SUMMARY ON

ENVIRONMENTAL IMPACT ASSESSMENT

REPORT

OF

Basudev Trade Link

(Formerly Radha Madhav Industries Pvt. Ltd.)

[Expansion of Steel Plant – DRI Kilns (Sponge iron from 30,000 TPA to 58,500 TPA), WHRB based Power Plant from 2.5 MW to 5.0 MW, FBC based Power Plant from 4.5 MW to 8.0 MW, Hot Charged Rolled Products (Through Induction Furnace and Rolling Mill) 30,000 TPA 90,000 TPA, Coal Gasifier from 2,000 Nm^3/Hour to 6,000 Nm^3/Hour, Wire Drawing Mill 60,000 TPA & Binding Wire Mill 30,000 TPA)]

at

Khasra No. 505 (Part), 502/2 & 503/2
Village Rambod, Near Sargaon, Tehsil Patharia, District Mungeli, Chhattisgarh

Submitted to

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

1.0 PROJECT DESCRIPTION

Basudev Trade Link (Formerly Radha Madhav Industries Pvt. Ltd.) is an existing steel plant at Khasra No. 505 (Part), 502/2 & 503/2, Village Rambod, Near Sargaon, Tehsil Patharia, District Mungeli, Chhattisgarh. Existing plant (1 x 100 TPD DRI Kiln) has obtained Environment Clearance from SEIAA, Chhattisgarh vide letter no 419/SEIAA-CG/EC/SI/BSP/239 Raipur dated 02/07/2013. Subsequently obtained Consent for Establishment from CECB vide 3015/TS/CECB/2013 Raipur dated 04/09/2013 and accordingly obtained Consent to Operate from CECB. **Basudev Trade Link** has also obtained Consent for Establishment from CECB vide 6238/TS/CECB/2018 Atal Nagar, dt. 26/11/2018 for expansion in Waste Heat Recovery based Power Plant (2.5 MW), FBC based Power Plant (4.5 MW), Hot Charged Rolled Products (through Induction Furnace and Rolling Mill) – 30,000 TPA and Coal Gasifier – 2,000 Nm^3/hour & work for the same is yet to be commenced.

Now as a part of further expansion, company proposed to expand the plant i.e. DRI Kilns (Sponge iron from 30,000 TPA to 58,500 TPA), WHRB based Power Plant from 2.5 MW to 5.0 MW, FBC based Power Plant from 4.5 MW to 8.0 MW, Hot Charged Rolled Products (Through Induction Furnace and Rolling Mill) 30,000 TPA to 90,000 TPA, Coal Gasifier from 2,000 Nm^3/Hour to 6,000 Nm^3/Hour, Wire Drawing Mill 60,000 TPA and Binding Wire Mill 30,000 TPA.

As per the Ministry of Environment, Forests& Climate Change, New Delhi notification, dated 14th September, 2006 and its subsequent amendments, all Sponge Iron manufacturing unit < than 200 TPD are classified under Category 'B'. The State Expert Appraisal Committee (SEAC), Chhattisgarh has accorded Terms of Reference (TOR) for the proposed project vide letter no. 330/SEAC-CG / Industry / Mungeli / 778 Atal Nagar dt. 6th June 2019.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, for preparing EIA report for Metallurgical Unit, have prepared Draft Environmental Impact Assessment (EIA) report for the proposed expansion project by incorporating the TOR approved by Ministry of Environment, Forests& Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed expansion project along with the noise level assessment.
- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed project,solid waste management, Greenbelt development.
- Post Project Environmental Monitoring& Budget for Environmental Protection Measures.

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. 11.1.1: ENVIRONMENTAL FEATURES WITHIN 10 KM. RADIUS OF PLANT

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land	Proposed expansion will be taken up partially in the existing land (i.e.9.768 Ha.) – Industrial Land and partially in the land adjacent to the existing plant (i.e. 2.184 Ha.) – Uncultivated Land
2.	Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements – 3.4 %; Industrial Area – 1.9 %; Tank / River – 6.4 %; Single crop – 66.8 %; Double crop – 8.7 %; Land with scrub – 5.3 %; Land without scrub – 3.2 %; Earth quarry – 0.5 %: Stone waste area – 0.6: Mining area – 2.1 %
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	Nil
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Industrial areas / cluster as per MoEF&CC Office Memorandum dated 13thJanuary 2010 and its subsequent amendments	Nil
6.	Defence Installations	Nil
7.	Nearest village	Rambod – 0.7 Km.
8.	No. of Villages in the Study Area	70
9.	Nearest Hospital	Belha village – 8.6 Kms.

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
10.	Nearest School	Sargaon village – 4.3 Kms.
11.	Forests	Nil
12.	Water body	Maniyari river (0.3 Kms.), Agar River (7.5 Kms.), Shivnath River (8.4 Kms.) &TurturiaNalla (adjacent) exists within 10 Km. radius of the plant site. No River / Stream passes through the proposed project site.
13.	Nearest Highway	NH #200 – 3.6 Kms. (By Road)
14.	Nearest Railway Station	Nil (Belha RS – 15.0 Kms. by Road)
15.	Nearest Port facility	Nil
16.	Nearest Airport	Nil (Bilaspur Airstrip – 14.0 Kms.)
17.	Nearest Interstate Boundary	Nil
18.	Seismic zone as per IS-1893	Seismic zone – II
19.	R & R	Not applicable, as it is an existing plant.
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

Following is list of industries (Major) presently located within 10 Km radius of the site:

Table No. 1.2 – List of Industries within 10 Kms. radius of the project site

S.No.	Name of Industry	Type of Industry
1.	M/s. Real Power Pvt. Ltd.	Steel Plant
2.	M/s. Laxman Cement Ltd.	Cement Plant
3.	M/s. Nova Iron & Steel Ltd.	Steel Plant

1.2 Plant Configuration and Production Capacity

Following is plant configuration and production capacity proposed now

Table No. 1.3 – Plant Configuration (Existing and Proposed)

S.No.	Unit (Product)	Existing Plant	Obtained CTE (work yet to started)	Proposed Expansion	Total (After proposed expansion)
1.	DRI Kiln (Sponge Iron)	1 x 100 TPD (30,000 TPA)	---	1 x 95 TPD (28,500 TPA)	1 x 100 TPD & 1 x 95 TPD (58,500 TPA)
2.	WHRB based Power Plant	---	2.5 MW	2.5 MW	5.0 MW

	(Electricity)				
3.	FBC based Power Plant (Electricity)	---	4.5 MW	3.5 MW	8.0 MW
4.	Hot Charged Rolled Products (Through Induction Furnace and Rolling Mill)	---	30,000 TPA	60,000 TPA	90,000 TPA
5.	Coal Gasifier (Producer Gas)	---	2,000 Nm^3/hour	4,000 Nm^3/hour	6,000 Nm^3/hour
6.	Wire Drawing Mill	---	---	60,000 TPA	60,000 TPA
7.	Binding Wire	---	---	30,000 TPA	30,000 TPA

1.3 Raw Materials (For Expansion project)

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

Table No. 11.1.4 – Raw Material requirement (Proposed Expansion)

S.No.	Raw Material		Quantity (in TPA)	Sources	DISTANCE (w.r.t Plant)	Mode of Transport
1.	**For DRI Kilns (Sponge Iron)– 28,500 TPA**					
a)	Iron ore		45,600	NMDC, Bailadila/ Bachheli	~ 500 Kms.	By rail & road (through covered trucks)
b)	Coal	Indian	37,050	SECL, Chhattisgarh / MCL Odisha	~ 500 Kms.	By rail & road (through covered trucks)
		Imported	25,650	Indonesia / South Africa / Australia	600 Kms. (from Vizag Port)	Through sea route, rail route & by road
c)	Dolomite		1,425	Raipur	~ 90 Kms.	By road (through covered trucks)
2.	**For Steel Melting Shop (Hot Billets) – 64,000 TPA**					
a)	Sponge Iron		53,300	Own generation	---	----
b)	MS Scrap		22,800	Raipur	~ 90 Kms.	By road (through covered trucks)
c)	Ferro Alloys		1,000	Raipur	~ 90 Kms.	By road (through covered trucks)

S.No.	Raw Material		Quantity (in TPA)	Sources	DISTANCE (w.r.t Plant)	Mode of Transport
3.	**For Rolling Mill (Rolled Products) – 60,000 TPA**					
a)	Hot billets		64,000	Own generation	--- ~ 90 Kms.	---- By road (through covered trucks)
b)	Furnace oil		3,000	Nearby HPCL / IOCL depots	~ 90 Kms.	Tankers
c)	Coal for Gasifier (Producer Gas – 4000 NM^3/Hr)	Indian	12,000	SECL, Chhattisgarh /MCL Odisha	~ 500 Kms.	By rail & road (through covered trucks)
		Imported	7,680	Indonesia / South Africa / Australia	600 Kms. (from Vizag Port)	Through sea route, rail route & by road
4.	**For FBC Boiler [Power Generation 3.5 MW (14 TPH)]**					
a)	Indian Coal (100 %)		18,900	SECL, Chhattisgarh /MCL Odisha	~ 500 Kms.	By rail & road (through covered trucks)
	OR					
b)	Imported Coal (100%)		12,100	Indonesia / South Africa / Australia	600 Kms. (from Vizag Port)	Through sea route / rail route / by road
	OR					
c)	Dolochar + Indian Coal	Dolochar	5,130	Own generation	---	through covered conveyors
		Indian Coal	16,335	SECL, Chhattisgarh /MCL Odisha	~ 500 Kms.	By rail & road (through covered trucks)
	OR					
d)	Dolochar + Imported Coal	Dolochar	5,130	Own generation	---	through covered conveyors
		Imported	9,531	Indonesia / South Africa / Australia	600 Kms. (from Vizag Port)	Through sea route / rail route / by road
5.	**For Wire Drawing Mill (60,000 TPA)**					
a)	Billets		64,000	Raipur	~ 90 Kms.	By road (through covered trucks)
6.	**For Binding Wire Mill (30,000 TPA)**					
a)	Billets		32,000	Raipur	~ 90 Kms.	By road (through covered trucks)

1.4 Manufacturing Process

1.4.1 Sponge Iron (DRI)

Refractory lined rotary kilns will be used for reduction of iron ore in solid state. A central Burner located at the discharge end will be used for initial heating of the kiln.

Iron ore will be continuously fed into the kiln along with coal which has dual role of fuel as well as reductant. Dolomite will be added to scavenge the sulphur from the coal. A number of air tubes will be provided along the length of the kiln. The desired temperature profile will be maintained by controlling the volume of the combustion air through these tubes. The Carbon monoxide generated due to the combustion of coal, reduces the iron ore and converts it into sponge iron. The rotary kiln is primarily divided into two zones viz. the pre heating zone and the reduction zone. The preheating zone extends over 30 to 50 % of the length of the kiln and in this the moisture in the charge will be driven off and the volatile matter in the coal will be burnt with the combustion air supplied through the air tubes. Heat from the combustion raises the temperature of the lining and the bed surface. As the kiln rotates, the lining transfers the heat to the charge. Charge material, pre-heated to about 1000^0C enters the reduction zone. Temperature of the order of 1050^0C will be maintained in the reduction zone, which is the appropriate temperature for solid state reduction of iron oxide to metallic iron.

This hot material will be transferred to Heat exchanger. In Heat exchanger the material will be cooled to 160^0C. The cooler discharge material consists of sponge iron lumps, sponge iron fines and char. Magnetic and non-magnetic material will be separated through magnetic separators and stored in separate bins. The hot flue gases will be taken to a Waste Heat Recovery Boilers and after heat recovery they will be treated in high efficiency ESP and discharged into the atmosphere through stack whose height will be in accordance with CPCB norms.

1.4.2 Steel Melting Shop

In Steel Melting Shop (SMS), Sponge Iron will be melted along with melting scrap and fluxes to make pure liquid steel and then to mould it in required size billets. The SMS will consist of Induction furnace, Ladles, Cranes & Continuous Casting Machine (CCM).There

will be 2 nos. of Induction Furnaces in the SMS plant, each of 10T capacity. Hot Billets will be produced in Continuous Casting Machine.

1.4.3 Rolling Mill

In the proposed project, there will 1 x200 TPD reheating furnaces is proposed for the heating of billets. Furnace will be heated with Producer Gas / Furnace oil. A bar and round mill will be installed in the plant to produce 200 TPD of TMT bars/ Structural steel.

1.4.4 Power Generation

1.4.4.1 Through WHRB Boiler

The hot flue gases from DRI kiln will pass through waste heat recovery Boiler to recover the heat and to generate 1 x 2.5 MW electricity. The gases after heat recovery will pass through ESP and then discharged through chimneys into the atmosphere for effective dispersion of emissions into the atmosphere.

1.4.4.2 THROUGH FBC BOILER

Coal (Imported / Indian) and dolochar will be used in FBC Boilers to generate 3.5 MW electricity. The flue-gases will be treated in high efficiency ESP and then discharged through stack into the atmosphere.

1.5 Water Requirement

Water required in the existing plant and capacity for which consent obtained is 200 KLD and is being sourced from Ground water source. Water required for the proposed expansion project will be 258 KLD and same will also be sourced from Ground water sources & Maniyari river. Total water requirement after the proposed expansion will be 458 KLD. This includes Make-up water for DRI Kiln, Induction Furnace, Rolling Mill & Power Plant. Air-cooled condensers will be provided in Power plant. Hence the net water requirement will be substantially reduced.

An application has been submitted to Central Ground Water Authority (CGWA)& Water Resource Department (WRD), Chhattisgarh to obtained permission for drawl of water.

The following is the break-up of the water requirement for proposed project.

Table 1.5 – Water requirement break up

S.No.	Unit	Quantity (KLD)			
		Existing Plant	Obtained CTE (work yet to commence)	Present Proposal	Total after present proposal
1.	DRI kiln	64	---	64	128
2.	Steel melting shop	---	20	40	60
3.	Rolling mill	---	25	50	70
4.	Gasifier	---	5	10	15
5.	Binding wire unit	---	---	15	15
6.	Wire Drawing mill	---	---	15	15
7.	Power Plant	---	75	58	133
	• Cooling tower makeup	---	36	28	64
	• Boiler makeup	---	27	21	48
	• DM plant regeneration	---	12	9	21
8.	Domestic	6	5	6	17
	Total	**70**	**130**	**258**	**458**

1.6 Waste Water Generation

- There will be no effluent discharge from the DRI plant, SMS, Binding wire unit &Wire drawing mill as closed-circuit cooling system will be adopted.
- Air Cooled condensers will be provided in the power plant, which will be reduce the water consumption significantly. Hence wastewater generation will also be minimized.
- Effluent from Rolling Mill will be sent to settling tank & 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 septic tank followed by sub-surface dispersion trench.

The following will be the total wastewater & it's break-up.

Table No. 1.6 – Wastewater Generation

S.No.	Wastewater Source	Generation (KLD)			
		Existing Plant	Obtained CTE (work yet to commence)	Present Proposal	Total after present proposal
1.	From DRI kiln	---	---	---	---
2.	From Steel melting shop	---	---	---	---
3.	From Rolling mill	---	---	---	---
4.	From Gasifier	---	1.0	2.0	3.0
5.	From Binding wire unit	---	---	---	---
6.	From Wire Drawing mill	---	---	---	---
7.	From Power Plant		28.5	22.0	50.5
	a) Cooling Tower blowdown	---	9.0	7.0	16.0
	b) Boilers blowdown	---	7.5	6.0	13.5
	c) D.M plantregeneration water	---	12.0	9.0	21.0
8.	Sanitary Wastewater	4.5	4.0	4.5	8.5
	Total	**4.5**	**33.5**	**28.5**	**62.0**

1.7 Wastewater Characteristics

Table No. 1.7 - Characteristics of Waste Water

S.No.	PARAMETER	CONCENTRATION		
		R O Rejects	DM Plant Regeneration	Sanitary waste water
1.	pH	7.5 – 8.0	5.0 – 10.0	7.0 – 8.5
2.	BOD (mg/l)	--	--	200 – 250
3.	COD (mg/l)	--	--	300 – 400
4.	TDS (mg/l)	600	5000 – 6000	800 – 900
5.	Oil & Grease (mg/l)	--	10	--
6.	SS (mg/l)	350	--	--

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 $PM_{2.5}$, PM_{10}, SO_2, NOx& CO at 8 stations including project site during March 2019 to May 2019. The following are the concentrations of various parameters at the monitoring stations:

Table No. 2.1 - Range of Concentration of various parameters

Parameter		Concentration
$PM_{2.5}$	:	20.2 to 37.8µg/m^3
PM_{10}	:	33.2 to 63.5µg/m^3
SO_2	:	9.6 to 19.9µg/m^3
NO_X	:	9.9 to 27.5µg/m^3
CO	:	570 to 1180µg/m^3

2.2 Water Quality

2.2.1 Surface Water Quality

2 nos. of surface water samples (SW1 & SW2) have been collected from Maniyar river (0.3 Kms.) and one sample each from Agar River (7.5 Kms.) & Shivnath River (8.4 Kms.) has been collected respectively and analyzed for various parameters. No other surface water was available during study period. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

2.2.2 Ground Water Quality

8No. 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 withBIS: 10500specifications.

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 39.0 dBA to 57.9 dBA.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 Prediction of impacts on air quality

The likely emissions from the proposed project are PM_{10}, SO_2, NOx& CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

The predicted max. Incremental PM_{10} concentrations (24 hourly) due to the emissions from operation of proposed project will be **0.72«g/m^3** at a distance of 1000 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in PM concentration due to the Vehicular emission will be **0.20«g/m^3**.

Hence the total predicted incremental rise due to the emissions from operation of proposed project and due the vehicular emission will be **0.72«g/m^3 + 0.20«g/m^3 = 0.92«g/m^3.**

The predicted max incremental SO_2 concentrations (24 hourly) due to the emissions from operation of proposed project will be **14.3«g/m^3** at a distance of 1000 m from the stack in the down wind direction over the baseline concentrations.

The predicted max incremental NOx concentrations (24 hourly) due to the emissions from operation of proposed project will be **3.9«g/m^3** at a distance of 1000 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in NOx concentration due to the Vehicular emission will be **1.5«g/m^3**.

Hence the total predicted incremental rise due to the emissions from operation of proposed project and due the vehicular emission will be**3.9«g/m^3 + 1.5«g/m^3 = 5.4«g/m^3**

The predicted incremental rise in CO concentration due to the Vehicular emission will be **1.1«g/m^3**.

Table No. 3.1 - NET RESULTANT MAXIMUM CONCENTRATIONS DUE TO PROPOSED PROJECT & DUE TO OTHER INDUSTRIES IN THE AREA

Item	PM_{10} («g/m^3)	SO_2 («g/m^3)	NO_X («g/m^3)	CO («g/m^3)
Maximum baseline conc. in the study area	63.5	19.9	27.5	1180
Maximum predicted incremental rise in concentration due to **BTL**	0.72	14.3	3.9	--
Maximum predicted incremental rise in concentration due to **Vehicular Emissions from the**	0.20	--	1.5	1.1

Item	PM_{10} («g/m^3)	SO_2 («g/m^3)	NO_X («g/m^3)	CO («g/m^3)
proposed project				
Net resultant concentrations during operation of the plant	**64.42**	**34.2**	**32.9**	**1181.1**
National Ambient Air Quality Standards	**100**	**80**	**80**	**2000**

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. **4.0 Ha.** of extensive greenbelt will be 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 project.

3.3 Prediction of impacts on Water Environment

There will be no effluent discharge from the DRI plant & Induction Furnace as closed circuit cooling system will be adopted. Effluent from power plant will be treated and after ensuring compliance with CECB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development. Effluent from Rolling Mill will be sent to settling tank & will be recycled through closed circuit cooling system. Mill scales will be reused in SMS. Sanitary waste water will be treated in septic tank followed by sub-surface dispersion trench. Hence there will not be any adverse impact on environment due to the proposed 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/CECB norms. All solid wastes will be disposed / utilized as per CPCB/SPCB norms. 4.0 Ha. of greenbelt will be developed as per guidelines. Hence, there will not be any adverse impact on land environment due to the proposed 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 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	Once in a month except for heavy metals which will be monitored on quarterly basis.	Composite sampling (24 hourly)	As per IS: 10500
B.	Effluent at the outlet of the ETP	Twice in a month	Grab sampling (24 hourly)	As per EPA Rules, 1996
C.	Sanitary waste water	Twice in a month	Grab sampling (24 hourly)	As per EPA Rules1996
2. Air Quality				
A.	Stack Monitoring	Online monitors (WHRB &FBC boiler stacks) Once in a month	---	PM PM,SO_2& NOx
B.	Ambient Air quality (CAAQMS)	Continuous	Continuous	$PM_{2.5}$, PM_{10}, SO_2 & NOx
C.	Fugitive emissions	Once in a Month	8 hours	PM
3. Meteorological Data				
	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
4. Noise level monitoring				
	Ambient Noise levels	Twice in a year	Continuous for 24 hours with 1 hour interval	Noise levels

5.0 ADDITIONAL STUDIES

No Rehabilitation and Resettlement is involved in the proposed 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.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

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

Table No. 7.1 – Air Emission Control System

S.No.	Source	Stack Height	Control Equipment	Particulate emission at the outlet
1.	DRI kilns with WHRB's	57 (1 no.)	Electro Static Precipitators (ESP)	<30 mg/Nm^3
2.	Induction Furnaces with CCM	30 (combined stack)	Fume Extraction system with bag filters	<30 mg/Nm^3
3.	FBC Boiler	46 (1 no.)	Electro Static Precipitator (ESP)	< 30 mg/Nm^3
4.	Rolling Mill	42 (1 no.)	---	<30 mg/Nm^3

Note: Apart from the above Fume extraction system with bagfilters, dust suppression system, covered conveyers etc. will also be installed

The following air pollution 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 effluent discharge from the DRI plant, SMS, Binding wire unit &Wire drawing mill as closed-circuit cooling system will be adopted.
- Air Cooled condensers will be provided in the power plant, which will be reduce the water consumption significantly. Hence wastewater generation will also be minimized.
- Effluent from Rolling Mill will be sent to settling tank & 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 septic tank followed by sub-surface dispersion trench.

Effluent Treatment Plant:

pH of the boiler blow-down 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 blow-down 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. Sanitary waste water will be treated in septic tank followed by sub-surface dispersion trench.

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 development proposed 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 project.

Table 7.2 - Solid waste generation and its management

S.No.	Waste / By Product	Existing and Obtained CTE (work yet to started) (TPD)	Expansion (TPD)	Method of Disposal
Sponge Iron plant				
1.	Dolochar	18.0	17.1	Will be used in FBC power plant as fuel
2.	Ash	30.0	28.5	Will be given to Bricks manufacturers
3.	Wet scrapper sludge	4.6	4.4	Will be used in Road Construction and given to brick manufacturers.
4.	Kiln Accretion Slag	0.9	0.9	Will be used in Road construction
Induction Furnace				
5.	Slag	10.0	20.0	Slag from SMS will be crushed and iron will be recovered & remaining non-magnetic material being inert by nature will be used as sub base material in road construction / will be given to brick manufacturer
Rolling mill				
6.	Mill scales	2.0	4.0	Mill scales will be given to nearby Ferro alloys manufacturing units or casting units.
7.	End Cutting	3.0	6.0	Recycled back as raw material in own induction Furnaces
Power Plant				
8.	Ash (with Indian Coal)	36.4	28.3	Will be given to Cement Plants / Bricks manufacturers
	OR			
	Ash (with Imported Coal)	6.2	4.8	Will be given to Cement Plants / Bricks manufacturers

S.No.	Waste / By Product	Existing and Obtained CTE (work yet to started) (TPD)	Expansion (TPD)	Method of Disposal
	OR			
	Ash (with Indian Coal + dolochar)	43.2	35.1	Will be given to Cement Plants / Bricks manufacturers
	OR			
	Ash (with Imported Coal + dolochar)	16.0	14.6	Will be given to Cement Plants / Bricks manufacturers

7.5 Greenbelt Development

Greenbelt of 4.0Ha. will be developed in the plant premises. 10 to 66 m wide greenbelt will be developed all around the plant.

7.6 Cost for Environment Protection

Capital Cost for Environment Protection for proposed plant : Rs. 6.0 Crores

Recurring Cost per annum for Environmental protection : Rs.1.0 Crores

7.7 Implementation of CREP Recommendations

All the CREP recommendations will be strictly followed.