

**SUMMARY ON**  
**ENVIRONMENTAL IMPACT ASSESSMENT**  
**REPORT**

**OF**

**Vrajesh Steels Pvt. Ltd.**

[Establishment of Greenfield Steel comprising of establishment of DRI Kilns (Sponge Iron – 4,29,000 TPA), Induction Furnace with LRF & CCM (Hot Billets / MS Billets / Ingots – 4,15,800 TPA), Rolling mills (TMT bars / Structural Steel) (85% Hot charging with Hot Billets and remaining 15% through RHF with Producer Gasifier as fuel)– 2,64,000 TPA), Gasifier for Reheating Furnace – (1 x 5000 NM<sup>3</sup>/Hr), Ferro Alloy Unit 3 x 9 MVA (FeSi – 21,000 TPA/FeMn – 60,000 TPA/SiMn – 42,000 TPA/FeCr - 45,000 TPA/Pig Iron – 72,000TPA), WHRB based Power Plant – 1 x 18 MW & 2 x 10 MW, FBC based Power Plant – 1 x 18 MW, Briquetting Plant (300 Kg/Hr.) & Brick Manufacturing unit (45,000 Bricks / Day]

Category – A Project

**at**

**Kohadiya Village, Bhimbhori Tehsil,  
Bemetara District, Chhattisgarh**

**Submitted to**

**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**

## 1.0 PROJECT DESCRIPTION

Vrajesh Steels Pvt. Ltd. is proposing to establish a Steel Plant, a Greenfield Project, comprising of establishment of DRI Kilns (Sponge Iron – 4,29,000 TPA), Induction Furnace with LRF & CCM (Hot Billets / MS Billets / Ingots – 4,15,800 TPA), Rolling mills (TMT bars / Structural Steel) (85% Hot charging with Hot Billets and remaining 15% through RHF with Producer Gasifier as fuel)– 2,64,000 TPA), Gasifier for Reheating Furnace – (1 x 5000 NM<sup>3</sup>/Hr), Ferro Alloy Unit 3 x 9 MVA (FeSi – 21,000 TPA/FeMn – 60,000 TPA/SiMn – 42,000 TPA/FeCr - 45,000 TPA/Pig Iron – 72,000TPA), WHRB based Power Plant – 1 x 18 MW & 2 x 10 MW, FBC based Power Plant – 1 x 18 MW, Briquetting Plant (300 Kg/Hr.) & Brick Manufacturing unit (45,000 Bricks / Day).

Total land identified for the proposed project is **24.25 Ha. (59.922 Acres)**, out of which, 14.36 Ha. of land is registered on the company name, 8.35 Ha. of land is Registered in name of Shri. Amit Agrawal (Director in Vrajesh Steel Pvt. Ltd.), 0.13 Ha. of land is Registered in name Ms. Eshanya Agrawal (Daughter of Sri Amit Agrawal, Director in Vrajesh Steel Pvt. Ltd.) and agreement has been entered for remaining 1.41 Ha.

The estimated project cost for the proposed project is **Rs. 768.00 Crores**.

As per the Ministry of Environment, Forests & Climate Change, New Delhi, EIA notification 14<sup>th</sup> September 2006 & its subsequent amendments, all Primary metallurgical processing industries are listed under S.No. 3(a), under Category 'A'. The Ministry of Environment, Forests & Climate Change, New Delhi has accorded Terms of Reference (TOR) for the proposed project vide letter no. **F.No. IA-J-11011/459/2024-IA-II(IND-I)**, dated **11<sup>th</sup> December 2024**. Draft EIA report is prepared incorporating the Terms of Reference & being submitted to 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/2225/RA 0282, for preparing EIA report for Metallurgical Unit, have prepared Environmental Impact Assessment (EIA) report for the proposed 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 within an area of 10 km 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 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 Project site:

**Table No. 1.1: Environment Setting within 10 Kms. radius of the site**

| S.No. | Salient Features / Environmental features  | Distance w.r.t. site / Remarks  |
|-------|--|---|
| 1.    | Type of Land   | Private Land (Unirrigated Agricultural land)  |
| 2.    | Type of Land (Study Area)  | As per LULC the land use within 10 Km. is as follows:<br>Settlements – 4.6 %; Industrial area – 5.1 %;<br>Tanks / River / Major Canal – 8.6 %; Single crop – 59.3 %; Double crop – 6.4 %; Plantation – 3.8 %; Land with scrub – 6.3 %; Land without scrub – 2.5, Sheet rock area – 2.3% %; Quarry area – 1.1% |
| 3.    | National Park/ Wildlife 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 within 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 <sup>th</sup> January 2010                          | Nil<br>And also the Plant area does not fall in the areas given in Hon'ble NGT order issued vide dated 10 <sup>th</sup> July 2019.  |
| 6.    | Defense Installations  | Nil   |
| 7.    | Nearest village  | Kohadiya Village – 0.24 Kms. (North Direction)  |
| 8.    | No. of Villages in the Study Area  | 58  |
| 9.    | Nearest Hospital   | PHC, Hirri – 1.4 Kms. (East direction)  |
| 10.   | Nearest School   | Govt. Middle School, Kohadiya – 0.58 Kms. (North Direction)   |

| S.No. | Salient Features / Environmental features   | Distance w.r.t. site / Remarks  |
|-------|---|---|
| 11.   | Forests   | No Forest in the 10 Kms Study area  |
| 12.   | Water body  | Gorhi Distributary – Adjacent<br>Kharun River – 3.4 Kms. (SE direction)   |
| 13.   | Nearest Highway   | Site is well connected to Murmunda – Bhimbhori Major District Road (adjacent), which in turn gets connected to NH # 6 (Durg- Raipur) - 17.0 Kms. (by Road)  |
| 14.   | Nearest Railway Station   | Kumhari RS (17.0 Kms. – South Direction – by road)  |
| 15.   | Nearest Port facility   | Nil   |
| 16.   | Nearest Airport   | Raipur Airport- 28.0 Kms. (by Aerial)   |
| 17.   | Nearest Interstate Boundary   | Nil within 15 Km. radius  |
| 18.   | Seismic zone as per IS-1893   | Seismic zone – II   |
| 19.   | R & R   | There is no rehabilitation and resettlement issue, as there are no habitations present in the site area.  |
| 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   |
| 21.   | HT Line   | <ul style="list-style-type: none"> <li>HT line is passing through the site in the South East direction of the project site.</li> <li>It is assured that no construction activity and no operational activity will be taken up under the HT line.</li> <li>It is assured that tall trees will be not planted under the HT line.</li> <li>A 23 m Right of Way buffer on either side of HT line is provided and same is shown in Plant Layout.</li> <li>It is assured that all the rules and regulation as per Indian Electricity Act 2003 and its subsequent amendment during construction and operation phase will be followed.</li> </ul> |

## 1.2 PLANT CONFIGURATION AND PRODUCTION CAPACITY

Following is the proposed plant configuration and proposed production capacities:

**Table No.1.2: Proposed Plant Configuration & Production Capacities**

| S.No. | Units (Products)   | Plant Configuration        | Production Capacity |
|-------|--|----------------------------|---------------------|
| 1.    | DRI Kilns<br>(Sponge Iron)   | 1 x 600 TPD<br>2 x 350 TPD | 4,29,000 TPA        |
| 2.    | Induction Furnaces with LRF & CCM<br>(Hot Billets / MS Billets / Ingots) | 7 x 20 T                   | 4,15,800 TPA        |

| S.No. | Units (Products)   |                  | Plant Configuration           | Production Capacity  |
|-------|--|------------------|-------------------------------|--|
| 3.    | Rolling mill<br>(TMT bars / Structural Steel)<br>(85% Hot charging with Hot Billets and remaining 15% through RHF with Gasifier as fuel) |                  | 1 x 800 TPD                   | 2,64,000 TPA   |
| 4.    | Gasifier for Reheating Furnace   |                  | 1 x 5000 NM <sup>3</sup> /Hr. | 1 x 5000 NM <sup>3</sup> /Hr.  |
| 5.    | Ferro Alloys Unit<br>(FeSi / FeMn / SiMn / FeCr/Pig Iron)  |                  | 3 x 9 MVA                     | FeSi-21,000TPA /<br>FeMn-60,000 TPA /<br>SiMn-42,000 TPA /<br>FeCr-45,000 TPA /<br>Pig Iron-72,000 TPA |
| 6.    | Power Plant<br>(56 MW)   | WHRB Power Plant | 1 x 18 MW<br>&<br>2 x 10 MW   | 38 MW  |
|       |  | FBC Power Plant  | 1 x 18 MW                     | 18 MW  |
| 7.    | Briquetting Plant  |                  | 300 Kg./Hr.                   | 300 Kg./Hr.  |
| 8.    | Brick Manufacturing Unit   |                  | 45,000 Brick/ day             | 45,000 Brick/ day  |

### 1.3 RAW MATERIAL REQUIRMENT

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

**Table No.1.3: Raw Material Requirement, Source & Mode of Transport**

| S.No. | Raw Material  |          | Quantity (TPA) | Sources  | Distance from site (in Kms.) | Mode of Transport                               |
|-------|---|----------|----------------|--|------------------------------|---|
| 1.    | <b>For DRI Kilns (Sponge Iron) – 4,29,000 TPA</b>                             |          |                |  |                              |   |
| a)    | Pellets   |          | 6,22,050       | Odisha & Chhattisgarh  | ~ 500                        | By rail & road (through covered trucks)         |
|       | (or)  |          |                |  |                              |   |
| b)    | Iron Ore  |          | 6,86,400       | Odisha & Chhattisgarh  | ~ 500                        | By rail & road (through covered trucks)         |
| c)    | Coal  | Indian   | 5,57,700       | SECL Chhattisgarh / MCL Odisha                                     | ~ 500                        | By rail & road (through covered trucks)         |
|       |   | Imported | 3,56,928       | Indonesia / South Africa / Australia and any other foreign country | ~ 600                        | Through vessel, rail & by road (Covered trucks) |
| d)    | Dolomite  |          | 21,450         | Chhattisgarh   | ~ 150                        | By road (through covered trucks)                |
| 2.    | <b>For Steel Melting Shop (Hot Billets/MS Billets/ Ingots) – 4,15,800 TPA</b> |          |                |  |                              |   |

# Vrajesh Steels Pvt. Ltd.

(Proposed Steel Plant)

Kohadiya Village, Bhimbhori Tehsil,  
Bemetara District, Chhattisgarh

| S.No.     | Raw Material  |               | Quantity (TPA) | Sources  | Distance from site (in Kms.) | Mode of Transport  |
|-----------|---|---------------|----------------|--|------------------------------|--|
| a)        | Sponge Iron   |               | 4,20,000       | Own generation & Purchased from outside                            | ---<br>~ 100                 | ---<br>Through covered conveyers                                 |
| b)        | MS Scrap / Pig Iron   |               | 62,000         | Own generation & Purchased from outside                            | ---<br>~ 100                 | ---<br>Through covered conveyers                                 |
| c)        | Ferro alloys  |               | 21,000         | Own generation   | ---                          | By road (through covered trucks)                                 |
| 3.        | <b>For Rolling Mill through Hot charging (TMT bars / Structural Steel) – 2,64,000 TPA</b> |               |                |  |                              |  |
| a)        | Hot Billets   |               | 2,33,376       | Own generation   | ---                          | ----   |
| b)        | MS Billets / Ingots / Billets (for Reheating furnace)                                     |               | 43,560         | Own generation   | ---                          | ----   |
| c)        | LDO / LSHS  |               | 1300 Kl/annum  | Nearby IOCL Depot  | ~ 100 Kms.                   | By road (through Tankers)  |
| d)        | Gasifer (5000 Nm <sup>3</sup> /Hr.)   | Indian Coal   | 15,000         | SECL Chhattisgarh / MCL Odisha                                     | ~ 500 Kms.                   | By rail & road (through covered trucks)                          |
|           |   | Imported Coal | 9,600          | Indonesia / South Africa / Australia and any other foreign country | ~ 600 Kms. (from Vizag Port) | Through sea route, rail route & by road (through covered trucks) |
| 4.        | <b>For FBC Boiler [Power Generation 18 MW]</b>  |               |                |  |                              |  |
| a)        | Indian Coal   |               | 1,07,000       | SECL Chhattisgarh / MCL Odisha                                     | ~ 500                        | By rail & road (through covered trucks)                          |
| <b>OR</b> |   |               |                |  |                              |  |
| b)        | Imported coal   |               | 69,000         | Indonesia / South Africa / Australia and any other foreign country | ~ 600 Kms. (from Vizag Port) | Through sea route, rail route & by road (through covered trucks) |
| <b>OR</b> |   |               |                |  |                              |  |
| c)        | Dolochar + Indian Coal  | Dolochar      | 86,000         | In plant generation  | ---                          | through covered conveyors  |
|           |   | Indian Coal   | 64,000         | SECL Chhattisgarh / MCL Odisha                                     | ~ 500                        | By rail & road (through covered trucks)                          |
| <b>OR</b> |   |               |                |  |                              |  |
| d)        | Dolochar + Imported   | Dolochar      | 86,000         | In plant generation  | ---                          | through covered conveyors  |



# Vrajesh Steels Pvt. Ltd.

(Proposed Steel Plant)

Kohadiya Village, Bhimbhori Tehsil,  
Bemetara District, Chhattisgarh

| S.No.   | Raw Material                             |               | Quantity (TPA) | Sources  | Distance from site (in Kms.) | Mode of Transport  |
|---------|--|---------------|----------------|--|------------------------------|--|
|         | Coal                                     | Imported Coal | 25,600         | Indonesia / South Africa / Australia and any other foreign country | ~ 600 (from Vizag Port)      | Through sea route, rail route & by road (through covered trucks) |
| 5.      | <b>For Ferro Alloys (3 x 9 MVA)</b>      |               |                |  |                              |  |
| 5 (i)   | <b>For Ferro Silicon – 21,000 TPA</b>    |               |                |  |                              |  |
| a)      | Quartz                                   |               | 46,200         | Chhattisgarh / Andhra Pradesh                                      | ~ 500                        | By road (through covered trucks)                                 |
| b)      | Coke                                     |               | 32,550         | Andhra Pradesh   | ~ 500                        | By road (through covered trucks)                                 |
| c)      | Mill scales & MS Scrap                   |               | 9,450          | Inhouse Generation   | ---                          | By road (through covered trucks)                                 |
| d)      | Electrode paste                          |               | 21,00          | Maharashtra / West Bengal  | ~ 300                        | By road (through covered trucks)                                 |
| e)      | Briquetted Bagfilter dust                |               | 1470           | Own generation   | ---                          | ---  |
| 5 (ii)  | <b>For Ferro Manganese – 60,000 TPA</b>  |               |                |  |                              |  |
| a)      | Manganese Ore                            |               | 1,44,000       | MOIL / OMC   | ~ 500                        | By Rail & Road (through covered trucks)                          |
| b)      | Coke                                     |               | 18,000         | Andhra Pradesh   | ~ 500                        | By road (through covered trucks)                                 |
| c)      | MS Scrap / Mill scales                   |               | 12,000         | Inhouse Generation   | ---                          | By road (through covered trucks)                                 |
| d)      | Electrode Paste                          |               | 1320           | Maharashtra / West Bengal  | ~ 300                        | By road (through covered trucks)                                 |
| 5 (iii) | <b>For Silico Manganese – 42,000 TPA</b> |               |                |  |                              |  |
| a)      | Manganese Ore                            |               | 84,000         | MOIL / OMC   | ~ 500                        | By Rail & Road (through covered trucks)                          |
| b)      | FeMn Slag                                |               | 18,900         | Own generation   | ---                          | ---  |
| c)      | Coke                                     |               | 12,600         | Andhra Pradesh   | ~ 500                        | By road (through covered trucks)                                 |
| d)      | Dolomite                                 |               | 12,600         | Chhattisgarh / Andhra Pradesh                                      | ~ 500                        | By road (through covered trucks)                                 |



| S.No.        | Raw Material                         | Quantity (TPA) | Sources                                 | Distance from site (in Kms.)     | Mode of Transport  |
|--------------|--------------------------------------|----------------|---|----------------------------------|--|
| e)           | Electrode paste                      | 840            | Maharashtra / West Bengal               | ~ 300                            | By road (through covered trucks)   |
| f)           | Quartz                               | 14,700         | Chhattisgarh / Andhra Pradesh           | ~ 500                            | By road (through covered trucks)   |
| g)           | Briquetted Bagfilter dust            | 630            | Own generation                          | ---                              | ---  |
| <b>7(iv)</b> | <b>For Ferro Chrome – 45,000 TPA</b> |                |   |                                  |  |
| a)           | Chrome Ore                           | 1,08,000       | Odisha<br>Imported                      | ~ 500<br>~ 600 (from Vizag Port) | By road (through covered trucks)<br>From Port By Road (through covered Trucks) |
| b)           | Coke                                 | 22,500         | Andhra Pradesh                          | ~ 500                            | By road (through covered trucks)   |
| c)           | Quartz                               | 2,745          | Chhattisgarh / Andhra Pradesh           | ~ 500                            | By road (through covered trucks)   |
| d)           | MS Scrap / Mill Scale                | 6,750          | Inhouse Generation                      | ---                              | By road (through covered trucks)   |
| e)           | Bauxite                              | 6,750          | Chhattisgarh / Maharashtra              | ~ 500                            | By road (through covered trucks)   |
| f)           | Electrode Paste                      | 900            | Maharashtra / West Bengal               | ~ 300                            | By road (through covered trucks)   |
| g)           | Briquetted Bagfilter dust            | 900            | Own generation                          | ---                              | ---  |
| <b>5 (v)</b> | <b>For Pig Iron –72,000 TPA</b>      |                |   |                                  |  |
| a)           | Iron ore                             | 78,840         | Barbil, Orissa<br>NMDC,<br>Chhattisgarh | ~ 500 Kms.                       | By rail & road (through covered trucks)  |
| b)           | Coke                                 | 45,216         | Andhra Pradesh                          | ~ 500 Kms.                       | By road (through covered trucks)   |
| c)           | Lime stone                           | 10,800         | Chhattisgarh                            | ~ 100 Kms.                       | By road (through covered trucks)   |
| d)           | Dolomite                             | 10,800         | Chhattisgarh / Andhra Pradesh           | ~ 500                            | By road (through covered trucks)   |

| S.No. | Raw Material | Quantity (TPA) | Sources                   | Distance from site (in Kms.) | Mode of Transport                |
|-------|--------------|----------------|---------------------------|------------------------------|----------------------------------|
| e)    | Mill Scale   | 46,800         | Inhouse Generation        | ---                          | By road (through covered trucks) |
| f)    | Fluorspar    | 1,800          | Maharashtra / West Bengal | ~ 300 Kms.                   | By road (through covered trucks) |

## 1.4 MANUFACTURING PROCESS

### 1.4.1 Sponge Iron (DRI)

The Direct Reduced Iron (DRI) plant will comprise of 1 x 600 TPD & 2 x 350 TPD to manufacture 4,29,000 TPA of Sponge Iron with 1 x 18 & 2 x 10 MW (38 MW) Waste Heat Recovery power generating unit.

Refractory lined rotary kilns will be used for reduction of iron ore in solid state.

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<sup>0</sup>C enters the reduction zone. Temperature of the order of 1050<sup>0</sup>C 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<sup>0</sup>C. 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 7 x 20 T Induction furnaces to manufacture Hot Billets / MS Billets / Ingots of 4,15,800 TPA.

Electric Steel Making through Melting in Induction Furnace (IF), secondary refining in a Ladle Furnace (LF) in a Continuous Casting Machine has been selected as the process route of converting the charge mix of Sponge Iron and Scrap to Slabs required for the Rolling Mill by Hot charging method.

Provision shall be made in the Caster to produce billets also in case of market demand. The proposed process is well established and is most environment friendly and energy efficient. The Slabs from the Caster shall be hot charged to the Rolling Mill without reheating furnace to reduce fuel consumption. Provision has been made for reheating furnace with furnace oil which shall be used in case of emergency.

The flue gases will be treated in fume extraction system with bagfilters.

## 1.4.3 Rolling Mill (Strip Mill)

The Hot Billets produced from Induction Furnaces will be directly sent to Rolling Mill to produce Rolled Products (OR) Hot Billets will be cooled and stored will be sent to reheating furnaces for the heating and will be sent to Rolling Mill. Furnace will be heated with either LDO / Producer Gas. Reheating furnace to produce of 1 x 800 TPD (2,64,000 TPA) of TMT bars / Structural Steel / Wire rod / Strip (through 85 % Hot charging with Hot Billets and remaining 15% through RHF with Producer Gas / LDO as fuel).

## 1.4.4 Submerged Electric Arc Furnace

Submerged Electric Arc Furnace (3 x 9 MVA) will be setup in the proposed project. Ferro Manganese, Silicon Manganese will be produced using manganese ore as main raw material, Ferro Silicon will be produced using Quartz as main raw material & Ferro Chrome will be produced using Chrome Ore as main raw material in a sub-merged arc furnace using reducer

(Coke) under high voltage. Flue gases will be extracted through 4<sup>th</sup> hole and then treated in bag filters.

## 1.4.5 Power Generation

### Through WHRB Boiler

The hot flue gases from proposed **1 x 600 TPD & 2 x 350 TPD** DRI kilns will pass through waste heat recovery Boiler to recover the heat and to generate (**1 x 18 MW & 2 x 10 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 through stacks of adequate height.

### Through FBC Boiler

Coal (Imported / Indian) along with dolochar will be used as fuel in FBC Boilers to generate 1 x 18 MW of electricity. The flue-gases will be treated in high efficiency ESP and then discharged through a stack of adequate height into the atmosphere.

## 1.4.6 Fly Ash Brick Manufacturing Unit

It is proposed to establish Fly Ash brick making unit of 45,000 bricks/day capacity. Fly ash (70%), Gypsum (5%), cement (10%) and Stone dust (15%) are manually feed into a pan mixer where water is added to the required proportion for homogeneous mixing. The proportion of raw material may vary depending upon quality of raw materials.

## 1.5 Water Requirement

- Water required for the proposed project will be 2220 KLD. This includes make up water for DRI Kilns, Induction Furnaces, Rolling Mill, Ferro Alloys Unit, Power Plant, Brick manufacturing unit & for Domestic requirement.
- Water required will be sourced from Treated waste water of Raipur Municipality Corporation. An MoU has been entered with Raipur Municipal Corporation (RMC) for supply of Treated Sewage Water dt. 02.01.2024.
- A dedicated pipeline will be laid upto the project site.
- Air cooled condensers will be provided to FBC Power plant instead of water-cooled condensers to reduce the water consumption significantly.

**Table No.1.4: Water Requirement Breakup**

| S.No. | Unit                            | Quantity in KLD |
|-------|---------------------------------|-----------------|
| 1.    | DRI plant                       | 430             |
| 2.    | SMS plant                       | 290             |
| 3.    | Rolling Mill                    | 240             |
| 4.    | Gasifier                        | 10              |
| 5.    | Ferro Alloy plant               | 90              |
| 6.    | Bricks manufacturing Unit       | 10              |
| 7.    | Briquetting plant               | 10              |
| 8.    | Captive Power Plant             | 1120            |
|       | • Cooling Tower Make-up         | 539             |
|       | • Boiler make-up                | 404             |
|       | • D.M. plant regeneration water | 177             |
| 9.    | Domestic                        | 20              |
|       | <b>Total</b>                    | <b>2220</b>     |

## 1.6 Wastewater Generation

- Total wastewater generated from the proposed project will be 497 KLD.
- There will be no wastewater discharge in DRI Kilns as closed-circuit cooling system will be adopted.
- Wastewater from Induction Furnace, Rolling Mill, Ferro Alloys, Power plant will be treated in ETP and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development.
- Wastewater from Rolling Mill will be treated in oil separator followed by settling tank and will be recycled through closed circuit cooling system.
- 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.
- Wastewater from Gasifier will be used in ABC chamber of DRI Kilns.
- Garland drains will be provided around all the raw material stacking areas
- Effluent from power plant will be treated in ETP and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning, brick making and for greenbelt development.
- RO rejects will be utilised for Flushing in Toilets, Cleaning of Toilets, Floor washings, etc.
- Sanitary waste water will be treated in STP and will be utilized for greenbelt development.

- Zero Liquid Discharge (ZLD) will be maintained in the proposed project.
- 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.

**Table No.1.5: Breakup of Wastewater Generation**

| S.No. | Source                           | Generation (KLD) |
|-------|----------------------------------|------------------|
| 1.    | Sponge Iron                      | ---              |
| 2.    | Induction Furnace                | 29               |
| 3.    | Rolling Mill                     | 12               |
| 4.    | Ferro Alloys                     | 6                |
| 5.    | Gasifier                         | 8                |
| 6.    | Power Plant                      | 426              |
|       | a) Cooling Tower blowdown        | 135              |
|       | b) Boilers blowdown              | 114              |
|       | c) D.M. plant regeneration water | 177              |
| 7.    | Sanitary Wastewater              | 16               |
|       | <b>Total</b>                     | <b>497</b>       |

## 1.7 Wastewater Characteristics

The following are the Characteristics of wastewater:

**Table No.1.6: Characteristics of Effluent**

| PARAMETER           | CONCENTRATION          |                       |                 |                      |
|---------------------|------------------------|-----------------------|-----------------|----------------------|
|                     | Cooling Tower blowdown | DM Plant Regeneration | Boiler Blowdown | Sanitary waste water |
| pH                  | 7.0 – 8.0              | 5.0 – 10.0            | 9.5 – 10.5      | 7.0 – 8.5            |
| BOD (mg/l)          | --                     | --                    | --              | 200 – 250            |
| COD (mg/l)          | --                     | --                    | --              | 300 – 400            |
| TDS (mg/l)          | 1000                   | 5000 – 6000           | 1000 mg/l       | 800 – 900            |
| Oil & Grease (mg/l) | --                     | 10                    | --              | 5 - 10               |
| TSS (mg/l)          | --                     | --                    | --              | 150-200              |

## 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<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> & CO at 8 stations including project site during **1<sup>st</sup> October 2024 to 31<sup>st</sup> December 2024**. The following are the concentrations of various parameters at the monitoring stations:

Table No.2.1: AAQ Data Summary

| S.No. | Parameter         | Concentration range ( $\mu\text{g}/\text{m}^3$ ) | Standard as per NAAQS ( $\mu\text{g}/\text{m}^3$ ) |
|-------|-------------------|--|--|
| 1.    | PM <sub>2.5</sub> | 23.3 to 38.3                                     | 60   |
| 2.    | PM <sub>10</sub>  | 38.9 to 63.8                                     | 100  |
| 3.    | SO <sub>2</sub>   | 8.8 to 13.9                                      | 80   |
| 4.    | NO <sub>x</sub>   | 12.2 to 19.6                                     | 80   |
| 5.    | CO                | 470 to 1040                                      | 2000   |

## 2.2 Water Quality

### 2.2.1 Surface Water Quality

Kharun River is flowing at distance of 3.4 Kms. from project site and Gudheli Village Pond is present at a distance of 1.0 Km. from the project. 3 no. of samples (i.e. Kharun river upstream, Kharun river downstream and Gudheli village pond) have been collected 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 daytime & Night time. The equivalent **day-night** noise levels in the study zone are ranging from **46.34 dBA to 51.23 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<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> & 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.

**Table No.3.1: NET RESULTANT MAXIMUM CONCENTRATIONS DURING THE OPERATION OF THE PROPOSEDPROJECT (APCS WORKING SCENARIO)**

| Item   | PM <sub>2.5</sub><br>(µg/m <sup>3</sup> ) | PM <sub>10</sub><br>(µg/m <sup>3</sup> ) | SO <sub>2</sub><br>(µg/m <sup>3</sup> ) | NO <sub>x</sub><br>(µg/m <sup>3</sup> ) | CO<br>(µg/m <sup>3</sup> ) |
|--|---|--|---|---|----------------------------|
| Maximum baseline conc. in the study area   | 38.30                                     | 63.80                                    | 13.90                                   | 19.60                                   | 1040.00                    |
| Maximum predicted incremental rise in concentration due to proposed project (Point Sources)  | 1.23                                      | 2.04                                     | 3.30                                    | 9.62                                    | 0.53                       |
| Maximum predicted incremental rise in concentration due to proposed project (Vehicular emissions)  | 0.30                                      | 0.49                                     | --                                      | 3.70                                    | 2.38                       |
| <b>Net resultant concentrations during operation of the proposed project</b>   | <b>39.83</b>                              | <b>66.33</b>                             | <b>17.20</b>                            | <b>32.92</b>                            | <b>1,052.91</b>            |
| <b>National Ambient Air Quality Standards</b>  | <b>60</b>                                 | <b>100</b>                               | <b>80</b>                               | <b>80</b>                               | <b>2000</b>                |
| The net resultant Ground level concentrations during operation of the proposed project are within the NAAQS. Hence, there will not be any adverse impact on air environment due to the proposed project. |   |  |   |   |                            |

The net resultant Ground level concentrations during operation of the proposed project are within the NAAQS. Hence, there will not be any adverse impact on air environment due to the proposed 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. **8.07 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

- Total wastewater generated from the proposed project will be 497 KLD.
- There will be no wastewater discharge in DRI Kilns as closed-circuit cooling system will be adopted.

- Wastewater from Induction Furnace, Rolling Mill, Ferro Alloys, Power plant will be treated in ETP and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development.
- Wastewater from Rolling Mill will be treated in oil separator followed by settling tank and will be recycled through closed circuit cooling system.
- Air Cooled condensers will be provided in the power plant, which will reduce the water consumption significantly. Hence wastewater generation will also be minimized.
- Wastewater from Gasifier will be used in ABC chamber of DRI Kilns.
- Garland drains will be provided around all the raw material stacking areas
- Effluent from power plant will be treated in ETP and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning, brick making and for greenbelt development.
- RO rejects will be utilised for Flushing in Toilets, Cleaning of Toilets, Floor washings, etc.
- Sanitary waste water will be treated in STP and will be utilized for greenbelt development.
- Zero Liquid Discharge (ZLD) will be maintained in the proposed project.
- 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.

### 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. **8.07 Ha.** of extensive 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 certain upliftment in Socio Economic status of the people in the area & 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  |
|--|---|--------------------------------------|--|--|
| <b>1. Water &amp; Waste water quality</b>  |   |                                      |  |  |
| 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   |
| <b>2. Air Quality</b>  |   |                                      |  |  |
| A.   | Stack Monitoring                                  | CEMS (all Stacks)<br>Once in a month | --<br>--                                     | PM, SO <sub>x</sub> , NO <sub>x</sub> & CO<br>PM, SO <sub>2</sub> & NO <sub>x</sub>  |
| B.   | Ambient Air quality                               | CAAQMS<br>Quarterly Once             | continuously<br>24 Hourly                    | PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> & CO<br>PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> & CO |
| C.   | Fugitive emissions                                | Quarterly Once                       | 8 hours                                      | PM   |
| <b>3. Meteorological Data</b>  |   |                                      |  |  |
| A.   | Meteorological data to be monitored at the plant. | Daily                                | Continuous monitoring                        | Temperature, Relative Humidity, rainfall, wind direction & wind speed.   |
| <b>4. Noise level monitoring</b>   |   |                                      |  |  |
| A.   | Ambient Noise levels                              | Once in a month (Hourly)             | Continuous for 24 hours with 1-hour interval | Noise levels   |
| <b>5. Soil Quality Monitoring</b>  |   |                                      |  |  |
|  | Soil Quality                                      | Half Yearly                          | Core drilling samples                        | pH, SAR, texture, N,K,P etc.   |
| <b>Note:</b> PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> and CO are monitored as per Ministry notification vide G.S.R. No. 826(E) dated 16 <sup>th</sup> November, 2009 |   |                                      |  |  |

## 5.0 ADDITIONAL STUDIES

Draft EIA report is being submitted for Public Hearing.

Risk analysis deals with the identification and quantification of risks, the plant equipment's and personnel are exposed to, due to accidents resulting from the hazards present in the factory. Hazard analysis involves the identification and quantification of the various hazards that are likely to occur in the industry.

No Rehabilitation and Resettlement is involved in the proposed project as there are no habitations in the project site. 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.

The local areas will be benefited by way of generation of employment opportunities, increased demand for local products and services.

There will be an overall improvement in the income level of the local people.

The proposed project will generate direct employment 300 nos. which will be employed officials, staff, skilled, semi -skilled labour & 500 nos. indirectly employed in contract works & transport.

## 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 Systems Proposed**

| S.No. | Source                                       | Control Equipment  | Emission at the outlet       |
|-------|--|--|------------------------------|
| 1.    | DRI kilns with WHRB's                        | Electro Static Precipitators (ESP)   | PM < 30 mg/Nm <sup>3</sup>   |
| 2.    | Induction Furnaces with CCM                  | Fume Extraction system with PTFE bag filters   | PM < 30 mg/Nm <sup>3</sup>   |
| 3.    | Submerged Electric Arc Furnace               | 4 <sup>th</sup> Hole Fume Extraction system with bag filters   | PM < 30 mg/Nm <sup>3</sup>   |
| 4.    | Re-heating furnaces attached to Rolling Mill | Stack  | PM < 30 mg/Nm <sup>3</sup>   |
| 5.    | FBC Boiler                                   | Electro Static Precipitators   | PM < 30 mg/Nm <sup>3</sup>   |
|       |  | Limestone will be used as bed material and act as sulphur absorbent. Lime dosing will also be done   | SOx < 100 mg/Nm <sup>3</sup> |
|       |  | Combustion temperature will be around 800-850 <sup>0</sup> C, which is not conducive for thermal NOx formation. Low NOx burners with 3-stage combustion, flue gas recirculation and auto combustion control system will be provided. | NOx < 100 mg/Nm <sup>3</sup> |

**Note:** Apart from the above Dry fog system with dust suppression at transfer points, crushing plant, dust

| S.No. | Source | Control Equipment | Emission at the outlet  |
|-------|--------|-------------------|---|
|       |        |                   | extraction system with bagfilters at other dust emanating areas, covered conveyers, mechanical dust sweepers, etc. will also be provided. |

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

- Total wastewater generated from the proposed project will be 497 KLD.
- There will be no wastewater discharge in DRI Kilns as closed-circuit cooling system will be adopted.
- Wastewater from Induction Furnace, Rolling Mill, Ferro Alloys, Power plant will be treated in ETP and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning and for greenbelt development.
- Wastewater from Rolling Mill will be treated in oil separator followed by settling tank and will be recycled through closed circuit cooling system.
- 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.
- Wastewater from Gasifier will be used in ABC chamber of DRI Kilns.
- Garland drains will be provided around all the raw material stacking areas
- Effluent from power plant will be treated in ETP and after ensuring compliance with SPCB norms, it will be utilized for dust suppression, ash conditioning, brick making and for greenbelt development.
- RO rejects will be utilised for Flushing in Toilets, Cleaning of Toilets, Floor washings, etc.

- Sanitary waste water will be treated in STP and will be utilized for greenbelt development.
- Zero Liquid Discharge (ZLD) will be maintained in the proposed project.
- 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

## **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). Service water will be treated in an oil separator and after treatment it will be taken to CMB. The treated effluent will be utilized for dust suppression, ash conditioning and for Greenbelt development. No effluent will be let out of the plant premises. Hence Zero discharge concept will be implemented.

## **TREATED EFFLUENT DISPOSAL**

|   |                |
|---|----------------|
| <b>Total treated effluent generation</b>                            |                |
| Effluent quantity to be used for ash conditioning                   | 130 KLD        |
| Effluent to be used for dust suppression in CHP                     | 88 KLD         |
| Effluent to be used for Greenbelt development                       | 211 KLD        |
| Effluent from Gasifier to be used in ABC Chamber                    | 8 KLD          |
| RO Rejects to be used for Floor washing, Toiler cleaning & Flushing | 60 KLD         |
| <b>Total</b>  | <b>497 KLD</b> |

**8.07 Ha.** of greenbelt will be developed within the plant premises by using the treated effluent. A dedicated pipe distribution network will be provided for using the treated effluent for greenbelt development.

## **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 wastewater 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 No.7.2: Solid Waste Generation and Disposal**

| S.No. | Waste / By product                                 | Quantity (TPA) | Proposed method of disposal  |
|-------|--|----------------|--|
| 1.    | Ash from DRI                                       | 77,220         | Will be utilized in the proposed Brick Manufacturing Unit  |
| 2.    | Dolochar   | 85,800         | Will be used in proposed FBC power plant as fuel.  |
| 3.    | Kiln Accretion Slag                                | 3,861          | Will be given to road contractor for road laying & utilized in the proposed brick manufacturing unit.  |
| 4.    | Wet scrapper sludge                                | 17,160         | Will be given to road contractor for road laying & utilized in the proposed brick manufacturing unit.  |
| 5.    | SMS Slag   | 41,580         | Will be given to road contractor for road laying   |
| 6.    | End Cuttings from Rolling Mill                     | 7920           | Will be reused in the SMS  |
| 7.    | Mill scales from Rolling Mill                      | 792            | Mill scales will be utilized in the proposed Ferro alloys manufacturing units.   |
| 8.    | Ash from Power Plant (with Indian Coal + dolochar) | 1,49,820       | Will be utilized in the proposed brick manufacturing unit within the premises.   |
| 9.    | Slag from FeMn                                     | 60,000         | Will be reused in manufacture of SiMn as it contains high SiO <sub>2</sub> and Silicon.  |
| 10.   | Slag from FeSi                                     | 2,940          | Will be given to Cast iron foundries   |
| 11.   | Slag from SiMn                                     | 42,000         | will be used for Road construction / will be given to slag cement manufacturing  |
| 12.   | Slag from FeCr                                     | 40,500         | Will be processed in jigging plant for Chrome recovery. After Chrome recovery, the left-over slag will be analysed for Chrome content through TCLP test, if the Chrome content in the slag is within the permissible limits, then it will be utilized for Road laying /brick manufacturing.<br>If Chrome content exceeds the permissible limits, it will |

| S.No. | Waste / By product | Quantity (TPA) | Proposed method of disposal                |
|-------|--------------------|----------------|--|
|       |                    |                | be sent to nearest TSDF.                   |
| 13.   | Slag from Pig Iron | 43,200         | Will be given to slag cement manufacturing |

### Hazardous waste generation, storage & disposal

1. Waste oil: 1.0 KL / Annum
2. Used batteries will be given back to the supplier under buy back agreement with supplier.
3. E-waste generated from the plant will be given to authorized recycler.

## 7.5 Greenbelt Development

- **8.07 Ha.** (33% of total project area) of area is earmarked for Greenbelt will be developed within the project site.
- Proposed to develop minimum 15 meters wide green belt along the periphery, inside the plant premises.
- The tree species to be selected for the plantation are pollutant tolerant, fast growing, wind firm, deep rooted. A three-tier plantation is proposed comprising of an outer most belt of taller trees which will act as barrier, middle core acting as air cleaner and the innermost core which may be termed as absorptive layer consisting of trees which are known to be particularly tolerant to pollutants.
- 3- tier plantation will be taken up all around the periphery of the plant premises.
- Greenbelt will be developed as per CPCB guidelines (i.e. 2500 plants/ Ha.)
- Local DFO will be consulted in developing the green belt.
- Total no. of plants will be 20,175 nos. The following will be the greenbelt development plan.

|                      |   |             |
|----------------------|---|-------------|
| 1 <sup>st</sup> year | - | 10,000 nos. |
| 2 <sup>nd</sup> year | - | 6,105 nos.  |
| 3 <sup>rd</sup> year | - | 4,070 nos.  |

## 7.6 Cost for Environment Protection

|  |                    |
|--|--------------------|
| Capital Cost for Environment Protection for proposed plant | : Rs. 46.36 Crores |
| Recurring Cost per annum for Environmental protection      | : Rs. 9.00 Crores  |

## 7.7 Implementation of CREP Recommendations

All the CREP recommendations will be strictly followed.

- Continuous stack monitoring system is proposed for stack attached to all the Stacks.
- Online Ambient Air Quality Monitoring Stations will be established in consultation with SPCB during operation of the plant.
- Fugitive emission monitoring will be carried out as per CPCB norms.
- Energy meters will be installed for all the pollution control systems.
- Rain water harvesting pits will be constructed in consultation with CGWB.

