

**SUMMARY ON
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT**

OF

Prakash Industries Ltd.

[Proposed Expansion of Steel Plant - Establishment of New Iron Ore Beneficiation (1.0 MTPA), New Iron Ore Pelletisation Unit (1.5 MTPA), New Coal Gasifier for Pellet Plant (5 x 8000 Nm³/hr), New Coal Washery (2 x 1.0 MTPA), New Wire Rod /TMT Mill (4 x 0.25 MTPA), New Coal Gasifier for Wire Rod / TMT Mill (5 x 8000 Nm³/hr.), Expansion FBC Based Power Plant (162.5 MW to 165 MW) & Expansion of Oxygen Plant (8.0 TPD to 16 TPD)]

at

**Villages: Hathneora, Champa Tehsil,
District: Janjgir – Champa, Chhattisgarh**

Submitted to

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD



1.0 PROJECT DESCRIPTION

Prakash Industries Limited is proposed to expand the existing steel plant at Hathneora Village, Champa Tehsil, Janjgir-Champa District, Chhattisgarh.

Chronology of permission obtained:

- Environmental Clearance has been obtained from MoEF vide F.No. J-11011/522/2008-IA II (I) dated 03.11.2010 which was valid till 02.11.2017.
- Consent to Establish and Consent to Operate from Chhattisgarh Environment Conservation Board (CECB) have also been issued for the operating units.
- Extension of validity of Environmental clearance has been accorded by MoEF&CC for further period of 3 years i.e. up to 02.11.2020.
- Latest CTO accorded by Chhattisgarh Environment Conservation Board (CECB) is valid till 16.02.2025.

Proposed Project

Now company proposed to expand the existing steel plant comprising of New Iron Ore Beneficiation (1.0 MTPA), New Iron Ore Pelletisation Unit (1.5 MTPA), New Coal Gasifier for Pellet Plant (5 x 8000 Nm³/hr), New Coal Washery (2 x 1.0 MTPA), New Wire Rod /TMT Mill (4 x 0.25 MTPA), New Coal Gasifier for Wire Rod / TMT Mill (5 x 8000 Nm³/hr.), Expansion FBC Based Power Plant (162.5 MW to 165 MW) & Expansion of Oxygen Plant (8.0 TPD to 16 TPD).

As per the Ministry of Environment, Forests & Climate Change, New Delhi, EIA notification dated 14th September, 2006 & its subsequent amendments, all Primary metallurgical processing industries are listed under S.No. 3(a), under Category 'A'.

In order to obtain Environmental Clearance for the proposed expansion of Steel plant, Form-I, proposed TOR along with Pre-Feasibility Report were submitted to the Honourable Ministry of Environment, Forests & Climate Change (MoEF&CC), New Delhi on 25th Apr 2022. Accordingly, Standard TOR has been issued for the proposed expansion of steel plant vide No. J-11011/522/2008-IA.II(I) dated 28th Apr 2022. Subsequently, Draft EIA report has been prepared incorporating the Terms of Reference issued & report is being submitted to Chhattisgarh Environment Conservation Board (CECB) for conducting Public hearing / consultation.



Pioneer Enviro Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. NABET/EIA/1922/SA0148, for preparing Environmental Impact Assessment (EIA) report for Metallurgical Unit, has prepared EIA report for the proposed project.

This report furnishes the details of location of Site, Description of the project, prevailing baseline status w.r.t Air Environment, Water Environment, Noise Environment, Land Environment, Flora & Fauna and Socio-economic environment. This report also helps in identification of environmental impacts and suggesting mitigation measures to be followed during Construction and Operation of the proposed project as a part of Environmental Management Plan. This report also acts as guidance manual for the proponent for following the Environmental Management Plan (EMP) and for adopting post project Environmental Monitoring Program as per statutory norms.

1.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE

The following is the environmental setting within the 10 Km. radius of the Plant site:

Table No.1.1: Environment Setting Within 10 Kms. Radius of the Plant Site

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land	Existing Plant (Industrial land)
2.	Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements – 6.9 %; Industrial Area- 3.4 %; , Tank / River / Major Canal etc. – 11.8 %; Single crop land – 54.1 %; Double Crop Land – 14.4 %; Land with scrub – 3.2 %; Land without scrub – 1.3 %; Gullied land – 4.9 %.
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	There are no notified National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve/ migratory routes for Birds with in 10 Km. radius of the plant.
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Critically polluted area as per MoEF&CC Office Memorandum dated 13 th January 2010	Nil And also the Plant area does not fall in the areas given in Hon'ble NGT order issued vide dated 10 th July 2019.
6.	Defence Installations	Nil
7.	Nearest village	Kotadabri (adjacent to plant)



S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
8.	No. of Villages in the Study Area	66 nos.
9.	Nearest Hospital	Nearest Hospital is at Champa at 2.3 Kms.
10.	Nearest School	Nearest School is at Champa Village at 1.8 Kms.
11.	Forests	Nil
12.	Water body	Hasdeo River (0.14 Kms.) Son Nadi (8.0 Kms.) exists within the study area.
13.	Nearest Highway	National Highway # 200 (0.5 Kms.)
14.	Nearest Railway Station	Champa Railway Station (4.0 Kms.)
15.	Nearest Port facility	Nil
16.	Nearest Airport	Raipur Airport – 180 Kms. (Aerial)
17.	Nearest Interstate Boundary	Nil within 15 Km. radius
18.	Seismic zones as per IS-1893	Seismic zone – II
19.	R & R	Not applicable as there are no habitations in the additional land proposed for expansion.
20.	Litigation / court case is pending against the proposed project / proposed site and or any direction passed by the court of law against the project	Nil



1.2 PLANT CONFIGURATION AND PRODUCTION CAPACITY

Following is plant configuration and production capacity proposed now

TABLE NO. 1.2: Plant Configuration and Production Capacity (Existing & Proposed)

S.No.	Details of Unit	Capacity under operation	Proposed Expansion	After Proposed Expansion
1.	Sponge Iron Plant (DRI Plant)	1.2 MTPA	--	1.2 MTPA
2.	Captive Power Plant			
	a) Co-generation Power Plant (WHRB)	75 MW	--	75 MW
	b) Coal based power plant	162.5 MW	2.5 MW	165 MW
	Total	237.5 MW	2.5 MW	240 MW
3.	Billets/Blooms/ Ingots IF-AOD-LRF / BF – EAF - LD Converter route	1.25 MTPA	--	1.25 MTPA
4.	Ferro Alloys	1,15,000 TPA (9 x 7.5 MVA)	---	1,15,000 TPA (9 x 7.5 MVA)
5.	Oxygen Plant	8 TPD	8 TPD (2x4 TPD)	16 TPD
6.	Iron Ore Beneficiation Plant	---	1.0 MTPA	1.0 MTPA
7.	Iron Ore Pelletization Plant	---	1.5 MTPA	1.5 MTPA
8.	Coal Gasifier for Wire Rod / TMT Mill	---	5 x 8000 Nm ³ /hr.	5 x 8000 Nm ³ /hr.
9.	Coal Washery	---	2.0 MTPA (2x1.0 MTPA)	2.0 MTPA (2x1.0 MTPA)
10.	Wire Rod/ TMT Mills	---	1.0 MTPA (4x0.25 MTPA)	1.0 MTPA (4x0.25 MTPA)
11.	Coal Gasifier for Wire Rod / TMT Mill	---	5 x 8000 Nm ³ /hr.	5 x 8000 Nm ³ /hr.

**1.3 RAW MATERIALS (FOR EXPANSION PROJECT)**

The following will be the raw material requirement for the proposed expansion project:

TABLE NO. 1.3: RAW MATERIAL REQUIREMENT, SOURCE & MODE OF TRANSPORT

S.No.	Raw Material	Quantity (TPA)	Sources	Mode of Transport
1.	For I/O Beneficiation Plant (Iron Ore) – 1.0 MTPA			
a)	Iron Ore Fines	10,00,000	Open market & in house generation through screening at Champa and Company's own mines	By Rail & Road through covered trucks
2.	For Pellet Plant (Pellets) – 1.5 MTPA			
a)	Iron ore Concentrate	9,50,000 5,95,000	In house generation through screening at Champa and Company's own mines	In house arrangements By Road through covered trucks
b)	Bentonite	12,000	Kutchh & Bhuj (Gujrat)	By Rail & Road through covered trucks
c)	Anthracite Coal / Coke Breeze	22,500	Open market and coke producers	By Rail & Road through covered trucks
d)	Dolomite / Limestone	15,000	Open market	By Rail & Road through covered trucks
e)	Coal for Gasifier (4 x 8000 Nm ³ /Hr)	45000	SECL, Chhattisgarh	By Road through covered trucks
3.	For Coal Washery – 2x1.0 MTPA			
a)	Coal	20,00,000	Linkage from Coal India Ltd & Commercial coal block at Bhaskarpara allotted to us	By Rail & Road through covered trucks
4.	Wire Rod /TMT Mills – 4 x 0.25 MTPA			
a)	Steel Billets	10,70,000	Steel Melting Shop	Through Hot Billet Conveyors attached with Continuous Caster in Steel Melting Shop
b)	Coal for Gasifier (4 x 8000 Nm ³ /Hr)	45000	SECL, Chhattisgarh	By Road through covered trucks

1.4 MANUFACTURING PROCESS**1.4.1 Iron Ore Beneficiation**

Beneficiation is a process which removes the gang particle like Alumina, Silica from the Iron Ore. Basically, it separates Fe₂O₃ or Fe₃O₄ from other impurities in the iron ore. In this process the Fe content is improve to maximum possible extent. The highest can be 70% i.e. purest form.



1.4.2 Manufacturing of Pellets

Iron ore fines will be grinded in Ball mills. The concentrate will be fed to thickener and subsequently to filtering unit. The filter cake will be sent to pellet plant comprising of Travelling grate kiln. Green pellets will be produced from this process. The flue gases from grate kiln will be treated in ESP and discharged through a stack.

1.4.3 Manufacturing of Wire Rod / TMT through Rolling Mill

Wire Rod/ TMT Mills will be installed in the plant to produce 1.0 mtpa of Wire Rod/ TMT bars / Rolled Products. 85% of the Hot Billets produced in Induction furnaces will be directly sent to Rolling Mill to produce Wire Rod & TMT (OR) remaining MS Billets / MS Ingots produced in Induction furnace will be sent to reheating furnace for the heating and will be sent to Rolling Mill. Furnace will be heated with Producer Gas.

1.4.4 Producer Gas plant (Gasifier)

Producer gas plant is proposed to be established for supply fuel to Wire Rod/ TMT Mills. Coal is lifted to the coal storage bin by lifting system; the coal is added in the carbonation stage of two-stage coal gasifier by a programmable control feeding system. Air is blown in the bottom of furnace by air blower, at the same time, low pressure steam goes through the blending bin and blends with air, becomes the gasification agent, which will carry on the gasification reaction with 1200 Celsius degree semi coke in the gasification stage.

1.4.5 Power Generation

Through Existing AFBC Power plant

Enhancement in Power generation capacity of the FBC boiler (i.e. FBC # 1) from 12.5 MW to 15.0 MW, thus resulting in total FBC Power generation from 162.5 MW to 165.0 MW.

M/s. PIL has presently installed 162.5 MW power generation capacity from coal based captive power plant from FBB-1, FBB-2, 3, 4, 5, 6 & 7. The Coal Char generated from the Sponge Iron plant is being utilized in power generation from these AFBC boilers for Conservation of Energy. FBB-1 boiler is of 65 TPH capacity and we are generating 12.5 MW from FBB-1 boiler however, there is a potential to increase power generation in this boiler from 12.5 MW to 15 MW by installation of efficient TG set of lower Specific steam consumption.



1.4.6 Coal Washery

Coal washery comprises of coal crushing & screening and washing of coal to produce clean coal with ash content less than 34%. Wet type of coal washery is proposed as it will have lesser environmental problems compared to the dry type of washery and to suit to client's specific requirement of lower ash content. Closed loop water system is proposed in the process. Zero effluent discharge will be maintained in the proposed project.

The process consists of crushing of the ROM coal in a single toothed roll crusher. The crushed coal is then washed in Zig to produce clean coal and middling with the help of water stream and air pressure.

1.5 Water Requirement

- In the existing plant, total water requirement for all the units is 28,235 m³/day and same is being sourced from Hasdeo river.
- The total waste water generation from the existing plant is 5,850 m³/day, which is being treated in ETP and being recycled & reutilized in the process, road cleaning and dust suppression, ash conditioning and for greenbelt development.
- Hence net fresh water is being drawn from the Hasdeo river in the existing plant is (28,235 – 5,850) 22,385 m³/day.
- Total water requirement in the proposed expansion project is 1751 m³/day, which will also be sourced from the Hasdeo river.
- The total waste water generation from the proposed expansion is 162 m³/day approximately. We are recycling & reusing 162 m³/day of treated wastewater in the process, road cleaning, dust suppression system, horticulture and Greenbelt development.
- Hence net fresh water is being drawn from the Hasdeo river in the expansion project is (1751 – 162) 1589 m³/day.
- The total water requirement of existing & proposed project is 30,486 m³/day & considering use of about 6,412 m³ /day of treated effluent balance need of water is 24,074 m³/day.
- Existing plant is already having Water drawl permission from Water Resources Department, Chhattisgarh for 28,000 m³ /day which is sufficient for the proposed projects.

**TABLE NO.1.4: Break Up of Water Consumption (Existing & Proposed)**

S.No.	Name of Units	Water requirement (m ³ /day)		
		For existing plant	For Expansion project	After Expansion Project
1	Sponge Iron Division (Kiln- 1 to 6)	3120	----	3120
2	Captive Power Plant (WHRB)	6540	----	6540
	Coal based power plant	14700	----	14700
3	SAFs (SAF-1 to 9)	900	----	900
4	IFDs (Furnace 1 to 35)	2275	----	2275
5	Air Compressor cooling	700	----	700
6	Oxygen Plant	----	6	6
7	Iron Ore Beneficiation Plant	----	300	300
8	Iron Ore Pelletization Plant	----	780	780
9	Coal Washery	----	460	460
10	Wire Rod / TMT Mills	----	140	140
11	Domestic	500	65	565
Total		28735	1751	30,486

The total water requirement of existing & proposed project is **30,486 m³/day** & considering use of about **6,412 m³ /day** of treated effluent balance need of Fresh water requirement will be **24,074 m³/day**.

1.6 Waste Water Generation

Existing

- The total waste water generation from the existing plant is 5,850 m³/day.
- There is no wastewater discharge from the existing plant as Closed circuit cooling system is being adopted.
- Boiler blowdown & DM plant regeneration wastewater is being treated in Neutralization tanks and is being mixed in a Central Monitoring Basin (CMB). The treated effluent from CMB is being utilized for dust suppression, ash conditioning and for greenbelt development.
- Effluent from Rolling mill is being treated in an oil separator followed by settling tank. The treated effluent is recycled back.
- Sanitary wastewater, which is being treated in Septic tank followed by Soak pit.
- Zero liquid effluent discharge is being maintained in the existing plant.

Proposed

- The total waste water generation from the existing plant is 162 m³/day.



- There will be no wastewater discharge from the DRI Unit, Induction Furnace Unit, Ferro Alloys & Coal Washery as closed-circuit cooling system will be adopted.
- Effluent from Rolling mill will be sent to oil separator followed settling tank and will be recycled through closed circuit cooling system.
- Effluent from power plant will be treated in ETP and after ensuring compliance with CECB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development.
- Air cooled condenser will be provided in the power plant, which will reduce the water consumption significantly. Hence wastewater generation will be also be minimized.
- During monsoon the treated effluent will be utilized as makeup water in Rolling Mill. Accordingly, the makeup water for Rolling mill also reduces during the rainy period.
- To treat the domestic waste water in existing plant, we have installed Sewage Treatment Plant (STP) of capacity 500 m³/day. Presently, we are using Sewage Treatment Plant for treatment of 400 m³/day. Treated sewage is being used for green belt development, dust suppression. The generation of domestic wastewater will 50 m³/day approximately from expansion of project. Thus, total generation sewage water will 450 m³/day. The treated sewage after expansion will be utilized for greenbelt development, dust suppression. Zero liquid Discharge will be maintained after the proposed expansion also.
- 2 nos. of Effluent Treatment Plants (ETP) of capacity 5500 m³/day and 19200 m³/day respectively has been installed in the existing plant for treatment of wastewater/effluent. Closed Circuit cooling system is adopted in the existing plant. Zero liquid Discharge is being maintained in the existing plant.
- Zero liquid effluent discharge practice will be continued in the proposed expansion also.
- The Breakup of the wastewater generation is shown below

TABLE NO.1.5: BREAKUP OF WASTE WATER GENERATION

S.No.	Source	Wastewater Generation (KLD)		
		From Existing plant	From Proposed Expansion	After Proposed Expansion
1.	Sponge Iron Division (Kiln- 1 to 6)	450	---	450
2.	Captive Power Plant (WHRB)	1600	---	1600
	Coal based power plant	2875	---	2875
3.	SAFs (SAF-1 to 9)	10	---	10
4.	IFDs (Furnace 1 to 35)	910	---	910
5.	Air Compressor cooling	5	---	5



6.	Oxygen Plant	---	Nil	Nil
7.	Iron Ore Beneficiation Plant	---	25	25
8.	Iron Ore Pelletization Plant	---	50	50
9.	Coal Washery	---	30	30
10.	Wire Rod / TMT Mills	---	7	7
11.	Domestic	400	50	450
	Total	6250	162	6412

1.7 Wastewater Characteristics

The following are the Characteristics of waste water

TABLE NO.1.6: CHARACTERISTICS OF WASTEWATER

PARAMETER	CONCENTRATION			
	DM plant regeneration	Boiler blowdown	Cooling Tower blowdown	Sanitary waste water
pH	4 – 10	9.5 – 10.5	7.0 – 8.0	7.0 – 8.5
BOD (mg/l)	--	--	--	200 – 250
COD (mg/l)	--	--	--	300 – 400
TDS (mg/l)	5000 -6000	1000	1000	800 – 900
Oil & Grease (mg/l)	--	10	--	--

2.0 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, flora and fauna and socio-economic details of people within 10 km radius of the plant.

2.1 Ambient air quality

Ambient air quality was monitored for PM_{2.5}, PM₁₀, SO₂, NO_x & CO at 8 stations including project site during **1st March 2022 to 31st May 2022**. The following are the concentrations of various parameters at the monitoring stations:

TABLE NO.2.1: AAQ DATA SUMMARY

S.No.	Parameter		Concentration
1.	PM _{2.5}	:	27.5 to 46.5 µg/m ³
2.	PM ₁₀	:	45.8 to 77.6 µg/m ³
3.	SO ₂	:	10.1 to 20.2 µg/m ³
4.	NO _x	:	11.1 to 31.5 µg/m ³
5.	CO	:	950 to 1525 µg/m ³



2.2 Water Quality

2.2.1 Surface Water Quality

Hasdeo River (0.14 Kms.), Son Nadi (8.0 Kms.) exists within the study area. 2 No. of samples are collected from each Hasdeo River, Son Nadi. No other water sample is collected as water is not available during the study period and analyzed for various parameters. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

2.2.2 Ground Water Quality

8 No. of ground water samples from open wells / bore wells were collected from the nearby villages to assess ground water quality impacts and analyzed for various Physico-Chemical parameters. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

2.3 Noise Levels

Noise levels were measured at 8 locations during Day time & Night time. The noise levels at the monitoring stations are ranging from **49.1 dBA to 68.4 dBA**.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 Prediction of impacts on air quality

The predicted max. incremental PM, SO₂, NO_x & CO concentrations (24 hourly) due to the emissions from operation of proposed expansion project are shown below

TABLE NO.3.1

NET RESULTANT MAXIMUM CONCENTRATIONS DURING THE OPERATION OF THE PROPOSED EXPANSION PROJECT

Item	PM ₁₀ (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (µg/m ³)
Maximum baseline conc. in the study area	77.6	20.2	31.5	1525
Maximum predicted incremental rise in concentration due to proposed expansion of PIL	0.72	2.85	2.50	3.19
Maximum predicted incremental rise in concentration due to Vehicular Emissions from the proposed expansion project	0.65	---	4.99	---
Net resultant concentrations during operation of the plant	78.97	23.05	38.99	1,528.19
National Ambient Air Quality Standards	100	80	80	2000



The net resultant Ground level concentrations during operation of the expansion project are within the NAAQS. Hence there will not be any adverse impact on air environment due to the proposed expansion project.

3.2 Prediction of impacts on Noise quality

The major sources of noise generation in the proposed project will be STG, boilers, compressors, DG set, etc. Acoustic enclosures will be provided to the STG. The ambient noise levels will be within the standards prescribed by MoEF vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. **127.6 Ha. (315.30 acres)** of extensive greenbelt has already been developed to further attenuate the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

3.3 Prediction of impacts on Water Environment

There will be no wastewater discharge from the Iron ore beneficiation, Pellet & Coal Washery as closed-circuit cooling system will be adopted. Effluent from Rolling mill will be sent to oil separator followed settling tank and will be recycled through closed circuit cooling system. Effluent from power plant will be treated in ETP and after ensuring compliance with CECB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development. Sanitary waste water will be treated in existing STP. Garland drains will be provided around all the raw material stacking areas. ZLD will be followed. Hence there will not be any adverse impact on environment due to the proposed expansion project.

3.4 Prediction of Impacts on Land Environment

The effluent will be treated to achieve SPCB standards. Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / SPCB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. **127.6 Ha. (315.30 acres)** of extensive greenbelt has already been developed as per guidelines. Hence, there will not be any adverse impact on land environment due to the proposed expansion project.



3.5 Socio - Economic Environment

There will be further upliftment in Socio Economic status of the people in the area. Hence, there will be further development of the area due to the proposed expansion project.

Due to this the economic conditions, the educational and medical standards of the people living in the study area will certainly move upwards which will result in overall economic development, improvement in general aesthetic environment and increase in business opportunities.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of SPCB and MoEF&CC are tabulated below:

Table no.4.1: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Quarterly Once	Grab sampling	As per IS: 10500
B.	Effluent at the inlet & outlet of the ETP	Once in a month	Composite sampling	As per EPA Rules, 1996
C.	Sanitary Wastewater (inlet & outlet of STP)	Once in a month	Composite sampling	As per EPA Rules, 1996
2. Air Quality				
A.	Stack Monitoring	CEMS (all Stacks) Once in a month	-- --	PM, SO ₂ & NO _x PM, SO ₂ & NO _x
B.	Ambient Air quality	CAAQMS Quarterly Once	Continuously 24 Hourly	PM _{2.5} , PM ₁₀ , SO ₂ , NO _x PM _{2.5} , PM ₁₀ , SO ₂ , NO _x & CO
C.	Fugitive emissions	Quarterly Once	8 hours	PM
3. Meteorological Data				
A.	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
4. Noise level monitoring				
A.	Ambient Noise levels	Quarterly Once (Hourly)	Continuous for 24 hours with 1-hour interval	Noise levels



5.0 ADDITIONAL STUDIES

No Rehabilitation and Resettlement is involved as the proposed expansion project will be taken up in the existing plant premises only. No additional Land is proposed for expansion project. Hence no R & R study has been carried out.

6.0 PROJECT BENEFITS

With the establishment of the proposed project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Periodic medical checkups will be carried out. Top priority will be given to locals in employment. Separate budget will be allocated for social welfare & developmental activities to develop the surrounding villages.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

The following are air emission control systems proposed in the proposed expansion project:

TABLE NO. 7.1: AIR EMISSION CONTROL SYSTEM PROPOSED

S.No.	Source	Control Equipment	Emission at the outlet
1.	Pellet Plant	Electro Static Precipitators (ESP)	PM <30 mg/Nm ³
2.	Re-heating furnaces attached to Rolling Mill	Wet Scrubber	PM < 30 mg/Nm ³
3.	Coal Washery	Dust Extraction system with PTFE membrane bag filters	PM < 30 mg/Nm ³

Note : Apart from the above Dry fog system with dust suppression at transfer points, crushing plant, dust extraction system with bagfilters at other dust emanating areas , covered conveyers, mechanical dust sweepers, etc. will also be provided.

For Power Plant, existing stack of 65 m is adequate for enhanced capacity.

Apart from the above the following air emission control systems/ measures are proposed in the Plant:

- All conveyors will be completely covered with G.I. sheets to control fugitive dust.
- All bins will be totally packed and covered so that there will not be any chance for dust leakage.
- All the dust prone points material handling systems will be connected with de-dusting system with bag filters.



- All discharge points and feed points, wherever the possibility of dust generation is there a de-dusting suction point will be provided to collect the dust.

7.2 Water Environment

There will be no wastewater discharge from the Iron ore beneficiation, Pellet & Coal Washery as closed-circuit cooling system will be adopted. Effluent from Rolling mill will be sent to oil separator followed settling tank and will be recycled through closed circuit cooling system. Effluent from power plant will be treated in ETP and after ensuring compliance with CECB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development. Sanitary waste water will be treated in existing STP. Garland drains will be provided around all the raw material stacking areas. ZLD will be followed.

EFFLUENT TREATMENT PLANT

pH of the boiler blowdown will be between 9.5 to 10.5. Hence a neutralization tank will be constructed for neutralizing the boiler blow down. DM plant regeneration water will be neutralized in a neutralization tank. After neutralization, these two effluent streams will be mixed with Cooling Tower blowdown in a Central Monitoring Basin (CMB). The treated effluent will be utilized for dust suppression, ash conditioning and for Green belt development. No effluent will be let out of the plant premises. Hence Zero discharge concept will be implemented.

TREATED EFFLUENT DISPOSAL

Total Effluent generation after expansion project	:	6412 m³/day
Effluent quantity to be recycled for CT makeup	:	2650 m ³ /day
Effluent quantity to be used for Road Cleaning	:	250 m ³ /day
Effluent quantity to be used for ash conditioning	:	1280 m ³ /day
Effluent to be used for dust suppression in CHP	:	300 m ³ /day
Effluent to be used for Greenbelt development	:	1932 m ³ /day

127.6 Ha. (315.3 Acres) of greenbelt (inclusive of existing) has already been developed by using the treated effluent. Treated effluent which is proposed to be utilized for greenbelt during non-monsoon period, will be used as make up water for Rolling Mill, during monsoon.



7.3 Noise Environment

The major sources of noise generation in the proposed project will be STG, boilers, compressors, DG set, etc. Acoustic enclosure will be provided. All the machinery will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The extensive greenbelt developed within the plant premises will help in attenuating the noise levels further. Noise barriers in the form of trees are recommended to be grown around administrative block and other utility units.

7.4 Land Environment

The waste water generated from the proposed project will be treated in the Effluent Treatment Plant to comply with the SPCB standards and will be used for dust suppression, ash conditioning and for greenbelt development. All the required Air emission control systems will be installed and operated to comply with SPCB norms. Solid wastes will be disposed off as per norms. Extensive greenbelt will be developed in the plant premises. Desirable beautification and landscaping practices will be followed. Hence there will not be any impact due to the proposed expansion project.

TABLE NO. 7.2: SOLID WASTE GENERATION & ITS DISPOSAL

S.No.	Waste	Quantity (TPA)			Method of disposal
		Existing	Proposed	After Expansion	
1.	Tailing from I/O Beneficiation Plant	--	2,40,000	2,40,000	Tailings will be taken to a filter press and after dewatering it will be stored in a storage yard with 30 days capacity. For utilisation it will be given to sinter plants/ceramic industries / other mineral based industries.
2.	Ash from Coal Gasifier to be installed in the Pelletization Plant	---	17,000	17,000	Will be given free of cost to Brick manufacturing unit
3.	Ash from Coal based Power Plant	5,69,400	8,760	5,78,160	Is being given to the Cement Plant and Fly ash brick manufacturing units
4.	Washery Rejects from Coal Washery	--	8,00,000	8,00,000	Will be used in Coal based Power Plant as fuel



5.	Wire Rod / TMT Mills				
a.	End Cutting	---	40,000	40,000	It will be used as scrap in existing Steel Melting Shop.
b.	Mill Scale	---	13,400	13,400	It will be used in existing Ferro Alloys plant.
c.	Miss Roll	---	7,000	7,000	It will be used as scrap in existing Steel Melting Shop.
6.	DRI Kilns				
a.	Ash from WHRB boilers attached with DRI Kilns	2,40,000	---	2,40,000	Is being given to the Cement Plant and Fly ash brick manufacturing units
b.	Dolochar from DRI Kilns	3,00,000	---	3,00,000	Is being utilized in the existing AFBC boiler-based power plant.
c.	Accretion material from DRI Kilns	10,800	---	10,800	Is being utilized in road construction & given to brick manufacturer
d.	Wet Scraper Dust from DRI Kilns	55,000	---	55,000	Is being utilized in road construction & given to brick manufacturer
7.	Slag from Steel Melting Shop	1,90,000	---	1,90,000	Slag from SMS is being crushed and iron is being recovered & remaining non -magnetic material being inert by nature is used as sub base material in road construction/ used for brick manufacturing
8.	Venturi Scrubber Dust from Sinter Plant	470	---	---	Being utilized in road construction
9.	Slag From Ferro Alloys Plant	46,600	---	---	Being utilized in road construction

7.5 Greenbelt Development

- 127.6 Ha. (315.30 acres) of greenbelt has already been developed within the plant premises.
- 3,16,640 nos. of plants are existing till date (survival rate 85%).
- 15 m wide greenbelt will be maintained all around the plant.



7.6 Cost for Environment Protection

Capital Cost for Environment Protection for proposed expansion : Rs. 21.9 Crores

Recurring Cost per annum for Environmental protection : Rs. 5.968 Crores

7.7 Implementation of CREP Recommendations

All the CREP recommendations will be implemented & followed strictly.

- Continuous stack monitoring system is proposed for major stacks.
- Online Ambient Air Quality Monitoring Stations have already been established in consultation with SPCB in the existing plant.
- Fugitive emission monitoring will be carried out as per CPCB norms.
- Energy meters will be installed for all the pollution control systems.
- Additional Rain water harvesting pits will be constructed outside the plant premises in consultation with CGWB.