



# **SUMMARY ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

**of**

## **Proposed Steel Plant**

**Borai Industrial Growth Centre  
Rasmara  
Tehsil & District: Durg  
Chhattisgarh**

**By**

**Pushp Steels and Mining Pvt Ltd**

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## 1. Project Description

Pushp Steels and Mining Private Limited (PSMPL) proposes to establish a Steel Plant in Borai Industrial Growth Centre, Rasmara, Tehsil and District Durg, Chhattisgarh. The name and capacity of the proposed units is given below:

**Table 1.1 Name of Units, Capacity and Products of Proposed Project**

Name of Unit	Size and Production Capacity	Name of Products
Iron Ore Beneficiation cum Pellet Plant	600000 TPA	Iron ore pellets
DRI Plant	350000 TPA	Sponge iron
Induction Furnace (SMS)	320000 TPA	Billets
Ferroalloy Plant	52000 TPA	(FeMn, FeSi, SiMn)
Press Shop	120000 TPA	Components for automobiles
Captive Power Plant	35 MW	Electricity

The proposed Integrated Steel Plant falls under category A, Sl. No 3a of EIA Notification 14-9-2006. PSMPL applied to Ministry of Environment, Forests & Climate Change, Govt of India (MOEF&CC) for granting Environmental Clearance to this project. MOEF&CC issued the Terms of Reference (TOR) for conducting EIA Study for the proposed project vide No. J-11011/393/2018-IA II(I) dated 18-12-2019, amendment dated 28-06-2019. This draft EIA Report has been prepared for Public Hearing Purpose.

**Project Cost:** The estimated cost of the proposed project is Rs.510 crores.

**Employment:** The Steel Plant will provide direct and indirect employment, in phases, to about 1000 persons, About 100 local people will get job for 48- 60 months during construction of the project.

**Land:** 11.421 hectares land has been purchased from Chhattisgarh State Industrial development Corporation to establish the project. Entire land is industrial category land

**Water:** The water requirement for the plant is 5000 KLD. CSIDC has committed to supply the water required for the project

**Raw Materials Source & Transportation:** Transportation of the raw materials and finished products shall be done by rail. The nearest railway siding is located at Rasmara, which is about 1 km away from the project site.

**Location:** Borai industrial Growth Centre is located adjoining the National Highway 6 (Durg Bypass) at Rasmada, District Durg, Chhattisgarh. The transportation infrastructure like rail and road is available. The adjoining industries are mostly steel making plants and steel fabrication units (Topworth Steel, Raipur Power & Steel, Jai Balajee Steel, etc). Shivnath river is located on the east side of Borai industrial Area. Rasmada railway station and village is located about 1 km away in north side of industrial area. Durg town is located about 7-8 km away of the south east side. Bhilai Nagar and Bhilai steel plant is allocated about 13-14 km away in the east to southeast direction.

### **Brief Manufacturing Process**

**Technology:** Best Available Technology has been selected for the steel & power making process. The selected units are based on environment friendly technology, having low pollution intensity. Internationally applicable pollution discharge standards have been proposed for the steel and power plant. The air pollution control systems shall be designed to meet particulate matter emission norms of 30 mg/Nm<sup>3</sup>.

**Beneficiation cum Pellet Plant:** Iron ore fines will be washed using water and the concentrated iron ore will be mixed with bentonite, lime and water and made into balls in rotating disc. The balls are passed through travelling grate and furnace to make hard iron ore pellets.

**DRI Plant:** Iron ore, coal and dolomite is crushed and fed to rotary kiln to produce sponge iron. The waste gases are utilized to produce steam and power through waste heat recovery boilers.

**Steel Melting Shop:** DRI along with some MS scrap and ferroalloys are charged into Induction furnace. Molten metal is tapped and send to Ladle Refining Furnace. Liquid steel is casted into billets in casting machines. Slag is skimmed out from the Induction Furnace.

**Press Shop:** Billets will be used to make various components for use in automobiles in the press shop.

**Ferroalloy plant:** Ferroalloys like ferromanganese, silicomanganese and ferrosilicon will be produced by using manganese ore, coal, coke, scrap and quartzite in submerged arc furnace. Slag will be tapped from the slag door.

**Power Plant:** Hot gas from DRI kilns will be used to produce steam in waste heat recovery boilers that will produce 25 MW electricity. Dolochar from DRI kiln and coal will be mixed and fired in boiler to generate steam and 10 MW electricity.

## 2. Description of the Environment

Baseline environmental data generation of study area was carried out during the period 1<sup>st</sup> December 2018 to 28<sup>th</sup> February 2019. Data was generated by following the standard procedure of the Ministry of Environment & Forests and Central Pollution Control Board. Study area of 10 km radial distance around the site has been considered for environmental baseline data generation.

**Air Quality:** PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, benzene, ozone, ammonia, carbon monoxide as well as Benzo(a)pyrene, As, Ni and Pb in PM<sub>10</sub> were monitored at eight locations in the study area. Monitoring was done at upwind and downwind directions of the site. The baseline air quality levels are well within the National Standards.

**Noise Quality:** Ambient noise levels were monitored at eight locations in the study area. The noise levels are well within the National Standards.

**Water Quality:** Two surface water samples and eight groundwater samples were collected from the study area for analysis. Surface water samples were collected from upstream and downstream point of Shivnath river and village ponds. The surface water quality of river meets the designated use criteria. The surface water quality is fit for drinking after conventional treatment. Groundwater samples were collected from hand pumps and tube wells of villages around the site. The groundwater quality is potable and meets the standards prescribed by Bureau of Indian Standards (BIS 10500).

**Soil Quality:** Four soil samples were collected from the agriculture fields around the project site and analyzed for relevant physico-chemical parameters. The texture of soil varies from Sandy loam to Sandy clay loam. The organic matter, nitrogen, potassium and phosphorus content of the soil are found to be in moderate amount. The pH and conductivity of all the soil samples are well within the acceptable range.

**Meteorology:** Wind speed, wind direction, temperature, humidity, were recorded on hourly basis. Historical met data was collected from India Meteorological Department. The predominant wind direction is from north east sector.

**Socioeconomic Pattern:** Industrial and Agriculture workers dominate the occupation structure of the study area. Paddy is the main crop grown in the area. Other crops grown in the area are gram, arhar, urad, moong. Vegetables and fruits like banana, guava, papaya, etc are also grown in the study area

### 3. Anticipated Environmental Impact & Mitigation Measures

**Air Quality:** The name of air pollution control devices and stack height is given below:

Production Unit	Air Pollution Control Device	Stack Height (m)
Pellet Plant	ESP	40
PP Dedusting	Bag filter	30
1x200 TPD DRI Kiln	ESP	40
1x350 TPD DRI Kiln	ESP	50
1x500 TPD DRI Kiln	ESP	60
4x15T Induction Furnace	FES, Bag filter	30
3x12T Induction Furnace	FES, Bag filter	30
DRI Dedusting (9 stack group)	Bag filter	30
3 x 9 MVA SAF	FES, Bag Filter	30
2 x 5 MW AFBC	ESP, FGD & SNCR	30

Mathematical modelling study of air emissions coming out of the stack reveals that the ambient air quality of the study area will remain within the prescribed standards, after the project operation. The maximum ground level concentration (MGLC) has been superimposed over the existing baseline levels, and the resultant levels of criteria pollutants are shown below:

**Impact of Air Quality & Percent Contribution by the Project (24-h avg in  $\mu\text{g}/\text{m}^3$ )**

Parameter	Background level, Max	Predicted MGLC	Resultant Concentration	NAAQS (Nov 2009)
SO <sub>2</sub>	10	3.5	13.5	80
NO <sub>x</sub>	16	3.9	19.9	80
PM <sub>10</sub>	68	6.7	75	100

**Mitigation Measures:** Particulate Matter emissions from all the units will be controlled using Electrostatic Precipitators, Bag Filters, Scrubbers, Fume Extraction System and Water Sprinkling System. The outlet dust emission from all sources will be restricted within 30 mg/Nm<sup>3</sup>. The outlet SO<sub>2</sub> and NO<sub>x</sub> emissions will be restricted within 100 mg/Nm<sup>3</sup>. Gaseous pollutants will be discharged using tall stacks as per CPCB norms. 33% land area has been earmarked for greenbelt development. 10-25 m wide greenbelt shall be developed around the premises. Water spraying will be done to suppress the dust generated during construction activity. All internal roads of the plant will be made concrete. All roads and shop floors will be cleaned regularly. Fugitive dust from all sources like stock house, day bins, material handling, crushing, screening, etc. will be controlled using plant dedusting systems.

**Noise Quality:** Unloading and hauling operations and movement of trucks and dumpers will be properly scheduled to minimize noise. The air compressors, rotating machines, pumps, ID fans, air blast, blowers, mill operations will be the major sources of noise. All activities will be carried out inside sheds and maintenance program for equipment will be routinely followed. Sound absorbing materials will be provided in the room where both the source and receiver are present so that the reflecting sound is absorbed. 33% land shall be developed as greenbelt, which will further reduce the noise level. In noisy work areas soundproof duty rooms will be provided. Workers working in noisy areas will be given ear plugs. In this manner the noise level will be restricted within the plant boundary to meet the industrial area standards of 75 dBA during day and 70 dBA during night.

**Water Quality:** Water consumption for the project has been optimized to minimum by using water recycling and reuse system. The name of effluent streams, water consumption, wastewater generation and treatment scheme for reuse and recycling is given in the EIA report.

**Mitigation Measures:** Sedimentation pits will be constructed to trap the silt-laden water arising from site offices, canteens and other washing facilities at the construction site. The overflow will be reused for dust suppression at construction site. No wastewater will be discharged outside the plant premises (under normal operating conditions). The storm water drain will be kept separate from wastewater drains. The storm water drain will have sedimentation pits and oil-water interceptors, before discharging into nalla. During rainfall the unutilized treated wastewater shall be discharged onto river. Spent oil and lubricants will be in drums and given to authorized recyclers.

**Solid Wastes:** Most of the solid wastes shall be recycled and reused for various beneficial purposes. In order to dispose the unutilized solid wastes, PSMPL shall establish Storage and Disposal Facility in consultation with the State Government (if required). The disposal sites shall be designed and engineered as per the CPCB guidelines.

**Soil, Health and Ecology Quality:** Air pollution control devices will be installed at all primary and secondary points to trap the dust. Flue gas will be dispersed using tall stacks. All air emissions will be kept below standards. The national ambient air quality standards prescribe level of air pollutants that will protect public health and vegetation. Air quality dispersion modeling study proved that the ambient air quality of the area will remain within the national air quality standards. Solid wastes generated from the air pollution control devices will be reused and recycled. Unutilized solid wastes shall be used for reclaiming abandoned mines as per CREP guidelines. All wastewater shall be recycled and reused inside the plant premises. 33% area of the area will be made green. These measures are adequate to protect the ecology, human health and soil quality of surrounding environment.

**Landform:** No building materials will be extracted from the project site. It will be ensured that drains and garland drains are constructed conforming to the existing drainage pattern so that alteration is kept to the minimum and flooding does not occur.



#### **4.0 Environmental Monitoring Plan**

**Environmental Management Department:** Full-fledged EMD shall be established in plant. EMD shall be placed under the direct control of Chief Executive. Environmental laboratory shall be established to conduct routine monitoring. Qualified and experienced Scientists and Engineers shall be recruited in the EMD.

**Activities of EMD:** EMD will perform the following activities:

1. Operating online ambient air quality and noise quality monitoring locations at three places around the plant, in consultation with SPCB.
2. Operating online stack emissions monitoring equipment, monitoring the fugitive emissions in work environment and report any abnormalities for corrective measures.
3. Regular monitoring of re-circulating water quality, ground water quality and surface water quality of surrounding areas.
4. Regular noise monitoring of the work zone and plant equipment and report any abnormalities for corrective measures
5. Developing Greenbelt and maintaining it, development of other forms of greenery like nursery, gardens, etc. inside the plant premises.
6. Regular monitoring the quantity and quality of solid waste and explore reuse of the solid wastes.
7. Develop schemes for water conservation, rain water harvesting and reuse of treated wastewater.

#### **5.0 Additional Studies**

**Risk Mitigation Measures:** Necessary risk mitigation measures, including firefighting measures will be implemented. Hazards due to mechanical injury will be reduced by use of standard design and operating procedures. Oil tanks and LPG bullets will be designed and located as per the guidelines of Oil Industry Safety Directorate. All safety measures shall be provided. Disaster Management Plan shall be implemented in consultation with the District Administration.

## **6.0 Project Benefits**

The project will overcome the demand and supply gap of steel in this region of India. The project will generate additional revenue for Chhattisgarh Government. The project will create employment for 100 people during the construction stage of 48-60 months. Company will provide direct and indirect employment to about 1000 people, in phases. Local people will be preferred for employment during the construction and operation of the project. Skill development program shall be implemented to train the local people and employ them in the project. PSMPL has earmarked 1% of the project cost (Rs.5.1 Crores) for undertaking various socio-economic and community development activities, as per norms.

## **7.0 Environmental Management Plan**

Environment Management Department will implement all the recommendations mentioned in the EIA Report and comply with all conditions given by MOEF&CC in the Environmental Clearance and Consent conditions of SPCB. The capital cost for environmental management of the Proposed Project is estimated to be Rs.13 crores. Budget allocation of Rs. 2.7 crores shall be made every year to meet the recurring expenditure for implementing the environmental management measures. EMD will ensure that all air pollution control devices, effluent treatment plant and water re-circulating systems function effectively. Schemes for resource conservation (raw materials, water, etc), rainwater harvesting and social forestry development will be taken up by EMD. Greenbelt development on 33% land area inside the plant premises will be done by EMD. Environmental awareness programs for the employees will be conducted. EMD will also ensure cleanliness inside the plant and surrounding areas. All records shall be submitted to the regulatory authorities, displayed at relevant places like company gate and website and maintained by the EMD.