



File No: J-11011/136/2009-IA-I(I)

Government of India
Ministry of Environment, Forest and Climate Change
IA Division



Dated 05/12/2024



To,

M/s. Aditya Aluminium (A Unit of Hindalco Industries Limited) At/Po- Lapanga, Tehsil- Rengali, Dist- Sambalpur, State-Odisha, One International Center, Tower - 4, 21st Floor, SAMBALPUR, ODISHA, Senapati Bapat Marg, Prabhadevi , 768212
Email: lalit.charan@adityabirla.com

Subject: Aluminium Smelter from 3.8 LTPA to 6.8 LTPA [by addition of 1 LTPA (Recycled metal) & installation of 2 LTPA (Renewable Energy Based 180 Pots)] and Captive Power Plant from 900 MW to 1230 MW [by addition of 180 MW Combine Cycle Power Plant (Gas/ Oil fired) & 150 MW CPP (Coal fired) for Emergency Backup] within the existing plant premises by M/s. Aditya Aluminium (A Unit of M/s. Hindalco Industries Limited), located at Villages: Lapanga, Bomaloi, Derba, Khadiapali, Tileimal and Dharopani Tehsil: Rengali, District: Sambalpur, Odisha-- Grant of TOR -Regarding.

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project EC for Aluminium Smelter from 3.8LTPA to 6.8LTPA [by addition of 1LTPA (Recycled metal) & installation of 2LTPA (Renewable Energy Based 180Pots)] and CPP from 900MW to 1230MW [by addition of 180MW Combine Cycle Power Plant (Gas/Oil fired) & 150MW CPP (Coal fired) for Emergency Backup] within the existing plant premises at Villages: Lapanga, Bomaloi, Derba, Khadiapali, Tileimal and Dharopani Tehsil: Rengali District: Sambalpur (Odisha) by Aditya Aluminium (A Unit of M/s. Hindalco Industries Ltd.) submitted to Ministry vide proposal number IA/OR/IND1/483223/2024 dated 13/09/2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24A1005OR5707583N
(ii) File No.	J-11011/136/2009-IA-I(I)
(iii) Clearance Type	TOR
(iv) Category	A
(v) Project/Activity Included Schedule No.	3(a) Metallurgical Industries (ferrous and non ferrous),1(d) Thermal Power Plants,1(d) Thermal Power Plants,8(b) Townships/ Area Development Projects / Rehabilitation Centres
(vi) Sector	Industrial Projects - 1

(vii) Name of Project

EC for Aluminium Smelter from 3.8LTPA to 6.8LTPA [by addition of 1LTPA (Recycled metal) & installation of 2LTPA (Renewable Energy Based 180Pots)] and CPP from 900MW to 1230MW [by addition of 180MW Combine Cycle Power Plant (Gas/Oil fired) & 150MW CPP (Coal fired) for Emergency Backup] within the existing plant premises at Villages: Lapanga, Bomaloi, Derba, Khadiapali, Tileimal and Dharopani Tehsil: Rengali District: Sambalpur (Odisha) by Aditya Aluminium (A Unit of M/s. Hindalco Industries Ltd.)

(viii) Name of Company/Organization

Sameer Nayak

(ix) Location of Project (District, State)

SAMBALPUR, ODISHA

(x) Issuing Authority

MoEF&CC

(xii) Applicability of General Conditions

no

(xiii) Applicability of Specific Conditions

no

3. The proposed project activity is listed at schedule no. 3(a) "Metallurgical industries (ferrous & non-ferrous)" and 1(d) Thermal Power Plants, under Category "A" of the schedule of the EIA Notification, 2006 and appraised at Central Level.

4. The proposal was considered in the 67th EAC Meeting held during 14th -16th October, 2024. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed at <https://parivesh.nic.in>.

Details submitted by Project proponent

5. The project of Aditya Aluminium (A Unit of M/s. Hindalco Industries Ltd.) located in Village Lapanga, Bomaloi, Derba, Khadiapali, Tileimal and Dharopani, Tehsil: Rengali, in Sambalpur District of Odisha is for setting up Aluminium Smelter 6.8 LTPA (Existing: 3.8 LTPA, 1 LTPA (Recycled metal) & Proposed installation of 2 LTPA (RE Power Based 180 Pots), Captive Power Plant [Existing 900 MW (6x150 MW) & Installation of 180 MW Gas/Oil fired Turbine-based Combine Cycle Power Plant & 150 MW (1 x 150 MW) Coal based Thermal Power Plant for Emergency Backup.

6. The PP further reported that earlier, EC was obtained from MoEFCC, New Delhi vide letter dated 29th Nov. 2012 for Expansion of Aluminium Smelter and Captive Power Plant, out of which, the company established Aluminium Smelter Plant (3.80 LTPA) and Captive Power Plant (900 MW) in year 2013. Accordingly, the PP has further requested to apprise the said proposal as per the Ministry's Gazette Notification vide S.O. 1247(E) dated 18.03.2021 for granting TOR with Exemption of Public Hearing, as the project has been implemented and operating for more than 50% capacity in its physical form and fresh EC application has been submitted before EC validity. In support of the same, PP has submitted the copy of the CTO from SPCB permitting 0.38 MTPA of Aluminium Smelter (i.e. 52.78% of total 0.72 MTPA) and 900 MW of Power Plant (i.e. 54.55% of total 1650 MW). The PP has further submitted a certificate from Chartered Accountant dated 07.10.2024 certifying the cost of the existing project as Rs. 16,228.34 Crores (i.e. 72.97% of Rs. 22,240 Crores).

7. The environmental setting of the proposed project is given at **Annexure-II** and the Unit configuration and capacity is at **Annexure-III**.

8. The existing water requirement is 35,750 m³ /day, which is obtained from Hirakud Reservoir. Permission has been obtained for supply of 52.73 cusecs (1,29,000 KLD) water from Hirakud Reservoir from Department of Water resources, Government of Orissa vide letter no. 32432/WR, Irr-II-WRC 11/08 dated 01st Oct. 2008. The water

requirement for the expansion project is estimated as 22,048 m3 per day which will be fulfilled from existing CPP raw water reservoir of Aditya Aluminium. No additional permission for water withdrawal will be required for the proposed installation.

9. Existing Power requirement of 706 MW is obtained from CPP and Grid. The power requirement for the expansion project is estimated as 318 MW which will be fulfilled from 300 MW Renewable Energy (RE) from various sources through grid, existing Captive Power Plant 900 MW and Solar Power Plant (30 MW). Proposed 180 MW Gas/Oil fired Turbine-based Combine Cycle power plant and 1 x 150 MW Coal Fired Captive Power Plant for emergency.

10. The capital cost of the project is Rs 10,645 Crores and the capital cost for environmental protection measures is proposed as Rs 960.92 Crores. The employment generation from the expansion project will be 2,650 during the construction phase and 1305 during the operation phase.

11. It is reported that there is no violation under EIA, 2006/court case/show cause/direction related to the project under consideration.

Deliberation by the Committee

12. The Committee noted the following:

i. The instant proposal is for setting up Aluminium Smelter 6.8 LTPA (Existing: 3.8 LTPA, 1 LTPA (Recycled metal) & Proposed installation of 2 LTPA (RE Power Based 180 Pots), Captive Power Plant [Existing 900 MW (6x150 MW) & Installation of 180 MW Gas/Oil fired Turbine-based Combine Cycle Power Plant & 150 MW (1 x 150 MW) Coal based Thermal Power Plant for Emergency Backup.

ii. The PP further reported that earlier, EC was obtained from MoEFCC, New Delhi vide letter dated 29th Nov. 2012 for Expansion of Aluminium Smelter and Captive Power Plant, out of which, the company established Aluminium Smelter Plant (3.80 LTPA) and Captive Power Plant (900 MW) in year 2013. Accordingly, the PP has further requested to apprise the said proposal as per the Ministry's Gazette Notification vide S.O. 1247(E) dated 18.03.2021 for granting TOR with Exemption of Public Hearing, as the project has been implemented and operating for more than 50% capacity in its physical form and fresh EC application has been submitted before EC validity. In support of the same, PP has submitted the copy of the CTO from SPCB permitting 0.38 MTPA of Aluminium Smelter (i.e. 52.78% of total 0.72 MTPA) and 900 MW of Power Plant (i.e. 54.55% of total 1650 MW). The PP has further submitted a certificate from Chartered Accountant dated 07.10.2024 certifying the cost of the existing project as Rs. 16,228.34 Crores (i.e. 72.97% of Rs. 22,240 Crores). The PP has further submitted the detailed progress of the project as detailed in relevant para above. The EAC further deliberated on the implementation status of the earlier Public Hearing Commitments and is of the view that since PP has already complied with their commitments, and considering the submission made by PP, the proposal qualifies to be appraised in pursuance to Ministry's Gazette Notification vide S.O. 1247(E) dated 18.03.2021 for granting TOR with Exemption of Public Hearing.

iii. The existing project was initially accorded Environment Clearance from MOEF&CC vide letter F.NO. J-11011/136/2009-IA-I(I) dated 29.12.2012 for Expansion for Aluminium Smelter Plant from 0.26 MTPA to 0.72 MTPA and Captive Power Plant from 650 MW to 1650 MW. Amendment in EC conditions was obtained vide letter dated 14.06.2013 followed by further amendment in EC vide letter dated 14.08.2018. PP further obtained EC extension vide letter dated 20.07.2020 and 12.08.2022. It is also reported that Company obtained Verification on certificate of "No Increase in Pollution Load (NIPL)" on 20.12.2021 from State Pollution Control Board, Odisha for installation of manufacturing facility of capacity 340 KTPA (3.4 LTPA) involving changes in product mix (i.e., Addition of Sheets and Coils) inside the existing plant premises of Aditya Aluminium. The company obtained another Verification on certificate of "No Increase in Pollution Load (NIPL)" on 22nd March 2024 for Enhancement in Aluminium production capacity from 3.80 LTPA to 4.80 LTPA by addition of 1.0 LTPA recycled metal and installation of 0.9 LTPA White Fused Alumina Plant through change in product mix and plant configuration within the existing plant premises. Consent to Operate for the existing unit was accorded by Odisha State Pollution Control Board vide Ir. no. 4707/IND - I-CON-6120 dated 27/03/2023. The validity of CTO is up to 31/03/2028.

iv. The EAC took into consideration the drone survey of the project site and kml file on the Google Earth presented by the project proponent along with DSS of the project site on PARIVESH and made following deliberations accordingly.

v. The total plant area is 1347.35 Hectare [Forest Land: 119.264, Private: 811.42 Ha, Govt.: 416.666 Ha]. Forest Clearance for 119.264 Hectare has been obtained vide F. No. 8-27/2009-FC dated 10th Feb., 2011. Proposed installation will be done in existing plant premises. Hence, no additional land is required.

vi. Bomaloi (Adjacent to plant site in South), Tileimal (0.3 km, SE), Sadhapali (0.3 km, E), Khadiapali (0.3 km, WNW), Derba (0.6 km, NE) along with other sensitive areas within the study area of the project site. The EAC is of the opinion that PP shall prepare and include in the EIA/EMP Report the environmental safeguard measures to minimise the impact of the project activities on these sensitive areas.

vii. The project site is in proximity to several water bodies, including a seasonal nallah originating from the plant area near the solar plant in the southwest direction from the main plant site. Another seasonal nallah passes through the raw water reservoir area, located near the western boundary of the project. Additionally, Matwali Nala flows near the raw water reservoir, along the north eastern boundary of the project. The nearest river is Bhedan River which is approx. 3.5 km in NW direction from the plant site. The Hirakud reservoir is situated downstream to the plant and does not fall in flood plain of Bhedan river and Hirakud reservoir and is safe from flood hazards of these water bodies. The letter issued from the Deputy Collector (Office of the Collector and District Magistrate - Emergency Section) is submitted. Further there are other water bodies within the study area of the project site. The EAC is of the opinion that water bodies shall not be disturbed. Mitigation measures w.r.t. safeguarding the water bodies shall be prepared and submitted.

viii. The existing water requirement is 35,750 m³ /day, which is obtained from Hirakud Reservoir. Permission has been obtained for supply of 52.73 cusecs (1,29,000 KLD) water from Hirakud Reservoir from Department of Water resources, Government of Orrisa vide letter no. 32432/WR, Irr-II-WRC 11/08 dated 01st Oct. 2008. The water requirement for the expansion project is estimated as 22,048 m³ per day which will be fulfilled from existing CPP raw water reservoir of Aditya Aluminium. No additional permission for water withdrawal will be required for the proposed installation. The EAC is of the opinion and found it satisfactory.

ix. PP has reported that around 40 trees will be translocated within the plant premises. PP will explore the possibility of transplantation of the trees as carried out inside the plant premise during project constructions. The EAC deliberated and opined that PP shall undertake any such activity in consultation with the State Forest Department and obtain any permission, if applicable.

Recommendations of the Committee

13. After deliberations, the Committee recommended the project proposal for prescribing following specific ToRs for undertaking detailed EIA and EMP study with exemption of Public Hearing (in pursuance to Ministry's Gazette Notification vide S.O. 1247(E) dated 18.03.2021) in addition to the generic ToRs enclosed at Annexure-1 read with additional ToRs

(i) Bomaloi (Adjacent to plant site in South), Tileimal (0.3 km, SE), Sadhapali (0.3 km, E), Khadiapali (0.3 km, WNW), Derba (0.6 km, NE) along with other sensitive areas within the study area of the project site. Proponent shall prepare appropriate environmental safeguard measures to minimise the impact of the project activities on these sensitive areas.

(ii) PP shall come up with a proper Villages adoption programme/ plan and adequate funds under the corporate responsibility commensurate to the proposed project cost, so that the standard of living of the nearby villages could be alleviated. PP shall consider engaging a social science expert while formulating the above plans to ensure coverage of prevailing best practices.

(iii) The project site is in proximity to several water bodies, including a seasonal nallah originating from the plant area near the solar plant in the southwest direction from the main plant site. Another seasonal nallah passes through the raw water reservoir area, located near the western boundary of the project. Additionally, Matwali Nala flows near the raw

water reservoir, along the north eastern boundary of the project. The PP shall include in the EIA/EMP report suitable steps /conservation plan along with contouring (close intervals), Run -off calculations, disposal etc. A robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be prepared and included in EIA/EMP Report.

(iv) Water requirement of 57798 m³ /day, which will be obtained from Hirakud Reservoir and existing CPP raw water reservoir of Aditya Aluminium. PP shall obtain necessary water permission from the Competent Authority.

(v) PP shall aim at 100% waste utilisation under circular economy and prepare and include a detailed plan in the EIA/EMP report. This shall be in addition to the mandatory stipulations prescribed by CPCB guidelines for handling, storage and management of Aluminium smelter facilities/ processing. It may be ensured that the detailed plan may be aligned to the framework prescribed by CPCB/ SPCB, including ongoing waste utilisation research studies.

(vi) PP shall explore making arrangements with the Cement Plants for hazardous waste management and disposal.

(vii) PP shall undertake any tree felling/ translocation activity in consultation with the State Forest Department and obtain any permission, if applicable.

(viii) PP shall outline a detailed Environmental benefit analysis and quantify the benefits.

(ix) PP shall formulate a detailed Decarbonisation Roadmap

Decision of MoEF&CC

14. The undersigned is directed to inform that Ministry of Environment, Forest and Climate Change has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee (Industry-1) hereby decided to accord above-said specific ToRs, in addition to the standard ToRs and Sector Specific ToRs as enclosed at Annexure-I read with additional ToRs for carrying out detailed EIA/EMP for the above project, with an additional condition as below:

- The plant falls inside the Polluted Industrial Area (PIA) of Jharsuguda. Presently considered as another polluted area (CEPI Score -37.20). PP need to submit an action plan to implement all action points related to the action plan prepared for Ib-Valley Jharsuguda PIA in 2020 and upgraded from time to time.

15. It is requested that the draft EIA Report may be prepared in accordance with the above-mentioned specific ToRs and enclosed generic ToRs and additional ToRs and thereafter further necessary action may be taken for obtaining Environment Clearance in accordance with the procedure prescribed under the EIA Notification, 2006 as amended.

16. The ToRs are valid for a period of four years from date of issue of this letter as per the Ministry's Notification S.O. 751 (E) dated 17/02/2020.

17. This issue with the approval of the Competent Authority.

(Dinesh Runiwal)
Scientist 'F'/Director
Tel: 011-20819346
Email-d.runiwal@gov.in

Copy To

1. The Principal Secretary, Department of Forest and Environment, Government of Odisha, Bhubaneswar, Odisha
2. Director General of Forest, Ministry of Environment, Forest and Climate Change, New Delhi
3. Principal Chief Conservator of Forests & HoFF, Aranya Bhawan, Chandrasekharpur, Bhubaneswar - 751 023, Odisha
4. The Regional Officer, Ministry of Environment, Forest and Climate Change, Integrated Regional Office, A/3, Chandrasekharpur, Bhubaneswar – 751023 Odisha
5. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 32

6. The Member Secretary, Central Ground Water Authority, Jamnagar House, 18/11, Man Singh Road Area, New Delhi, Delhi 110001
7. The Member Secretary, Odisha State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII, Bhubaneswar -12 Odisha.
8. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi.
9. District Collector, Sambalpur, Odisha.
10. Guard File/Monitoring File/ Parivesh Portal /Record File.

(Dinesh Runiwal)
Scientist 'F'/Director

Annexure 1

Specific Terms of Reference for (Metallurgical Industries (Ferrous And Non Ferrous))

1. Specific

S. No	Terms of Reference
1.1	Bomaloi (Adjacent to plant site in South), Tileimal (0.3 km, SE), Sadhapali (0.3 km, E), Khadiapali (0.3 km, WNW), Derba (0.6 km, NE) along with other sensitive areas within the study area of the project site. Proponent shall prepare appropriate environmental safeguard measures to minimise the impact of the project activities on these sensitive areas.
1.2	PP shall come up with a proper Villages adoption programme/ plan and adequate funds under the corporate responsibility commensurate to the proposed project cost, so that the standard of living of the nearby villages could be alleviated. PP shall consider engaging a social science expert while formulating the above plans to ensure coverage of prevailing best practices.
1.3	The project site is in proximity to several water bodies, including a seasonal nallah originating from the plant area near the solar plant in the southwest direction from the main plant site. Another seasonal nallah passes through the raw water reservoir area, located near the western boundary of the project. Additionally, Matwali Nala flows near the raw water reservoir, along the north eastern boundary of the project. The PP shall include in the EIA/EMP report suitable steps /conservation plan along with contouring (close intervals), Run -off calculations, disposal etc. A robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be prepared and included in EIA/EMP Report.
1.4	Water requirement of 57798 m ³ /day, which will be obtained from Hirakud Reservoir and existing CPP raw water reservoir of Aditya Aluminium. PP shall obtain necessary water permission from the Competent Authority.
1.5	PP shall aim at 100% waste utilisation under circular economy and prepare and include a detailed plan in the EIA/EMP report. This shall be in addition to the stipulations prescribed by CPCB guidelines for handling, storage and management of Aluminium smelter facilities/ processing. It may be ensured that the detailed plan may be aligned to the framework prescribed by CPCB/ SPCB, including ongoing waste utilisation research studies.
1.6	PP shall explore making arrangements with the Cement Plants for hazardous waste management and disposal.

S. No	Terms of Reference
1.7	PP shall undertake any tree felling/ translocation activity in consultation with the State Forest Department and obtain any permission, if applicable.
1.8	PP shall outline a detailed Environmental benefit analysis and quantify the benefits.
1.9	PP shall formulate a detailed Decarbonisation Roadmap

Standard Terms of Reference for Industrial Projects - 1

1. Preliminary Requirements

S. No	Terms of Reference
1.1	EIA/EMP report cover page shall consists of project title with location, applicable schedule of the EIA Notification, 2006, ToR letter No. with date, study period along with EIA consultant & laboratory details with QCI/NABET/NABL accreditation certificate detail.
1.2	Besides, following points shall be compiled as per QCI/NABET norms: a. Disclaimer by the EIA consultant. b. Declaration by the Functional Area Experts contributed to the EIA study and declaration by the head of the accredited consultant organization/authorized person. c. Undertaking by the project proponent owning the contents (information and data) of the EIA/EMP report. d. Undertaking by the EIA consultant regarding compliance of ToR issued by MoEF&CC. e. Consultant shall submit the Plagiarism Certificate for the EIA/EMP Report.

2. Executive Summary

S. No	Terms of Reference
2.1	Table of Contents of the EIA report including list of tables/figures/annexures/abbreviations/symbols/notations.
2.2	Point wise compliance to the ToR issued by MoEF&CC.

2.1 Introduction

S. No	Terms of Reference
2.1.1	Name of the project along with applicable schedule and category as per EIA, 2006.
2.1.2	Location and accessibility

2.2 Project Description

S. No	Terms of Reference
2.2.1	Resource requirements (Land; water; fuel; manpower)
2.2.2	Operational activity

S. No	Terms of Reference
2.2.3	Key pollution concerns

2.3 Baseline Environment Studies

S. No	Terms of Reference
2.3.1	Ambient air quality
2.3.2	Ambient Noise quality
2.3.3	Traffic study
2.3.4	Surface water quality
2.3.5	Ground water quality
2.3.6	Soil quality
2.3.7	Biological Environment
2.3.8	Land use
2.3.9	Socio-economic environment

2.4 Anticipated Impacts

S. No	Terms of Reference
2.4.1	Impact on ambient air quality
2.4.2	Impact on ambient noise quality
2.4.3	Impact on road and traffic
2.4.4	Impact on surface water resource and quality
2.4.5	Impact on ground water resource and quality
2.4.6	Impact on terrestrial and aquatic habitat
2.4.7	Impact on socio-economic environment

2.5 Alternative Analysis

S. No	Terms of Reference
2.5.1	No Data Found

2.6 Environmental Monitoring Program

S. No	Terms of Reference
2.6.1	Ambient air, noise, water and soil quality
2.6.2	Noise quality management plan
2.6.3	Emission and discharge from the plant
2.6.4	Green Belt
2.6.5	Social Parameters

2.7 Additional Studies

S. No	Terms of Reference
2.7.1	Risk assessment
2.7.2	Public consultation
2.7.3	Action plan to address the issues raised during public consultation as per MoEF&CC O.M. dated 30/09/2020

2.8 Project Benefits

S. No	Terms of Reference
2.8.1	No Data Found

2.9 Environment Management Plan

S. No	Terms of Reference
2.9.1	Air quality management plan
2.9.2	Noise quality management plan
2.9.3	Solid and hazardous waste management plan
2.9.4	Effluent management plan
2.9.5	Storm water management plan
2.9.6	Occupational health and safety management plan
2.9.7	Green belt development plan
2.9.8	Socio-economic management plan
2.9.9	Project cost and EMP implementation budget.

3. Introduction

S. No	Terms of Reference
3.1	Background about the project
3.2	Need of the project
3.3	Purpose of the EIA study
3.4	Scope of the EIA study

4. Project Description

4.1 Site Details

S. No	Terms of Reference
4.1.1	Location of the project site covering village, Taluka/Tehsil, District and State.
4.1.2	Site accessibility
4.1.3	A digital toposheet in pdf or shape file compatible to google earth of the study area of radius of 10km and site location preferably on 1:50,000 scale. (including all eco-sensitive areas and environmentally sensitive places).
4.1.4	Latest High-resolution satellite image data having 1 m - 5 m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc., along with delineation of plant boundary co-ordinates. Area must include at least 100 m all around the project location.
4.1.5	Environment settings of the site and its surrounding along with map.
4.1.6	A list of major industries with name, products and distance from plant site within study area (10km radius) and the location of the industries shall be depicted in the study area map.
4.1.7	In case if the project site is in vicinity of the water body, 50 meters from the edge of the water body towards the site shall be treated as no development/construction zone. If it's near the wetland, Guidelines for implementing Wetlands (Conservation and Management) Rules, 2017 may be followed.
4.1.8	In case if the project site is in vicinity of the river, the industry shall not be located within the river flood plain corresponding to one in 25 years flood, as certified by concerned District Magistrate/Executive Engineer from State Water Resources Department (or) any other officer authorized by the State Government for this purpose as per the provisions contained in the MoEF&CC Office Memorandum dated 14/02/2022.
4.1.9	In case of canal/ nala/ seasonal drain and any other water body passing through project site, the PP shall submit the suitable steps /conservation plan/mitigation measures along with contouring, Run - off calculations, disposal etc. A robust and full proof Drainage Conservation scheme to protect the natural drainage/water bodies and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be provided in the report.

S. No	Terms of Reference
4.1.10	Type of land, land use of the project site needs to be submitted.
4.1.11	Status of acquisition of land. If acquisition is not complete, stage of the acquisition process as per the MoEF&CC O.M. dated 7/10/2014 shall be furnished.
4.1.12	Project proponent shall prepare Engineering layout plan showing all internal roads minimum 6 m width and 9 m turning radius for smooth traffic flow inside including fire tender as per NBC. Road network shall connect all service areas in layout. This drawing shall include area statement showing plot area, area under roads, parking, green belt with calculations and % with respect to plot area of project site and proper indexing. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
4.1.13	Project proponent shall submit contour map of project site along with drainage disposal system with calculations and drawings supported with proper indexing including Rain Water Harvesting details with calculations mentioning about GW recharge along with relevant drawing.
4.1.14	A detailed report covering all aspects of Fire Safety Management and Fire Emergency Plan shall be submitted.
4.1.15	Details of drone survey for the site, needs to be included in report and presented before the EAC during appraisal of the project.

4.2 Forest And Wildlife Related Issues (If Applicable)

S. No	Terms of Reference
4.2.1	Status of Forest Clearance for the use of forest land shall be submitted.
4.2.2	Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife if the project site located within notified Eco-Sensitive Zone, 10 km radius of national park/sanctuary wherein final ESZ notification is not in place as per MoEF&CC Office Memorandum dated 8/8/2019.
4.2.3	The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, Eco-sensitive Zone and Eco-sensitive areas, the project proponent shall submit the map duly authenticated by Divisional Forest Officer showing the distance between the project site and the said areas.
4.2.4	Wildlife Conservation Plan duly authenticated by the Competent Authority of the State Government for conservation of Schedule I fauna along with budget and action plan, if any exists in the study area.

4.3 Salient Features Of The Project

S. No	Terms of Reference
4.3.1	Products with capacities in Tons per Annum for the proposed project.
4.3.2	If expansion project, status of implementation of existing project, details of existing/proposed products with production capacities in Tons per Annum.

S. No	Terms of Reference
4.3.3	Site preparatory activities.
4.3.4	List of raw materials required and their source along with mode of transportation.
4.3.5	Other than raw materials, other chemicals and materials required with quantities and storage capacities.
4.3.6	Manufacturing process details along with process flow diagram of proposed units.
4.3.7	Consolidated materials and energy balance for the project.
4.3.8	Total requirement of surface/ ground water and power with their respective sources, status of approval.
4.3.9	Water balance diagram
4.3.10	Details of Emission, effluents, hazardous waste generation and mode of disposal during construction as well as operation phase.
4.3.11	Man-power requirement.
4.3.12	Cost of project and scheduled time of completion.
4.3.13	In case of expansion projects, project proponent shall submit structural stability certificate showing whether existing structure withstand for proposed expansion activity.
4.3.14	<p>Brief on present status of compliance (Expansion/modernization proposals) a. Cumulative Environment Impact Assessment for the existing as well as the proposed expansion/modernization shall be carried out. b. Cumulative Impact Assessment need to be carried out by greenfield projects considering the nearby industries. c. In case of ground water drawl for the existing unit, action plan for phasing out of ground water abstraction in next two years except for domestic purposes and shall switch over to 100 % use of surface water from nearby source. d. Copy of all the Environment Clearance(s) including Amendments/validity of extension/transfer of EC, there to obtained for the project from MoEF&CC/SEIAA shall be attached as Annexures. A Certified Compliance Report (CCR) of the Integrated Regional Office of the Ministry of Environment, Forest and Climate Change/ or concerned authority as per OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022 on the status of compliance of conditions stipulated in all the existing environment clearances including amendments shall be provided. A Certified Compliance Report (CCR) issued by the concerned Authority shall be valid for a period of one year from the date of inspection. e. In case the existing project has not obtained Environment Clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. A proper justification needs to be submitted along with documentary proof. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 1994 or 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of CTO from the Regional Office of the SPCB shall be submitted, as per OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022. CCR on CTO conditions issued by the concerned SPCBs/PCCs shall be valid for a period of one year from the date of inspection of the project.</p>

5. Description Of The Environment

S. No	Terms of Reference												
5.1	Study period												
5.2	<p>Approach and methodology for data collection as furnished below</p> <table border="1"> <thead> <tr> <th data-bbox="379 322 699 367">Attributes</th> <th data-bbox="724 322 916 367">Network</th> <th data-bbox="932 322 1139 367">Sampling Frequency</th> <th data-bbox="1251 322 1362 367">Remarks</th> </tr> </thead> <tbody> <tr> <td data-bbox="379 398 699 1039"> Air Environment Micro-Meteorological <ul style="list-style-type: none"> • Wind speed (Hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate </td> <td data-bbox="724 703 916 815"> Minimum 1 site in the project impact area </td> <td data-bbox="932 703 1139 770"> hourly continuous </td> <td data-bbox="1145 568 1474 2024"> IS 5182 Part 1-20 <ul style="list-style-type: none"> • Site specific primary data is essential • Secondary data from IMD, New Delhi • CPCB guidelines to be considered. • Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, • Raw data of all AAQ </td> </tr> <tr> <td data-bbox="379 1317 699 1778"> Pollutants <ul style="list-style-type: none"> • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area </td> <td data-bbox="724 1532 916 1599"> At least 8-12 locations </td> <td data-bbox="932 1464 1139 1644"> As per National Ambient Air Quality Standards, CPCB Notification. </td> <td></td> </tr> </tbody> </table>	Attributes	Network	Sampling Frequency	Remarks	Air Environment Micro-Meteorological <ul style="list-style-type: none"> • Wind speed (Hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate 	Minimum 1 site in the project impact area	hourly continuous	IS 5182 Part 1-20 <ul style="list-style-type: none"> • Site specific primary data is essential • Secondary data from IMD, New Delhi • CPCB guidelines to be considered. • Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, • Raw data of all AAQ 	Pollutants <ul style="list-style-type: none"> • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area 	At least 8-12 locations	As per National Ambient Air Quality Standards, CPCB Notification.	
Attributes	Network	Sampling Frequency	Remarks										
Air Environment Micro-Meteorological <ul style="list-style-type: none"> • Wind speed (Hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate 	Minimum 1 site in the project impact area	hourly continuous	IS 5182 Part 1-20 <ul style="list-style-type: none"> • Site specific primary data is essential • Secondary data from IMD, New Delhi • CPCB guidelines to be considered. • Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, • Raw data of all AAQ 										
Pollutants <ul style="list-style-type: none"> • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area 	At least 8-12 locations	As per National Ambient Air Quality Standards, CPCB Notification.											

S. No	Terms of Reference
	<p>measurement for 12 weeks of all stations as per frequency given in the NAAQM Notification of 16/11/2009 along with min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.</p> <p>Noise Hourly equivalent noise At least 8-12 levels per CPCB norms At least 8-12 locations</p> <p>Water Parameters for water quality</p> <ul style="list-style-type: none"> pH, temp, turbidity, magnesium hardness, total alkalinity, chloride, sulphate, nitrate, fluoride, sodium, potassium, salinity Total nitrogen, total phosphorus, DO, BOD, COD, Phenol Heavy metals Total coliforms, faecal coliforms Phyto plankton Zoo plankton <p>For River Bodies</p> <ul style="list-style-type: none"> Total Carbon pH Dissolved Oxygen Biological Demand Free NH4 Boron <p>Surface water quality of the nearest River (60m upstream and downstream) and other surface water bodies</p> <ul style="list-style-type: none"> Yield of water sources to be measured during critical season Standard methodology for collection of surface water (BIS standards) <p>Samples for water quality should be collected and analyzed as per:</p> <ul style="list-style-type: none"> IS: 2488 (Part 1-5) methods for sampling and testing of Industrial effluents Standard methods for examination of water and wastewater analysis published by American Public Health Association

S. No	Terms of Reference
	<ul style="list-style-type: none"> • Sodium Absorption Ratio • Electrical Conductivity <p>For Ground Water</p> <p>Ground water monitoring data should be collected at minimum of 8 locations (from existing wells /tube wells/existing current records) from the study area and shall be included.</p> <p>Traffic Study</p> <p>Type of vehicles</p> <ul style="list-style-type: none"> • Frequency of vehicles for transportation of materials • Additional traffic due to proposed project <p>Land Environment</p> <p>Soil</p> <ul style="list-style-type: none"> • Particle size distribution • Texture • pH • Electrical conductivity • Cation exchange capacity • Alkali metals • Sodium Absorption Ratio (SAR) • Permeability • Water holding capacity • Porosity <p>Soil samples be collected as per BIS specifications</p> <p>Land use/Landscape</p> <ul style="list-style-type: none"> • Location code • Total project area • Topography • Drainage (natural) <p>Cultivated, forest, plantations, water bodies, roads and settlements</p> <p>Biological Environment</p> <p>1. Aquatic</p> <ul style="list-style-type: none"> • Detailed description of flora and fauna (terrestrial and

S. No	Terms of Reference
	<ul style="list-style-type: none"> • Primary productivity • Aquatic weeds • Enumeration of phyto plankton, zoo plankton and benthos • Fisheries • Diversity indices • Trophic levels • Rare and endangered species • Marine Parks/ Sanctuaries/ closed areas /coastal regulation zone (CRZ) <p>2. Terrestrial</p> <ul style="list-style-type: none"> • Vegetation-species list, economic importance, forest produce, medicinal value • Importance value index (IVI) of trees • Fauna • Avi fauna • Rare and endangered species • Sanctuaries / National park / Biosphere reserve • Migratory routes <p>socio-economic Demographic structure</p> <ul style="list-style-type: none"> • Infrastructure resource base • Economic resource base • Health status: Morbidity pattern • Cultural and aesthetic attributes. <p>aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. Indicator species which indicate ecological and environment degradation should be identified and included to clearly state whether the proposed project would result in to any adverse effect on any species.</p> <ul style="list-style-type: none"> • Samples to collect from upstream and downstream of discharge point, nearby tributaries at downstream, and also from dug wells close to activity site. • For forest studies, direction of wind should be considered while selecting forests. • Secondary data to collect from Government offices, NGOs, published literature. <p>Socio-economic survey is based on proportionate, stratified and random sampling method.</p> <ul style="list-style-type: none"> • Primary data collection through questionnaire • Secondary data from census records, statistical hard books, topo sheets, health records and relevant official records available with Govt. agencies

S. No	Terms of Reference																								
	<ul style="list-style-type: none"> • Education <p>Approach and methodology for data collection as furnished below</p> <table border="1"> <thead> <tr> <th data-bbox="379 387 619 421">Attributes</th> <th data-bbox="724 409 831 443">Network</th> <th data-bbox="874 369 991 403">Sampling Frequency</th> <th data-bbox="1249 369 1362 398">Remarks</th> </tr> </thead> <tbody> <tr> <td data-bbox="379 450 576 479">Air Environment</td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="379 490 633 519">Micro-Meteorological</td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="389 553 663 1088"> <ul style="list-style-type: none"> • Wind speed (Hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate </td> <td data-bbox="724 752 919 853"> <p>Minimum 1 site in the project impact area</p> </td> <td data-bbox="919 786 1129 815"> <p>hourly continuous</p> </td> <td data-bbox="1142 620 1469 954"> <ul style="list-style-type: none"> IS 5182 Part 1-20 • Site specific primary data is essential • Secondary data from IMD, New Delhi • CPCB guidelines to be considered. </td> </tr> <tr> <td data-bbox="379 1341 496 1370">Pollutants</td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="389 1404 724 1789"> <ul style="list-style-type: none"> • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area </td> <td data-bbox="724 1547 919 1615"> <p>At least 8-12 locations</p> </td> <td data-bbox="919 1494 1139 1666"> <p>As per National Ambient Air Quality Standards, CPCB Notification.</p> </td> <td data-bbox="1142 1155 1469 2002"> <ul style="list-style-type: none"> • Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, </td> </tr> </tbody> </table>	Attributes	Network	Sampling Frequency	Remarks	Air Environment				Micro-Meteorological				<ul style="list-style-type: none"> • Wind speed (Hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate 	<p>Minimum 1 site in the project impact area</p>	<p>hourly continuous</p>	<ul style="list-style-type: none"> IS 5182 Part 1-20 • Site specific primary data is essential • Secondary data from IMD, New Delhi • CPCB guidelines to be considered. 	Pollutants				<ul style="list-style-type: none"> • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area 	<p>At least 8-12 locations</p>	<p>As per National Ambient Air Quality Standards, CPCB Notification.</p>	<ul style="list-style-type: none"> • Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests,
Attributes	Network	Sampling Frequency	Remarks																						
Air Environment																									
Micro-Meteorological																									
<ul style="list-style-type: none"> • Wind speed (Hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate 	<p>Minimum 1 site in the project impact area</p>	<p>hourly continuous</p>	<ul style="list-style-type: none"> IS 5182 Part 1-20 • Site specific primary data is essential • Secondary data from IMD, New Delhi • CPCB guidelines to be considered. 																						
Pollutants																									
<ul style="list-style-type: none"> • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area 	<p>At least 8-12 locations</p>	<p>As per National Ambient Air Quality Standards, CPCB Notification.</p>	<ul style="list-style-type: none"> • Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, 																						

S. No	Terms of Reference
	<p data-bbox="1150 232 1469 734"> <ul style="list-style-type: none"> Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAAQM Notification of 16/11/2009 along with min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report. </p> <p data-bbox="379 775 1134 875"> Noise Hourly equivalent noise At least 8-12 levels per CPCB norms locations </p> <p data-bbox="379 891 703 958"> Water Parameters for water quality </p> <ul data-bbox="389 994 1469 1592" style="list-style-type: none"> pH, temp, turbidity, magnesium hardness, total alkalinity, chloride, sulphate, nitrate, fluoride, sodium, potassium, salinity. Samples for water quality should be collected and analyzed as per: <ul style="list-style-type: none"> IS: 2488 (Part 1-5) methods for sampling and testing of Industrial effluents Standard methods for examination of water and wastewater analysis published by American Public Health Association Total nitrogen, total phosphorus, DO, BOD, COD, Phenol Heavy metals Total coliforms, faecal coliforms Phyto plankton Zoo plankton <p data-bbox="379 1630 576 1659"> For River Bodies </p> <ul data-bbox="389 1666 1469 1984" style="list-style-type: none"> Total Carbon pH Dissolved Oxygen Biological Demand Free NH4 <p data-bbox="724 1666 922 1984"> Surface water quality of the nearest River (60m upstream and downstream) and other surface water bodies </p> <ul data-bbox="932 1720 1469 1928" style="list-style-type: none"> Yield of water sources to be measured during critical season Standard methodology for collection of surface water (BIS standards)

S. No	Terms of Reference
	<ul style="list-style-type: none"> • Boron • Sodium Absorption Ratio • Electrical Conductivity <p>For Ground Water</p> <p>Ground water monitoring data should be collected at minimum of 8 locations (from existing wells /tube wells/existing current records) from the study area and shall be included.</p> <p>Traffic Study</p> <p>Type of vehicles</p> <ul style="list-style-type: none"> • Frequency of vehicles for transportation of materials • Additional traffic due to proposed project <p>Land Environment</p> <p>Soil</p> <ul style="list-style-type: none"> • Particle size distribution • Texture • pH • Electrical conductivity • Cation exchange capacity • Alkali metals • Sodium Absorption Ratio (SAR) • Permeability • Water holding capacity • Porosity <p>Soil samples be collected as per BIS specifications</p> <p>Land use/Landscape</p> <ul style="list-style-type: none"> • Location code • Total project area • Topography • Drainage (natural) <p>Cultivated, forest, plantations, water bodies, roads and settlements</p> <p>Biological Environment</p>

S. No	Terms of Reference
	<p>1. Aquatic</p> <ul style="list-style-type: none"> • Primary productivity • Aquatic weeds • Enumeration of phyto plankton, zoo plankton and benthos • Fisheries <p>Diversity indices</p> <ul style="list-style-type: none"> • Trophic levels • Rare and endangered species • Marine Parks/ Sanctuaries/ closed areas /coastal regulation zone (CRZ) <p>2. Terrestrial</p> <ul style="list-style-type: none"> • Vegetation-species list, economic importance, forest produce, medicinal value • Importance value index (IVI) of trees • Fauna • Avi fauna • Rare and endangered species • Sanctuaries / National park / Biosphere reserve • Migratory routes <p>socio-economic</p> <p>Demographic structure</p> <p>Socio-economic survey is based on proportionate, stratified and random sampling method.</p> <ul style="list-style-type: none"> • Infrastructure resource base • Economic resource base • Health status: Morbidity pattern • Cultural and aesthetic <ul style="list-style-type: none"> • Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. Indicator species which indicate ecological and environment degradation should be identified and included to clearly state whether the proposed project would result in to any adverse effect on any species. • Samples to collect from upstream and downstream of discharge point, nearby tributaries at downstream, and also from dug wells close to activity site. • For forest studies, direction of wind should be considered while selecting forests. • Secondary data to collect from Government offices, NGOs, published literature.

S. No	Terms of Reference
	<p>attributes.</p> <ul style="list-style-type: none"> • Education
5.3	<p>Interpretation of each environment attribute shall be enumerated and summarized as given below: • Ambient air quality • Ambient Noise quality • Surface water quality • Ground water quality • Soil quality • Biological Environment • Land use • Socio-economic environment</p>
5.4	<p>The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.</p>

6. Anticipated Environment Impacts And Mitigation Measures (In Case Of Expansion, Cumulative Impact Assessment Shall Be Carried Out)

S. No	Terms of Reference												
6.1	<p>Identification of potential impacts in the form of a matrix for the construction and operation phase for all the environment components</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Environment</th> <th>Ecological</th> <th>Socio-economic</th> </tr> </thead> <tbody> <tr> <td>Construction phase</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Operation phase</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Activity	Environment	Ecological	Socio-economic	Construction phase				Operation phase			
Activity	Environment	Ecological	Socio-economic										
Construction phase													
Operation phase													
6.2	<p>Impact on ambient air quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase • Details of stack emissions from the existing as well as proposed activity. • Assessment of ground level concentration of pollutants from the stack emission based on AQIP Modelling The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any along with wind rose map for respective period • Impact on ground level concentration, under normal, abnormal and emergency conditions. Measures to handle emergency situations in the event of uncontrolled release of emissions.</p>												
6.3	<p>Impact on ambient noise quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase</p>												
6.4	<p>Impact on traffic (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase</p>												
6.5	<p>Impact on soil quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase</p>												
6.6	<p>Impact on land use (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase</p>												
6.7	<p>Impact on surface water resource and quality (Sources; Embedded control measures; Assessment;</p>												

S. No	Terms of Reference
	Mitigation measures; Residual impact) a. Construction phase b. Operation phase
6.8	Impact on ground water resource and quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
6.9	Impact on terrestrial and aquatic habitat (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
6.10	Impact on socio-economic environment (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
6.11	Impact on occupational health and safety (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase

7. Analysis Of Alternatives (Technology & Site)

S. No	Terms of Reference
7.1	No project scenario
7.2	Site alternative
7.3	Technical and social concerns
7.4	Conclusion

8. Environmental Monitoring Program

S. No	Terms of Reference
8.1	Details of the Environment Management Cell
8.2	Performance monitoring schedule for all pollution control devices shall be furnished.
8.3	<p>Corporate Environment Policy</p> <p>a. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.</p> <p>b. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environment or forest norms / conditions? If so, it may be detailed in the EIA.</p> <p>c. What is the hierarchical system or Administrative order of the company to deal with the environment issues and for ensuring compliance with the environment clearance conditions? Details of this system may be given. Page 9 of 10</p> <p>d. Does the company have system of reporting of non compliances / violations of environment norms to the Board of Directors of the company and / or shareholders or stakeholders at large?</p>

S. No	Terms of Reference																		
	This reporting mechanism shall be detailed in the EIA report																		
8.4	Action plan for post-project environment monitoring matrix: <table border="1"> <thead> <tr> <th>Activity</th> <th>Aspect</th> <th>Monitoring Parameter</th> <th>Location</th> <th>Frequency</th> <th>Responsibility</th> </tr> </thead> <tbody> <tr> <td colspan="6">Construction phase</td> </tr> <tr> <td colspan="6">Operation phase</td> </tr> </tbody> </table>	Activity	Aspect	Monitoring Parameter	Location	Frequency	Responsibility	Construction phase						Operation phase					
Activity	Aspect	Monitoring Parameter	Location	Frequency	Responsibility														
Construction phase																			
Operation phase																			

9. Additional Studies

S. No	Terms of Reference															
9.1	Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage after offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitorable with defined time frames.															
9.2	Details of adoption/ implementation status/plan to achieve the goal of Glasgow COP26 Climate Submit with regard to enhance the non-fossil energy, use of renewable energy, minimization of net carbon emission and carbon intensity with long-term target of "net Zero" emission.															
9.3	Implementation status/measures adopted for avoiding the generation of single used plastic waste.															
9.4	In cases the project is located in Critically and Severely Polluted Areas, additional mitigation measures adopted and detailed action plan to be submitted in the EIA/EMP Report as per MoEF&CC O.M. No. 22-23/2028-IA.III dated 31/10/2019 and MoEF&CC O.M. No. 22-23/2028-IA.III dated 5/07/2022 has to be submitted.															
9.5	Public consultation details (Entire proceedings as separate annexure along with authenticated English Translation of Public Consultation proceedings).															
9.6	As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration. In this regard, time bound action plan as per the MoEF&CC Office Memorandum dated 30/09/2020 shall be submitted.															
9.7	Summary of issues raised during public consultation along with action plan to address the same as per MoEF&CC O.M. dated 30/09/2020 <table border="1"> <thead> <tr> <th rowspan="2">S.No</th> <th rowspan="2">Physical activity and action plan</th> <th colspan="3">Year of implementation (Budget in INR)</th> <th rowspan="2">Total Expenditure (Rs. in Crores)</th> </tr> <tr> <th>1st</th> <th>2nd</th> <th>3rd</th> </tr> </thead> <tbody> <tr> <td>Name of the Physical Activity</td> <td>of the Physical Targets</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	S.No	Physical activity and action plan	Year of implementation (Budget in INR)			Total Expenditure (Rs. in Crores)	1st	2nd	3rd	Name of the Physical Activity	of the Physical Targets				
S.No	Physical activity and action plan			Year of implementation (Budget in INR)				Total Expenditure (Rs. in Crores)								
		1st	2nd	3rd												
Name of the Physical Activity	of the Physical Targets															
9.8	Risk assessment															

S. No	Terms of Reference
	<ul style="list-style-type: none"> • Methodology • Hazard identification • Frequency analysis • Consequence analysis • Risk assessment outcome
9.9	Emergency response and preparedness plan

10. Project Benefits

S. No	Terms of Reference
10.1	Environment benefits
10.2	Social infrastructure
10.3	Employment and business opportunity
10.4	Other tangible benefits

11. Environment Cost Benefit Analysis

S. No	Terms of Reference
11.1	Net present value
11.2	Internal rate of return
11.3	Benefit cost ratio
11.4	Cost effectiveness analysis

12. Environment Management Plan (Construction And Operation Phase)

S. No	Terms of Reference
12.1	Air quality management plan
12.2	Noise quality management plan
12.3	Action plan for hazardous waste management
12.4	Action plan for solid waste management

S. No	Terms of Reference
12.5	Action plan for e-waste management.
12.6	Action plan for plastic waste management, considering the Plastic Waste Management Rules 2016.
12.7	Action plan for construction and demolition waste management.
12.8	Effluent management plan
12.9	Storm water management plan
12.10	Rain water harvesting plan
12.11	Plan for maximum usage of waste water/treated water in the Unit
12.12	Occupational health and safety management plan
12.13	Green belt development plan: An action plan for Green Belt development consisting of 3 tiers of plantations of native species all along the periphery of the project of adequate width shall be raised in 33% of total area with a tree density shall not less than 2500 per ha within a time frame of one year shall be submitted. Survival rate of green belt shall be monitored on periodic basis to ensure that survival rate not be less than 80 %.
12.14	Socio-economic management plan
12.15	Wildlife conservation plan (In case of presence of schedule I species)
12.16	Total capital cost and recurring cost/annum for environment pollution control measures shall be included.
12.17	Explore possibilities for recycling and reusing of treated water in the unit to reduce the freshwater demand and waste disposal.
12.18	An Action Plan for improving the house-keeping activities in the raw material handling area need to be submitted
12.19	Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.
12.20	Action plan to limit the dust emission from all the stacks below 30 mg/Nm ³ shall be furnished.
12.21	Action plan for fugitive emission control in the plant premises shall be provided.

13. Conclusion Of The Eia Study

S. No	Terms of Reference
13.1	No Data Found

14. In Addition To The Above, Any Litigation Pending Against The Project And/or Any Direction/order Passed By Any Court Of Law Against The Project, If So, Details Thereof Shall Also Be Included. Has The Unit Received Any Notice Under The Section 5 Of Environment (Protection) Act, 1986 Or Relevant Sections Of Air And Water Acts? If So, Details Thereof And Compliance/atr To The Notice(s) And Present Status Of The Case.

S. No	Terms of Reference
14.1	No Data Found

15. Air Cooled Condensers Shall Be Used In The Power Plant.

S. No	Terms of Reference
15.1	No Data Found

16. Details Of Dry Ash Handling System Along With Supplementary Coal Handling System Shall Be Submitted.

S. No	Terms of Reference
16.1	No Data Found

17. Plan For Transportation Of Coal Shall Be Submitted.

S. No	Terms of Reference
17.1	No Data Found

18. Plan Along With Technical Details Of Scr Shall Be Submitted.

S. No	Terms of Reference
18.1	No Data Found

19. In Case Of Expansion Project, Status Of Ash Utilization Of Previous Years (Up To 5 Years), Action Plan For 100% Ash Utilization Along With Timeline Need To Be Submitted

S. No	Terms of Reference
19.1	No Data Found

Standard Terms of Reference for (Metallurgical Industries (ferrous and non ferrous))

1.

S. No	Terms of Reference
1.1	A 3-D view i.e. DEM (Digital Elevation Model) for the area in 10 km radius from the proposal site.

S. No	Terms of Reference
	MRL details of project site and RL of nearby sources of water shall be indicated.
1.2	Plan for the implementation of the recommendations made for the proposed Unit in the Corporate Responsibility for Environmental Protection (CREP) guidelines.
1.3	Plan for solid wastes utilization.
1.4	Plan for utilization of energy in off gases (coke oven, blast furnace)
1.5	System of coke quenching adopted with full justification.
1.6	Details on environmentally sound technologies for recycling of hazardous materials, as per CPCB Guidelines, may be mentioned in case of handling scrap and other recycled materials.
1.7	Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
1.8	Details on toxic content using Toxicity Characteristic Leaching Procedure (TCLP), composition and end use of slag.
1.9	100 % dolo char generated in the plant shall be used to generate power.
1.10	Fourth Hole fume extraction system shall be provided for SAF.WHR system shall be installed to recover sensible heat from flue gases of EAF. Provision for installation of jigging and briquetting plant to utilise the fines generated in the process.
1.11	No tailing pond is permitted for Iron ore slimes. Dewatering and filtration system shall be provided.
1.12	Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.
1.13	Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be submitted.
1.14	Action plan to limit the particulate matter emission from all the stacks below 30 mg/Nm ³ shall be furnished.
1.15	Action plan for 100 % solid waste utilization shall be submitted.
1.16	PM (PM ₁₀ and P _{2.5}) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM ₁₀ to be carried over.
1.17	Emission/effluent norms as per G.S.R 894 (E) dated 4/12/2019 [EPA Rules 1986].

Additional Terms of Reference

(i) The plant falls inside the Polluted Industrial Area (PIA) of Jharsuguda. Presently considered as another polluted area (CEPI Score -37.20). PP need to submit an action plan to implement all action points related to the action plan prepared for Ib-Valley Jharsuguda PIA in 2020 and upgraded from time to time.

The environmental setting of the proposed project

S. No.	Particulars	Details	Remarks																											
i.	Total land	The total plant area is 1347.35 Hectare [Forest Land: 119.264, Private: 811.42 Ha, Govt.: 416.666 Ha] Proposed installation will be done in existing plant premises. Hence, no additional land is required.	Forest Clearance for 119.264 Hectare has been obtained vide F. No. 8-27/2009-FC dated 10 th Feb., 2011.																											
ii.	Land acquisition details as per MoEF&CC O.M. dated 7/10/2014	Land acquisition is carried out by the Odisha Industrial Infrastructure Development Corporation (IDCO), Govt. Of Odisha. On our application for 1347.35 Ha to IDCO, 1302.01 Ha have been allotted & leased out to Hindalco Industries Ltd. and the remaining 37.64 Ha Govt. Land and Private land of 7.70 Ha are in advanced stages of acquisition. Therefore, the Principal Secretary, Department of Industries, Govt. Of Odisha has issued a letter of assurance regarding the said land.	Principal Secretary, Department of Industries, Govt. Of Odisha has issued a letter of assurance regarding the said land.																											
iii.	Existence of habitation & involvement of R&R, if any.	<p>Plant Site: Nil Study Area: total 07 Villages are present in proximity (2 km radius) of the plant site.</p> <table border="1"> <thead> <tr> <th>Habitation</th> <th>Distance</th> <th>Direction</th> </tr> </thead> <tbody> <tr> <td>Bomaloi</td> <td>Adjacent to the plant site</td> <td>South</td> </tr> <tr> <td>Tileimal</td> <td>0.3</td> <td>SE</td> </tr> <tr> <td>Sadhapali</td> <td>0.3</td> <td>East</td> </tr> <tr> <td>Khadiapali</td> <td>0.3</td> <td>WNW</td> </tr> <tr> <td>Derba</td> <td>0.6</td> <td>NE</td> </tr> <tr> <td>Gumakarma</td> <td>1.1</td> <td>North</td> </tr> <tr> <td>Dharopani</td> <td>1.5</td> <td>ESE</td> </tr> </tbody> </table> <p>Total 42 villages are present within the 10 km radius of the study area.</p>	Habitation	Distance	Direction	Bomaloi	Adjacent to the plant site	South	Tileimal	0.3	SE	Sadhapali	0.3	East	Khadiapali	0.3	WNW	Derba	0.6	NE	Gumakarma	1.1	North	Dharopani	1.5	ESE	-			
Habitation	Distance	Direction																												
Bomaloi	Adjacent to the plant site	South																												
Tileimal	0.3	SE																												
Sadhapali	0.3	East																												
Khadiapali	0.3	WNW																												
Derba	0.6	NE																												
Gumakarma	1.1	North																												
Dharopani	1.5	ESE																												
iv.	Latitude and Longitude of the project site	<table border="1"> <thead> <tr> <th>S. No.</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;"><i>Plant Site</i></td> </tr> <tr> <td>1</td> <td>21°44'34.59"N</td> <td>84° 2'11.86"E</td> </tr> <tr> <td>2</td> <td>21°44'41.63"N</td> <td>84° 3'54.05"E</td> </tr> <tr> <td>3</td> <td>21°44'25.32"N</td> <td>84° 4'5.78"E</td> </tr> <tr> <td>4</td> <td>21°43'25.81"N</td> <td>84° 4'6.09"E</td> </tr> <tr> <td>5</td> <td>21°42'57.29"N</td> <td>84° 3'5.11"E</td> </tr> <tr> <td>6</td> <td>21°42'56.87"N</td> <td>84° 2'48.51"E</td> </tr> <tr> <td colspan="3" style="text-align: center;"><i>Township</i></td> </tr> </tbody> </table>	S. No.	Latitude	Longitude	<i>Plant Site</i>			1	21°44'34.59"N	84° 2'11.86"E	2	21°44'41.63"N	84° 3'54.05"E	3	21°44'25.32"N	84° 4'5.78"E	4	21°43'25.81"N	84° 4'6.09"E	5	21°42'57.29"N	84° 3'5.11"E	6	21°42'56.87"N	84° 2'48.51"E	<i>Township</i>			-
S. No.	Latitude	Longitude																												
<i>Plant Site</i>																														
1	21°44'34.59"N	84° 2'11.86"E																												
2	21°44'41.63"N	84° 3'54.05"E																												
3	21°44'25.32"N	84° 4'5.78"E																												
4	21°43'25.81"N	84° 4'6.09"E																												
5	21°42'57.29"N	84° 3'5.11"E																												
6	21°42'56.87"N	84° 2'48.51"E																												
<i>Township</i>																														

S. No.	Particulars	Details			Remarks															
		7	21°43'36.65"N	84° 2'23.77"E																
		8	21°43'22.59"N	84° 2'30.21"E																
		9	21°43'0.87"N	84° 1'52.22"E																
		10	21°43'33.13"N	84° 1'22.43"E																
		11	21°43'37.50"N	84° 1'39.84"E																
		Ash Pond & RW reservoir Site																		
		13	21°40'48.90"N	84° 5'29.78"E																
		14	21°40'49.95"N	84° 6'0.95"E																
		15	21°40'27.97"N	84° 6'29.28"E																
		16	21°40'6.98"N	84° 6'15.68"E																
		17	21°39'53.08"N	84° 6'28.48"E																
		18	21°39'28.93"N	84° 6'12.85"E																
		19	21°39'30.14"N	84° 5'21.03"E																
		20	21°40'31.20"N	84° 4'29.63"E																
		21	21°40'17.66"N	84° 5'35.00"E																
		R&R Colony																		
		22	21°41'48.42"N	84° 2'37.34"E																
		23	21°41'44.51"N	84° 2'46.55"E																
		24	21°41'40.07"N	84° 2'42.22"E																
		25	21°41'34.69"N	84° 2'23.76"E																
		26	21°41'41.33"N	84° 2'19.71"E																
		27	21°41'43.85"N	84° 2'19.88"E																
		31	21°43'57.78"N	84° 2'25.27"E																
		32	21°44'18.27"N	84° 2'22.11"E																
		33	21°44'28.16"N	84° 2'14.11"E																
v.	Elevation of the project site	The elevation of the project site ranges from 210 m - 242 m AMSL.			-															
vi.	Involvement of Forest land if any.	Forest Clearance for 119.264 Hectare has been obtained vide F. No. 8-27/2009-FC dated 10 th Feb., 2011.			-															
vii.	Water body exists within the project site as well as study area	Plant Site: <table border="1"> <thead> <tr> <th>Water body</th> <th>Distance</th> <th>Direction</th> </tr> </thead> <tbody> <tr> <td>Seasonal Nallah</td> <td>Stream is Originating from the plant area near solar plant.</td> <td>SW direction from the main plant site.</td> </tr> <tr> <td>Seasonal Nallah</td> <td>Passing through the raw water reservoir area</td> <td>Western project boundary</td> </tr> <tr> <td>Matwali Nala</td> <td>Passing near the raw water reservoir area.</td> <td>NE project boundary</td> </tr> </tbody> </table> Study Area: <table border="1"> <thead> <tr> <th>Water body</th> <th>Distance</th> <th>Direction</th> </tr> </thead> <tbody> </tbody> </table>			Water body	Distance	Direction	Seasonal Nallah	Stream is Originating from the plant area near solar plant.	SW direction from the main plant site.	Seasonal Nallah	Passing through the raw water reservoir area	Western project boundary	Matwali Nala	Passing near the raw water reservoir area.	NE project boundary	Water body	Distance	Direction	-
Water body	Distance	Direction																		
Seasonal Nallah	Stream is Originating from the plant area near solar plant.	SW direction from the main plant site.																		
Seasonal Nallah	Passing through the raw water reservoir area	Western project boundary																		
Matwali Nala	Passing near the raw water reservoir area.	NE project boundary																		
Water body	Distance	Direction																		

S. No.	Particulars	Details			Remarks
		Hirakud Reservoir (Ramsar Wetland)	2.0 km	SW direction	
		Bhedan River	3.5 km	NW direction	
		Makarkurha Nala	5.0 km	SSE direction	
		Kharkhari Nala	5.5 km	NNW direction	
		Telen Nadi	6.5 km	NE direction	
		Bhima Jor	6.0 km	ENE direction	
		Majir Jor	7.5 km	SE direction	
		Sankri Nala	9.0 km	South direction	
		IB River	9.0 km	West direction	
viii.	Existence of ESZ/ ESA/ National park / Wildlife sanctuary/ Biosphere reserve/ Tiger reserve/ Elephant reserve etc. if any within the study area.	There is no ESZ/ ESA/ National park / Wildlife sanctuary/ Biosphere reserve/ Tiger reserve/ Elephant reserve etc. within the study area. Other than the above, there are 10 RF within the 10 km radius study area.			-

The unit configuration and capacity of existing and proposed project is given as below:

S. No.	Plant Equipment/ Facility		Existing Facilities as per EC dated 29 th Nov., 2012 and subsequent amendment dated 14 th June 2013 and 14 th Aug., 2018 and NIPL dated 20 th Dec., 2021 and 22 nd March, 2024				Proposed Units	Final (Existing + Proposed)	Remarks	
			Total (A + B)	Implemented (A)	Unimplemented (B)	Under /to be implemented				As per CTO
1.	Aluminium Smelter	Configuration (no.)	720 Pots	360 Pots (2 x 180)	360 Pots	-	360 Pots (2 x 180)	180 Pots	540 Pots	*NIPL for 1 LTPA Recycled metal has been obtained on 22 nd March 2024. Under implementation as per CTE dated 25.07.2024.
		Capacity (LTPA)	7.4	3.8	3.6	-	3.8	2.0 + 1.0 (Recycled metal)* = 3.0	6.8	
2.	Captive Power Plant	Configuration (MW)	11 x 150	6 x 150	5 x 150	-	6 x 150	1 x 180 (Gas/ Oil based) + 1 x 150 (Coal Based)	7 x 150 (Coal Based) + 1 x 180 (Gas/ Oil based)	180 MW - Gas/Oil fired Turbine-based Combine Cycle Power Plant & 150 MW - Coal based Thermal Power Plant (for emergency backup only).
		Capacity (MW)	1650	900	750	-	900	330 - Emergency Power	1230	
3.	FRP Plant	Configuration (LTPA)	2 x 1.70	-	-	2 x 1.70	-	-	2 x 1.70	NIPL obtained on 20 th Dec. 2021. Under implementation as per CTE dated 06 th Jan., 2022
		Capacity (LTPA)	3.4	-	-	3.4	-	-	3.4	

S. No.	Plant Equipment/ Facility		Existing Facilities as per EC dated 29 th Nov., 2012 and subsequent amendment dated 14 th June 2013 and 14 th Aug., 2018 and NIPL dated 20 th Dec., 2021 and 22 nd March, 2024				Proposed Units	Final (Existing + Proposed)	Remarks
			Total (A + B)	Implemented (A)	Unimplemented (B)	Under /to be implemented			
4.	WFA Plant	Configuration (LTPA)	1x 0.6 + 1 x 0.3	-	-	1x 0.6 + 1 x 0.3	-	-	NIPL obtained on 22.03.2024 . Under implementation as per CTE dated 25.07.2024 .
		Capacity (LTPA)	0.9	-	-	0.9	-	-	

