater generated from the project. Treated water shall be reused within the project.
6. A certificate from the competent authority for discharging treated effluent/ untreated effluents into the Public sewer/ disposal/drainage systems along with the final disposal point should be obtained.
7. The leachate from the facility shall be collected and treated to meet the prescribed standards before disposal.
8. Magnetic flow meters shall be provided at the inlet and outlet of the ETP & all ground water abstraction points and records for the same shall be maintained regularly.
9. Rain water runoff from the hazardous waste storage area shall be collected and treated in the effluent treatment plant.

IV. Noise monitoring and prevention:

1. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during daytime and 70 dB(A) during night-time.

V. Energy Conservation measures:

1. Provide solar power generation on roof tops of buildings, for the solar light system for all common areas, street lights, parking around the project area and maintain the same regularly;
2. Provide LED lights in their offices and residential areas

VI. Waste management:

1. Incinerated ash shall be disposed of at approved TSDF and MoU made in this regard shall be submitted to the Ministry prior to the commencement.
2. The solid wastes shall be segregated as per the norms of the Solid Waste Management Rules, 2016.
3. A certificate from the competent authority handling municipal solid wastes should be obtained, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from the project.
4. Any wastes from construction and demolition activities related thereto shall be managed so as to strictly conform to the Construction and Demolition Rules, 2016
5. No landfill site is allowed within the CBWTF site.
6. The Project proponent shall not store the Hazardous Wastes more than the quantity that has been permitted by the CPCR/SPCB.

VII. Green Belt:

1. Green belt shall be developed in the area as provided in project details, with native tree Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.

VIII. Public bearing and Human health issues:

1. Feeding of materials/Bio-medical waste should be mechanized and automatic no manual feeding is permitted.
2. Proper parking facility should be provided for employees & transport used for collection & disposal of waste materials.
3. Necessary provision shall be made for fire-fighting facilities within the complex.
4. An emergency preparedness plan based on the Hazard Identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
5. An emergency plan shall be drawn in consultation with SPCB/CPCB and implemented in order to minimize the hazards to human health or the environment from fires, explosions or

any unplanned sudden or gradual release of hazardous waste or hazardous waste constituents to air, soil or surface water.

6. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
7. Occupational hearth surveillance of the workers shall be done on a regular basis.

IX. Corporate Environment Responsibility:

1. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.1I I dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
2. The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe 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. A copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of the six-monthly report.
3. 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.
4. Action plan for implementing EMP and environmental conditions along with the responsibility matrix of the company shall be prepared and shall be duly approved by the competent authority. The year-wise funds earmarked for environmental protection measures shall be kept in a separate account and not be diverted for any other purpose. Year rise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
5. A self-environmental audit shall be conducted annually. Every three years third-party environmental audit shall be carried out.

X. Miscellaneous:

1. 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 MoEFCC/SEIAA website where it is displayed
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 with 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 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 the environment clearance portal.
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.
6. The criteria pollutant levels namely; SPM, RSPM, SP, NOx (ambient levels as well as stack

emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

7. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
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, commitments made during Public hearings and also that during their presentation to the Expert Appraisal Committee.
10. 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).
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 the Environment (Protection) Act, 1986.
12. The Ministry may revoke or suspend the clearance if the 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 with 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/NGT 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 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Concealing factual data and information or submission of false/fabricated data and failure to comply with any of the conditions stipulated in the Prior Environmental Clearance attract action under the provision of Environmental (Protection) Act, 1986.

This Environmental Clearance is subject to ownership of the site by the project proponents in confirmation with approved Master Plan for Gorakhpur. In case of violation; it would not be effective and would automatically be stand cancelled.

The project proponent has to ensure that the proposed site in not a part of any no-development zone as required/prescribed/identified under law. In case of the violation this permission shall automatically deemed to be cancelled. Also, in the event of any dispute on ownership or land use of the proposed site, this Clearance shall automatically deemed to be cancelled.

Further project proponent has to submit the regular 6 monthly compliance report regarding general & specific conditions as specified in the E.C. letter and comply the provision of EIA notification 2006 (as Amended).

These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006 including the amendments and rules made thereafter.

Copy, through email, for information and necessary action to –

1. **Additional Chief Secretary, Department of Environment, Forest and Climate Change, Government of Uttar Pradesh, Lucknow (email – psforest2015@gmail.com)**
2. **Joint Secretary, Ministry of Environment, Forest and Climate Change, Government of India, 3rd Floor, Prithvi-Block, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003 (email – sudheer.ch@gov.in)**
3. **Deputy Director General of Fore8sts (C), Integ rated Regional Office, Ministry of Environment, Forest and Climate Change, Kendriya Bhawan, 5th Floor, Sector "H", Aliganj, Lucknow – 226020 (email – rocz.lko-mef@nic.in)**
4. **District Magistrate, Gorakhpur.**
5. **Member Secretary, Uttar Pradesh Pollution Control Board, TC-12V, Paryavaran Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow-226010 (email – ms@uppcb.com)**
6. **Copy to Web Master for uploading on PARIVESH Portal.**
7. **Copy for Guard File.**

(Ajay Kumar Sharma)
Member Secretary, SEIAA

रजिस्ट्री सं. डी.एल.- 33004/99

REGD. No. D. L.-33004/99

भारत का राजपत्र
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सी.जी.-डी.एल.-अ.-13112024-258619
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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 643] नई दिल्ली, मंगलवार, नवम्बर 12, 2024/कार्तिक 21, 1946
No. 643] NEW DELHI, TUESDAY, NOVEMBER 12, 2024/KARTIKA 21, 1946

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 12 नवम्बर, 2024

सा. का. नि. 702(अ).— केन्द्रीय सरकार, वायु (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1981 (1981 का 14) की धारा 21 की उपधारा (1) के परंतुक द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, केंद्रीय प्रदूषण नियंत्रण बोर्ड के परामर्श से, निम्नलिखित श्रेणियों के औद्योगिक संयंत्रों को उक्त उपधारा के उपबंधों के लागू होने से छूट प्रदान करती है, अर्थात्:-

(क) इस अधिसूचना की अनुसूची में यथा सूचीबद्ध 20 तक के प्रदूषण इंडेक्स स्कोर वाले सभी औद्योगिक संयंत्र, इस शर्त के अध्यधीन रहते हुए कि ऐसा संयंत्र राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समितियों को लिखित में सूचित करेगा;

(ख) सभी औद्योगिक संयंत्र, जिन्होंने ऐसे संयंत्र स्थापित करने की पूर्व सहमति की बाबत पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) के अधीन जारी भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1533 (अ), तारीख 14 सितंबर, 2006 के अनुसार पूर्व पर्यावरणीय अनुमति प्राप्त कर ली है।

अधिनियम और इस अधिसूचना के प्रावधानों के अधीन, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय इस अधिसूचना के कार्यान्वयन को सुव्यवस्थित करने के लिए आवश्यक मानक संचालन प्रक्रिया जारी कर सकता है, जैसा कि उचित समझा जाये।

[फा. सं. क्यू -15012/2/2022-सीपीडब्ल्यू-भाग (1)/इ-240741]

वेद प्रकाश मिश्रा, संयुक्त सचिव

अनुसूची

2016 की वर्गीकरण पद्धति के अनुसार समय-समय पर सीपीसीबी द्वारा वर्गीकृत क्षेत्रों की श्वेत श्रेणी की सूची

1. एयर कूलर/कंडीशनरों की असेंबली, मरम्मत और सर्विसिंग
2. साइकिलों, बच्चों की गाड़ियों और अन्य छोटे गैर-मोटर वाहनों की असेंबली
3. अपशिष्ट कागज़ों की बेलिंग (हाइड्रोलिक प्रेस)
4. अकार्बनिक रसायनों का उपयोग किए बिना जैव उर्वरक और जैव-कीटनाशक
5. रोल्ड पीवीसी शीट से बिस्कुट ट्रे आदि (स्वचालित वैक्यूम बनाने वाली मशीनों का उपयोग करके)
6. चाय का मिश्रण और पैकिंग
7. बिना फाउंड्री के छपाई का ब्लॉक बनाना (लकड़ी का ब्लॉक बनाने को छोड़कर)
8. प्लास्टर ऑफ पेरिस से चाक बनाना (केवल बॉयलर आदि के बिना कास्टिंग)। (सौर शुष्कता /विद्युत ओवन)
9. कच्चे तरल ऑक्सीजन से संपीड़ित ऑक्सीजन गैस (किसी भी विलायक के उपयोग के बिना और केवल अन्य गैसों को अलग करने के लिए दबाव और तापमान बनाए रखकर)
10. कपास और ऊनी होज़ियर बनाना (बिना किसी रंगाई /धुलाई के केवल शुष्क प्रक्रिया)
11. डीजल पंप मरम्मत और सर्विसिंग (पूर्ण यांत्रिक शुष्क प्रक्रिया)
12. केवल असेंबलिंग द्वारा इलेक्ट्रिक लैंप (बीयूएलबी) और सीएफएल विनिर्माण
13. इलेक्ट्रिकल और इलेक्ट्रॉनिक आइटम असेंबलिंग (पूरी तरह से शुष्क प्रक्रिया)
14. इंजीनियरिंग और निर्माण इकाइयां (बिना किसी ऊष्म- उपचार / धातु सतह परिष्करण संचालन / पेंटिंग के शुष्क प्रक्रिया)
15. *सुगंधित* सुपारी उत्पादन/पीसना (पूरी तरह से शुष्क यांत्रिक संचालन)
16. फ्लाई ऐश ईंट/ब्लॉक विनिर्माण
17. केवल असेंबलिंग द्वारा फाउंटेन पेन विनिर्माण
18. कांच की ट्यूब से कांच के एम्प्यूल और शीशियाँ बनाना
19. ग्लास पुट्टी और सीलेंट (केवल मशीन के साथ मिश्रण द्वारा)
20. मूंगफली के छिलके उतारना
21. हथकरघा/कालीन बुनाई (बिना रंगाई और ब्लीचिंग प्रक्रिया के)
22. चमड़े की कटिंग और सिलाई (10 से अधिक मशीन और मोटर का उपयोग करके)
23. नारियल की भूसी से कॉयर वस्तुओं का विनिर्माण
24. धातु के ढक्कन, कंटेनरों आदि का विनिर्माण
25. जूता ब्रश और वायर ब्रश का विनिर्माण
26. मेडिकल ऑक्सीजन
27. जैविक और अकार्बनिक पोषक तत्व (भौतिक मिश्रण द्वारा)
28. कार्बनिक खाद (मैनुअल मिश्रण)
29. पाउडर दूध की पैकिंग
30. पेपर पिन और यू क्लिप
31. इलेक्ट्रिक मोटरों और जनरेटरों की मरम्मत (ड्राई मैकेनिकल प्रोसेस)
32. रस्सी (प्लास्टिक और कपास)
33. वैज्ञानिक और गणितीय उपकरण विनिर्माण
34. सौर मॉड्यूल गैर-पारंपरिक ऊर्जा उपकरण विनिर्माण इकाई
35. सौर फोटोवोल्टिक सेल के माध्यम से सौर ऊर्जा उत्पादन, पवन ऊर्जा और मिनी हाइडल पावर (25 मेगावाट से कम)
36. सर्जिकल और मेडिकल उत्पादों की असेंबली (अपशिष्ट/उत्सर्जन उत्पन्न करने वाली प्रक्रियाओं को शामिल नहीं करना)
37. प्रयुक्त खाना पकाने का तेल संग्रह (यूसीओ) केंद्र*
38. बायोडिग्रेडेबल अपशिष्ट आदि के आधार पर घरेलू बायो-डाइजेस्टर/गोबर-गैस (काउ-डंग) संयंत्र। **
39. ऐसे सीबीजी संयंत्र जो राजपत्र अधिसूचना संख्या 2051 दिनांक 14.07.2020 और संख्या 1972 दिनांक 01.06.2021 की आवश्यकताओं के अनुरूप उप-उत्पादों के रूप में क्रमशः एफओएम और एलएफओएम का उत्पादन करते हैं, और पूरे

एफओएम और एलएफओएम को भूमि पर उर्वरक या खाद के रूप में उपयोग करते हैं और किसी भी प्रकार का अपशिष्ट जल भी नहीं बहाते हैं**

क्रम संख्या 1 से 36 की प्रविष्टियों को सीपीसीबी पत्र संख्या बी-29012/ईएसएस (सीपीए)/2015-16 दिनांक 07.03.2016 के माध्यम से वर्गीकृत किया गया था।

** सीपीसीबी पत्र संख्या बी-29016/आरओजीडब्ल्यू/आईपीसी-VI/2020-21, दिनांक 30.04.2020 माध्यम से वर्गीकृत।*

*** सीपीसीबी पत्र संख्या सीपीसीबी/आईपीसी-VI/आरओजीडब्ल्यू/6686-6730, दिनांक 22.09.2021 के माध्यम से वर्गीकृत।*

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi,the 12th November, 2024

G.S.R. 702(E).—In exercise of power conferred by the proviso to sub-section (1) of section 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), the Central Government, in consultation with the Central Pollution Control Board, exempts the following categories of industrial plants from the application of the provisions of the said sub-section, namely:-

(a) all industrial plants having pollution index score upto 20 as listed in the Schedule to this notification, subject to condition that such plant shall inform in writing to the State Pollution Control Boards or the Pollution Control Committees;

(b) all industrial plants which have obtained prior environmental clearance as per the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 issued under the Environment (Protection) Act, 1986 (29 of 1986), in respect of previous consent to establish such plant.

Subject to the provisions of the Act and this notification, MoEFCC may issue necessary standard operating procedure for streamlining implementation of this notification, as deemed appropriate.

(No. Q-15012/2/2022-CPW-Part(1) /e-240741)

VED PRAKASH MISHRA, Jt.Secy.

SCHEDULE

LIST OF WHITE CATEGORY OF SECTORS CLASSIFIED BY CPCB FROM TIME TO TIME, AS PER THE 2016 CLASSIFICATION METHODOLOGY

1. Assembly of air coolers /conditioners, repairing and servicing
2. Assembly of bicycles, baby carriages and other small non motorizing vehicles
3. Bailing (hydraulic press) of waste papers
4. Bio fertilizer and bio-pesticides without using inorganic chemicals
5. Biscuits trays etc from rolled PVC sheet (using automatic vacuum forming machines)
6. Blending and packing of tea
7. Block making of printing without foundry (excluding wooden block making)
8. Chalk making from plaster of Paris (only casting without boilers etc. (sun drying / electrical oven)
9. Compressed oxygen gas from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other gases)
10. Cotton and woolen hosiers making (Dry process only without any dying / washing operation)
11. Diesel pump repairing and servicing (complete mechanical dry process)
12. Electric lamp (bulb) and CFL manufacturing by assembling only
13. Electrical and electronic item assembling (completely dry process)
14. Engineering and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)

15. Flavoured betel nuts production/ grinding (completely dry mechanical operations)
16. Fly ash bricks/ block manufacturing
17. Fountain pen manufacturing by assembling only
18. Glass ampules and vials making from glass tubes
19. Glass putty and sealant (by mixing with machine only)
20. Ground nut decorticating
21. Handloom/ carpet weaving (without dying and bleaching operation)
22. Leather cutting and stitching (more than 10 machine and using motor)
23. Manufacturing of coir items from coconut husks
24. Manufacturing of metal caps containers etc
25. Manufacturing of shoe brush and wire brush
26. Medical oxygen
27. Organic and inorganic nutrients (by physical mixing)
28. Organic manure (manual mixing)
29. Packing of powdered milk
30. Paper pins and u clips
31. Repairing of electric motors and generators (dry mechanical process)
32. Rope (plastic and cotton)
33. Scientific and mathematical instrument manufacturing
34. Solar module non-conventional energy apparatus manufacturing unit
35. Solar power generation through solar photovoltaic cell, wind power and mini hydel power (less than 25 MW)
36. Surgical and medical products assembling only (not involving effluent / emission generating processes)
37. Used Cooking Oil Collection (UCO) Center*
38. Household Bio-digesters/gobar-gas (cow-dung) plants based on biodegradable waste etc.**
39. CBG plants producing FOM & LFOM as by products in conformity with requirements of Gazette Notification No. 2051 dated 14.07.2020 & No. 1972 dated 01.06.2021, respectively, and utilizing entire FOM & LFOM as a fertilizer or manure on land and also not discharging any wastewater**

Entries from S. No. 1 to 36 were classified vide CPCB letter no. B-29012/ESS(CPA)/2015-16 dated 07.03.2016.
**Classified vide CPCB letter no. B-29016/ROGW/IPC-VI/2020-21, dated 30.04.2020.*
***Classified vide CPCB letter no. CPCB/IPC-VI/ROGW/6686-6730, dated 22.09.2021.*

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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

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PUBLISHED BY AUTHORITY

सं. 644] नई दिल्ली, मंगलवार, नवम्बर 12, 2024/कार्तिक 21, 1946
No. 644] NEW DELHI, TUESDAY, NOVEMBER 12, 2024/KARTIKA 21, 1946

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 12 नवम्बर, 2024

सा. का. नि. 703(अ).— केन्द्रीय सरकार, जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 (1974 का 6) की धारा 25 की उपधारा (1) के परंतुक द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, केंद्रीय प्रदूषण नियंत्रण बोर्ड के परामर्श से, निम्नलिखित श्रेणियों के औद्योगिक संयंत्रों को उक्त उपधारा के उपबंधों के लागू होने से छूट प्रदान करती है, अर्थात्:-

(क) इस अधिसूचना की अनुसूची में यथा सूचीबद्ध 20 तक के प्रदूषण इंडेक्स स्कोर वाले सभी औद्योगिक संयंत्र, इस शर्त के अध्यधीन रहते हुए कि ऐसा संयंत्र राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समितियों को लिखित में सूचित करेगा;

(ख) सभी औद्योगिक संयंत्र, जिन्होंने ऐसे संयंत्र स्थापित करने की पूर्व सहमति की बाबत पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) के अधीन जारी भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1533 (अ), तारीख 14 सितंबर, 2006 के अनुसार पूर्व पर्यावरणीय अनुमति प्राप्त कर ली है।

अधिनियम और इस अधिसूचना के प्रावधानों के अधीन, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय इस अधिसूचना के कार्यान्वयन को सुव्यवस्थित करने के लिए आवश्यक मानक संचालन प्रक्रिया जारी कर सकता है, जैसा कि उचित समझा जाये।

[फा. सं. क्यू -15012/2/2022-सीपीडब्ल्यू-भाग (1)/इ-240741]

वेद प्रकाश मिश्रा, संयुक्त सचिव

अनुसूची

2016 की वर्गीकरण पद्धति के अनुसार समय-समय पर सीपीसीबी द्वारा वर्गीकृत क्षेत्रों की श्वेत श्रेणी की सूची

1. एयर कूलर/कंडीशनरों की असेंबली, मरम्मत और सर्विसिंग
2. साइकिलों, बच्चों की गाड़ियों और अन्य छोटे गैर-मोटर वाहनों की असेंबली
3. अपशिष्ट कागज़ों की बेलिंग (हाइड्रोलिक प्रेस)
4. अकार्बनिक रसायनों का उपयोग किए बिना जैव उर्वरक और जैव-कीटनाशक
5. रोल्ड पीवीसी शीट से बिस्कुट ट्रे आदि (स्वचालित वैक्यूम बनाने वाली मशीनों का उपयोग करके)
6. चाय का मिश्रण और पैकिंग
7. बिना फाउंड्री के छपाई का ब्लॉक बनाना (लकड़ी का ब्लॉक बनाने को छोड़कर)
8. प्लास्टर ऑफ पेरिस से चाक बनाना (केवल बॉयलर आदि के बिना कास्टिंग)। (सौर शुष्कता /विद्युत ओवन)
9. कच्चे तरल ऑक्सीजन से संपीड़ित ऑक्सीजन गैस (किसी भी विलायक के उपयोग के बिना और केवल अन्य गैसों को अलग करने के लिए दबाव और तापमान बनाए रखकर)
10. कपास और ऊनी होज़ियर बनाना (बिना किसी रंगाई /धुलाई के केवल शुष्क प्रक्रिया)
11. डीजल पंप मरम्मत और सर्विसिंग (पूर्ण यांत्रिक शुष्क प्रक्रिया)
12. केवल असेंबलिंग द्वारा इलेक्ट्रिक लैंप (बीयूएलबी) और सीएफएल विनिर्माण
13. इलेक्ट्रिकल और इलेक्ट्रॉनिक आइटम असेंबलिंग (पूरी तरह से शुष्क प्रक्रिया)
14. इंजीनियरिंग और निर्माण इकाइयां (बिना किसी ऊष्म- उपचार / धातु सतह परिष्करण संचालन / पेंटिंग के शुष्क प्रक्रिया)
15. *सुगंधित* सुपारी उत्पादन/पीसना (पूरी तरह से शुष्क यांत्रिक संचालन)
16. फ्लाई ऐश ईंट/ब्लॉक विनिर्माण
17. केवल असेंबलिंग द्वारा फाउंटेन पेन विनिर्माण
18. कांच की ट्युब से कांच के एम्प्यूल और शीशियाँ बनाना
19. ग्लास पुट्टी और सीलेंट (केवल मशीन के साथ मिश्रण द्वारा)
20. मूंगफली के छिलके उतारना
21. हथकरघा/कालीन बुनाई (बिना रंगाई और ब्लीचिंग प्रक्रिया के)
22. चमड़े की कटिंग और सिलाई (10 से अधिक मशीन और मोटर का उपयोग करके)
23. नारियल की भूसी से कॉयर वस्तुओं का विनिर्माण
24. धातु के ढक्कन, कंटेनरों आदि का विनिर्माण
25. जूता ब्रश और वायर ब्रश का विनिर्माण
26. मेडिकल ऑक्सीजन
27. जैविक और अकार्बनिक पोषक तत्व (भौतिक मिश्रण द्वारा)
28. कार्बनिक खाद (मैनुअल मिश्रण)
29. पाउडर दूध की पैकिंग
30. पेपर पिन और यू क्लिप
31. इलेक्ट्रिक मोटरों और जनरेटरों की मरम्मत (ड्राई मैकेनिकल प्रोसेस)
32. रस्सी (प्लास्टिक और कपास)
33. वैज्ञानिक और गणितीय उपकरण विनिर्माण
34. सौर मॉड्यूल गैर-पारंपरिक ऊर्जा उपकरण विनिर्माण इकाई
35. सौर फोटोवोल्टिक सेल के माध्यम से सौर ऊर्जा उत्पादन, पवन ऊर्जा और मिनी हाइडल पावर (25 मेगावाट से कम)

36. सर्जिकल और मेडिकल उत्पादों की असेंबली (अपशिष्ट/उत्सर्जन उत्पन्न करने वाली प्रक्रियाओं को शामिल नहीं करना)

37. प्रयुक्त खाना पकाने का तेल संग्रह (यूसीओ) केंद्र*

38. बायोडिग्रेडेबल अपशिष्ट आदि के आधार पर घरेलू बायो-डाइजेस्टर/गोबर-गैस (काउ-डंग) संयंत्र। **

39. ऐसे सीबीजी संयंत्र जो राजपत्र अधिसूचना संख्या 2051 दिनांक 14.07.2020 और संख्या 1972 दिनांक 01.06.2021 की आवश्यकताओं के अनुरूप उप-उत्पादों के रूप में क्रमशः एफओएम और एलएफओएम का उत्पादन करते हैं, और पूरे एफओएम और एलएफओएम को भूमि पर उर्वरक या खाद के रूप में उपयोग करते हैं और किसी भी प्रकार का अपशिष्ट जल भी नहीं बहाते हैं**

क्रम संख्या 1 से 36 की प्रविष्टियों को सीपीसीबी पत्र संख्या बी-29012/ईएसएस (सीपीए)/2015-16 दिनांक 07.03.2016 के माध्यम से वर्गीकृत किया गया था।

** सीपीसीबी पत्र संख्या बी-29016/आरओजीडब्ल्यू/आईपीसी-VI/2020-21, दिनांक 30.04.2020 माध्यम से वर्गीकृत।*

*** सीपीसीबी पत्र संख्या सीपीसीबी/आईपीसी-VI/आरओजीडब्ल्यू/6686-6730, दिनांक 22.09.2021 के माध्यम से वर्गीकृत।*

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi,the 12th November ,2024

G.S.R. 703(E).—In exercise of power conferred by the proviso to sub-section (1) of section 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), the Central Government, in consultation with the Central Pollution Control Board, exempts the following categories of industrial plants from the application of the provisions of the said sub-section, namely:-

(a) all industrial plants having pollution index score upto 20 as listed in the Schedule to this notification, subject to condition that such plant shall inform in writing to the State Pollution Control Boards or the Pollution Control Committees;

(b) all industrial plants which have obtained prior environmental clearance as per the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 issued under the Environment (Protection) Act, 1986 (29 of 1986), in respect of previous consent to establish such plant.

Subject to the provisions of the Act and this notification, MoEFCC may issue necessary standard operating procedure for streamlining implementation of this notification, as deemed appropriate.

[F.No. Q-15012/2/2022-CPW-Part(1) /e-240741]
VED PRAKASH MISHRA,Jt. Secy.

SCHEDULE

LIST OF WHITE CATEGORY OF SECTORS CLASSIFIED BY CPCB FROM TIME TO TIME, AS PER THE 2016 CLASSIFICATION METHODOLOGY

1. Assembly of air coolers /conditioners, repairing and servicing
2. Assembly of bicycles, baby carriages and other small non motorizing vehicles
3. Bailing (hydraulic press) of waste papers
4. Bio fertilizer and bio-pesticides without using inorganic chemicals
5. Biscuits trays etc from rolled PVC sheet (using automatic vacuum forming machines)
6. Blending and packing of tea
7. Block making of printing without foundry (excluding wooden block making)
8. Chalk making from plaster of Paris (only casting without boilers etc. (sun drying / electrical oven)

9. Compressed oxygen gas from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other gases)
10. Cotton and woolen hosiers making (Dry process only without any dying / washing operation)
11. Diesel pump repairing and servicing (complete mechanical dry process)
12. Electric lamp (bulb) and CFL manufacturing by assembling only
13. Electrical and electronic item assembling (completely dry process)
14. Engineering and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)
15. Flavoured betel nuts production/ grinding (completely dry mechanical operations)
16. Fly ash bricks/ block manufacturing
17. Fountain pen manufacturing by assembling only
18. Glass ampules and vials making from glass tubes
19. Glass putty and sealant (by mixing with machine only)
20. Ground nut decorticating
21. Handloom/ carpet weaving (without dying and bleaching operation)
22. Leather cutting and stitching (more than 10 machine and using motor)
23. Manufacturing of coir items from coconut husks
24. Manufacturing of metal caps containers etc
25. Manufacturing of shoe brush and wire brush
26. Medical oxygen
27. Organic and inorganic nutrients (by physical mixing)
28. Organic manure (manual mixing)
29. Packing of powdered milk
30. Paper pins and u clips
31. Repairing of electric motors and generators (dry mechanical process)
32. Rope (plastic and cotton)
33. Scientific and mathematical instrument manufacturing
34. Solar module non-conventional energy apparatus manufacturing unit
35. Solar power generation through solar photovoltaic cell, wind power and mini hydel power (less than 25 MW)
36. Surgical and medical products assembling only (not involving effluent / emission generating processes)
37. Used Cooking Oil Collection (UCO) Center*
38. Household Bio-digesters/gobar-gas (cow-dung) plants based on biodegradable waste etc.**
39. CBG plants producing FOM & LFOM as by products in conformity with requirements of Gazette Notification No. 2051 dated 14.07.2020 & No. 1972 dated 01.06.2021, respectively, and utilizing entire FOM & LFOM as a fertilizer or manure on land and also not discharging any wastewater**

Entries from S. No. 1 to 36 were classified vide CPCB letter no. B-29012/ESS(CPA)/2015-16 dated 07.03.2016.

**Classified vide CPCB letter no. B-29016/ROGW/IPC-VI/2020-21, dated 30.04.2020.*

***Classified vide CPCB letter no. CPCB/IPC-VI/ROGW/6686-6730, dated 22.09.2021.*

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and Published by the Controller of Publications, Delhi-110054.

Village & Panchayats

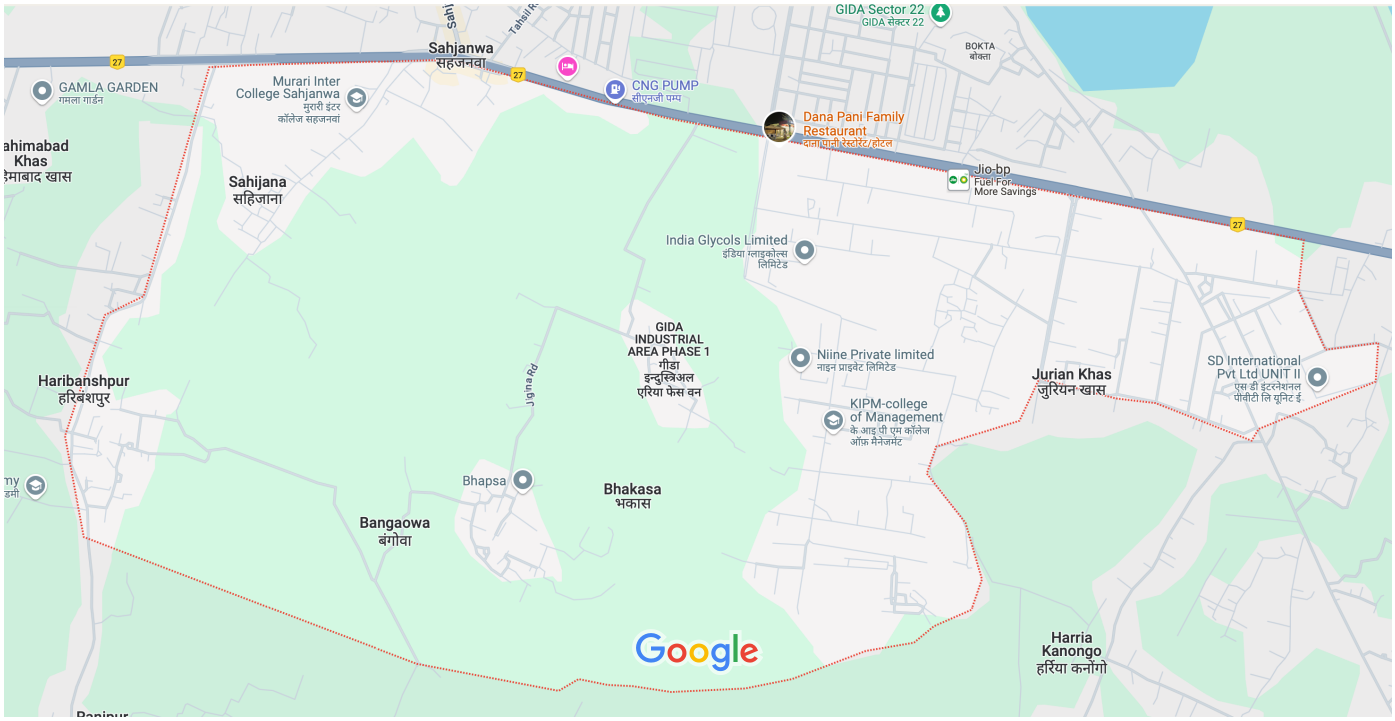
Blockwise Villages and Gram Panchayat :

Population Summary Of District GORAKHPUR

Block Name	No. of Gram Panchayat	No. Revenue Villages
PIPRAICH	69	86
BELGHAT	89	255
URUWA	95	389
GAGAHA	76	231
GOLA	85	222
KAURI RAM	64	216
KHAJNI	85	244
JUNGLE KAUDIA	89	183
KHORABAR	52	91
PALI	67	171
CHARGAWAN	43	60
SAHJANAWA	64	150
BARHALGANJ	69	206
PIPRAULI	63	159
SARDARNAGAR	59	79
BHATHAT	65	96
BRAHMPUR	63	121
CAMPIERGANJ	86	143
	1354	3315

ANNEXURE R2/8

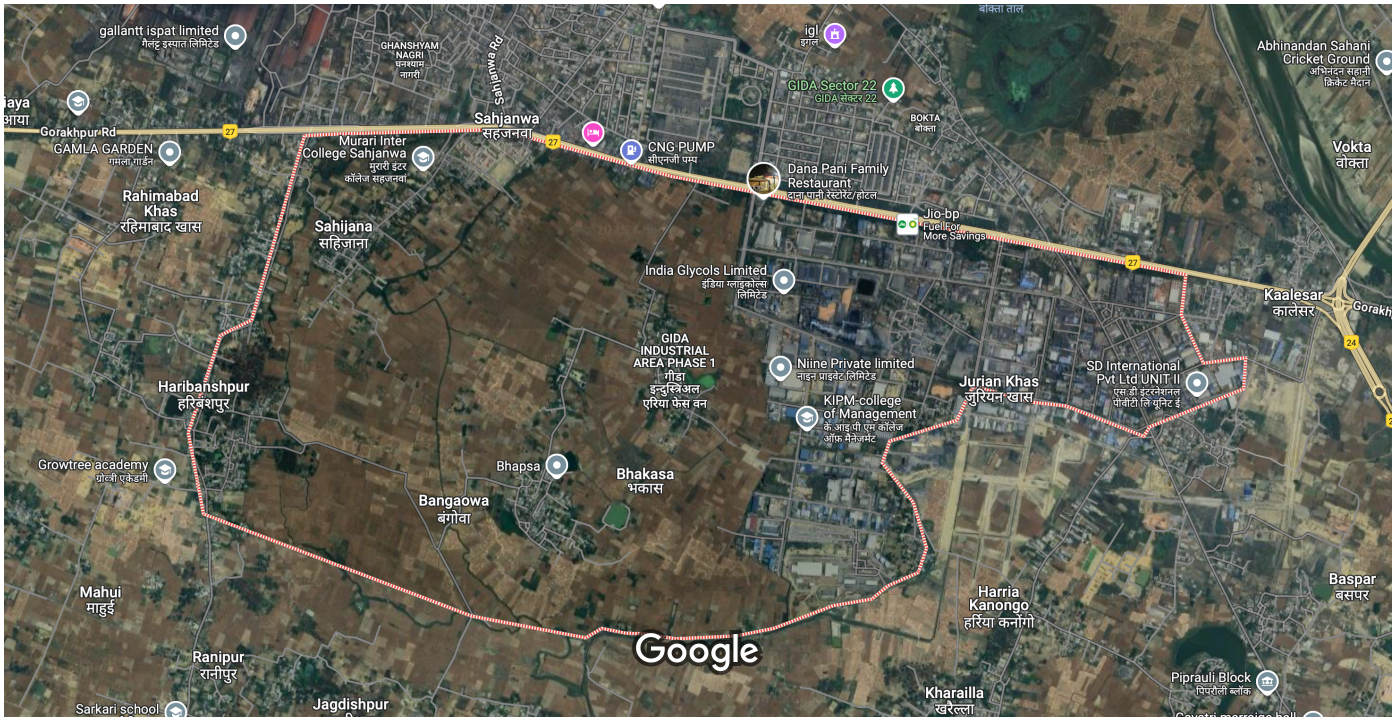
Google Maps GIDA Industrial Area Phase 1



Map data ©2025 200 m

Google Maps

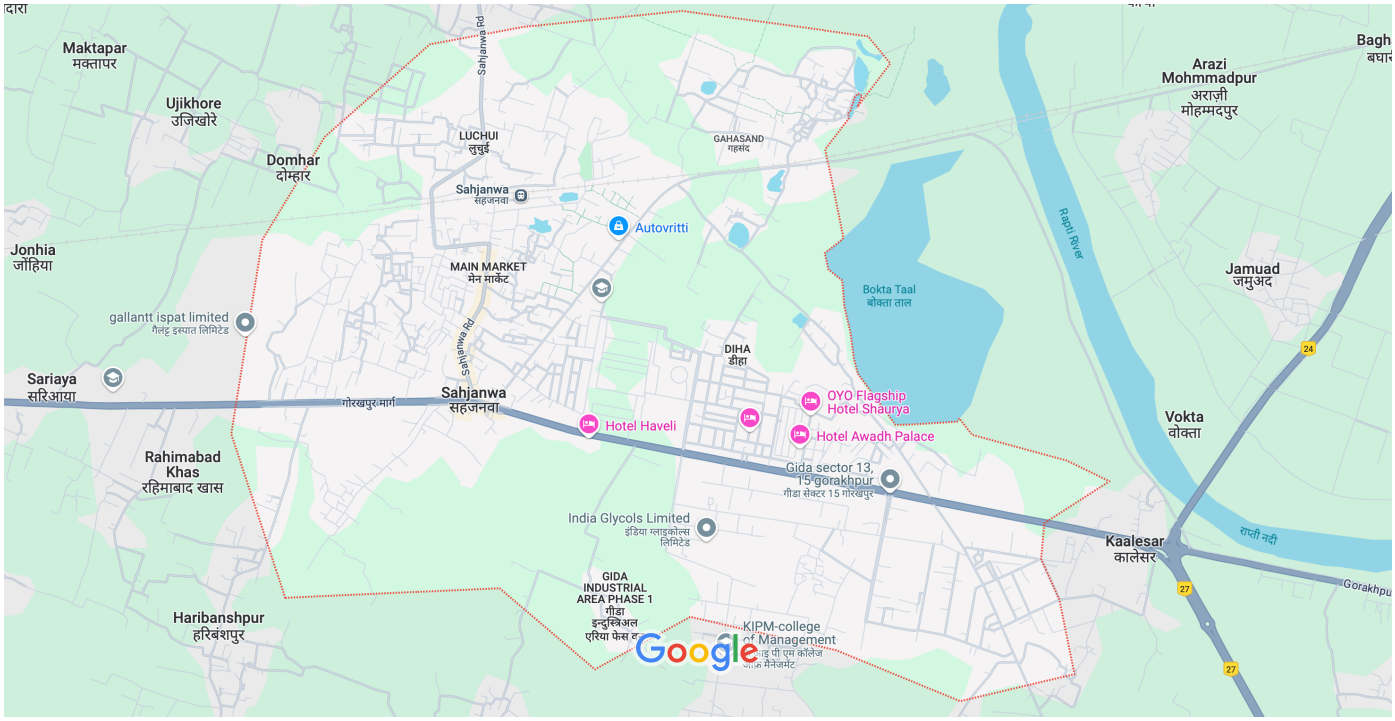
GIDA Industrial Area Phase 1



Imagery ©2025 Airbus, CNES / Airbus, Maxar Technologies, Map data ©2025 200 m

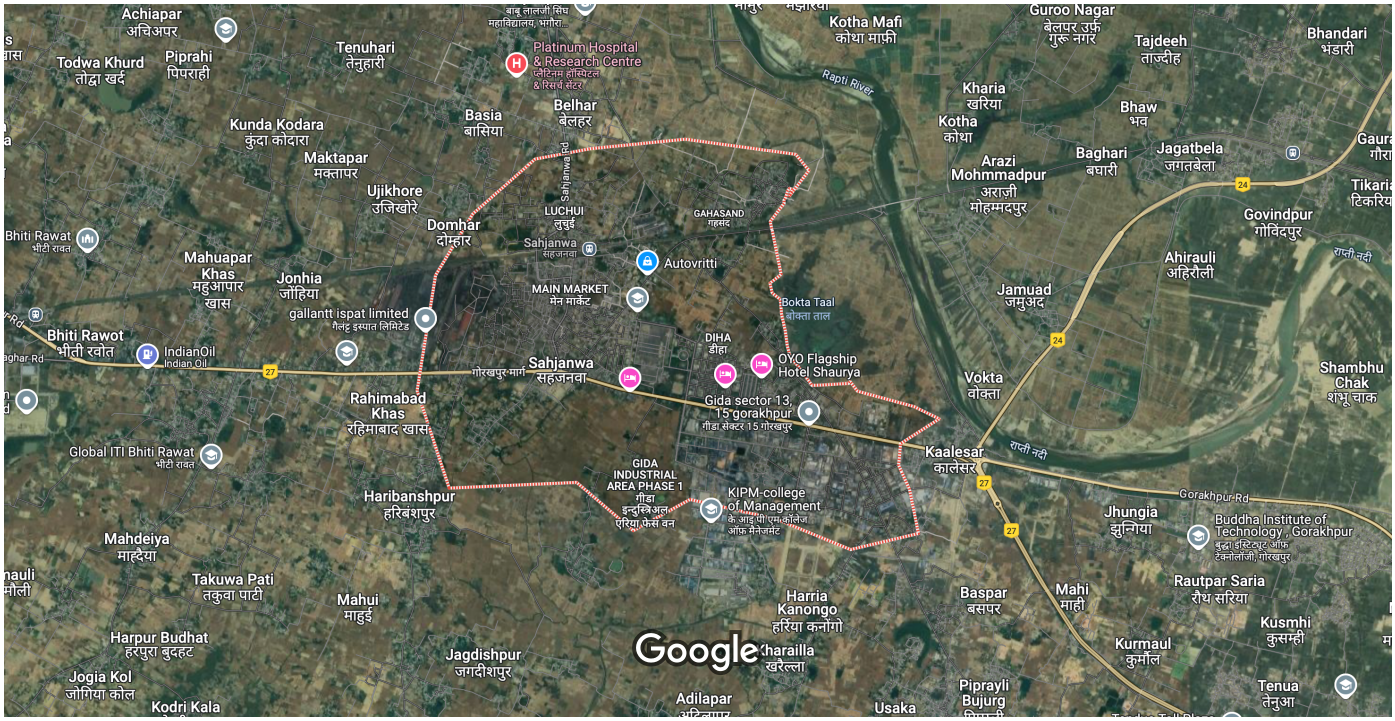
ANNEXURE R2/9

Google Maps Sahjanwa



Map data ©2025 500 m

Google Maps Sahjanwa



Imagery ©2025 Airbus, CNES / Airbus, Landsat / Copernicus, Maxar Technologies, Map data ©2025 500 m

प्रदुषण रोकिए !
तार - पर्यावरण
Gram : Paryavaran

पर्यावरण बचाइए !!
Phone & Fax : 0551-2273937
Contact No. : 7839891824

क्षेत्रीय कार्यालय

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड

REGIONAL OFFICE

UTTAR PRADESH POLLUTION CONTROL BOARD

संदर्भ संख्या 74/उ0प्र0प्र0नि0बो0-516/2023
Ref. No. .....

दिनांक
Dated 26/4/23

सेवा में,

ए0वी0 बायो–मेडिकल वेस्ट सर्विसेस,
1एफ. 964, वरदान खण्ड,
गोमती नगर विस्तार,
लखनऊ, उ0प्र0।

विषयः **मेसर्स ए0वी0 बायो–मेडिकल वेस्ट सर्विसेस, प्लाट नं0 ए–2/36, सेक्टर–15, गीडा, गोरखपुर में प्रस्तावित सी0बी0डब्लू0टी0एफ0 इकाई द्वारा वांछित गैप एनालिसिस अर्थात क्षेत्रीय कार्यालय, गोरखपुर में आच्छादित जनपद गोरखपुर, देवरिया, कुशीनगर एवं महराजगंज में वर्तमान में संचालित अस्पतालो के बेड की संख्या के सम्बन्ध में।**

महोदय,

कृपया उपरोक्त विषयक अपने पत्रांक दिनांक शून्य, दिनांक 11.04.2023 का संदर्भ ग्रहण करने का कष्ट करें। उक्त पत्र के माध्यम से आप द्वारा जनपद गोरखपुर में आच्छादित चारो जनपदों में वर्तमान में संचालित अस्पतालों के बेड की संख्या के सम्बन्ध में सूचना चाही गयी है। उक्त के सम्बन्ध में आपको अवगत कराना है कि कार्यालय अपर निदेशक चिकित्सा स्वास्थ्य एवं परिवार कल्याण, गोरखपुर मण्डल, गोरखपुर के पत्रांक सं0 4303–1, दिनांक 27.03.2023 एवं क्षेत्रीय कार्यालय, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, गोरखपुर के अभिलेखानुसार चारों जनपदों में वर्तमान में संचालित अस्पतालों के बेडो की संख्या का विवरण निम्नवत हैः–

जनपद– गोरखपुर

क्रम सं0	अस्पताल का नाम	बेड की संख्या
1	सी0एम0ओ0 / डिस्ट्रीक मेल / फीमेल	1550
2	प्राईवेट हास्पिटल	13265
3	मेसर्स नेहरू चिकित्सालय सम्बद्ध मेसर्स बाबा राघव दास मेडिकल कालेज, गोरखपुर	850
4	मेसर्स ऑल इण्डिया इन्सटीच्यूट ऑफ मेडिकल साईन्सेस, गोरखपुर	750
5	मेसर्स ललित नरायण मिश्र, रेलवे चिकित्सालय, गोरखपुर	366
	कुल	**16781**

जनपद– देवरिया

क्रम सं0	अस्पताल का नाम	बेड की संख्या
1	सी0एम0ओ0 / डिस्ट्रीक मेल / फीमेल	844
2	प्राईवेट हास्पिटल	2423
	कुल	**3267**

जनपद– कुशीनगर

क्रम सं0	अस्पताल का नाम	बेड की संख्या
1	सी0एम0ओ0 / डिस्ट्रीक मेल / फीमेल	544
2	प्राईवेट हास्पिटल	1091
	कुल	**1635**

जनपद– महराजगंज

क्रम सं0	अस्पताल का नाम	बेड की संख्या
1	सी0एम0ओ0 / डिस्ट्रीक मेल / फीमेल	540
2	प्राईवेट हास्पिटल	1123
	कुल	**1663**

उक्त के अतिरिक्त आपको अवगत कराना है कि वर्तमान में चारों जनपदों में कोई भी सी0बी0डब्लू0टी0एफ0 इकाई स्थापित एवं संचालित नहीं है। प्रस्तावित स्थल से लगभग 53 किलोमीटर की दूरी पर मेसर्स जे0के0एन0 पूर्वांचल सी0बी0डब्लूटी0एफ0 वर्क्स, ग्राम– पहाड़पुर, पो0– गोथा रसूलपुर, जनपद– देवरिया में स्थापित किया जाना प्रस्तावित है। जिसको बोर्ड मुख्यालय द्वारा दिनांक 05.01.2022 के माध्यम से अनापत्ति प्रमाण पत्र निर्गत है। मेसर्स जे0के0एन0 पूर्वांचल सी0बी0डब्लूटी0एफ0 वर्क्स को निर्गत अनापत्ति प्रमाण पत्र एवं प्रस्तावित स्थापना के सम्बन्ध में माननीय एन0जी0टी0 में ओ0ए0 सं0 06/2022 प्रभाकर राय व अन्य बनाम यूनियन ऑफ इण्डिया द्वारा अपील योजित है, जो की वर्तमान में विचाराधीन है। उक्त के अतिरिक्त प्रस्तावित स्थल से लगभग 71 किलोमीटर की दूरी पर मेसर्स ए0वी0 बायो–मेडिकल वेस्ट सर्विसेस, ग्राम– राजधानी, पो0– नौतनवां, जनपद– महराजगंज को बोर्ड मुख्यालय द्वारा दिनांक 16.08.2021 के माध्यम से अनापत्ति प्रमाण पत्र निर्गत है। मेसर्स ए0वी0 बायो–मेडिकल वेस्ट सर्विसेस, ग्राम– राजधानी, पो0– नौतनवां, जनपद– महराजगंज के विरूद्ध माननीय उच्च न्यायालय, इलाहाबाद में रिट सी सं0 –2022 मेसर्स मेडिकल पाल्यूशन कन्ट्रोल कमेटी बनाम उ0प्र0 राज्य एवं अन्य द्वारा रिट याचिका दायर है जो कि वर्तमान में विचाराधीन है।

भवदीय

(पंकज यादव)
क्षेत्रीय अधिकारी

प्रतिलिपि– मुख्य पर्यावरण अधिकारी (वृत्त–6), उ0प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ।

क्षेत्रीय अधिकारी

ANNEXURE-1

Coverage area-wise gap analysis for assessing additional BMW treatment capacity requirement

S.No	Coverage area	No of HCFs		No of Beds covered	Total estimated BMW generation in kg/day	Total Existing treatment capacity in kg					Total BMW Treated and disposed in Kg/Day	Gap Between BMW generation and the existing BMW treatment Capacity in kg	Remarks (Whether additional Treatment Capacity is required or not)	
		Bedded	Non Bedded			Incinerator (Kg/Hr)	Autoclaving /Hydroclavi ng	Chemical Disinfection	Deep Burial	Any other mode of disposal			Yes	No
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Gorakhpur			16781	16781								TO TREAT REMAING BIO- MEDICAL WASTE OF APPROX 24 TON AND EXTRA BEDS OF APPROX 14000, ONE ADDITIONAL FACILITY IS REQUIRED IN THE ZONE.	
2	Deoria			3267	3267	250								
3	Maharajganj			1663	1663	250								
4	Kushinagar			1635	1635									

Total (In Kg)	23346	23346	500	1st Year	2nd Year	3rd Year	4th Year	5th Year	
Projection of increase in Bed Strength for next 5 years at the rate 10% /Year	37599			25680.6	28248.66	31073.526	34180.8786	37599	
Considering 80% of Incinerable waste	80%	30079							
Maximum Incinerable waste can be treated			9000						
GAP in Incinerable waste Treatment (In Kg)			21079						
Incinerator working hrs has been taken for 18									

Geo Co-ordinates of EC & CTE Granted CBWTF units in District- Mahrajganj & Deoria

1. M/S JKN PURVANCHAL CBWTF WORKS, DEORIA

26°38'33.09"N

83°44'56.74"E

2. A V Biomedical Waste Services, Nautanwa, Mahrajganj

27°22'13.92"N

83°23'51.22"E