Executive Summary

For

Proposed Manufacturing of 2,500 TPM of Manganese Oxide (Brownfield Project)

At

Khasra No. 67/6 & 67/3, Village Hingana Taluka-Tumsar, District-Bhandara, Maharashtra

Project Proponent

M/s. SPSC POWER

Environmental Consultant

Pollution and Ecology Control Services
Near Dhantoli Police Station, Dhantoli, Nagpur, Maharashtra

Accreditation no.: NABET/EIA/25-28/RA 0474
Valid upto 16th October, 2028

EXECUTIVE SUMMARY

INTRODUCTION

M/s. SPSC Power has envisaged to manufacture 2500 TPM of Manganese Oxide by roasting. The proposed project will be carried out in the premises of existing plant at Khasra No. 67/6 & 67/3, Village Hingana, Taluka-Tumsar, District-Bhandara, Maharashtra. The total area of the existing project site is 0.9000 ha (9000 sqm). The cost of proposed project is 4.0 Crores. As per the Environmental Impact Assessment (EIA) Notification dated 14th September, 2006, Metallurgical Industries (Ferrous & Non-Ferrous) falls under category 'A' which requires Environmental Clearance (EC) to be obtained from MoEF&CC before the commencement of ground activity.

The project proponent has made online application on 7th July, 2025 along with Form-1, copy of pre-feasibility report and other documents for proposing Terms of Reference (TOR) for undertaking detailed EIA study. The proposal received standard TOR vide IA-J-11011/255/2025-IA-II(Ind-I) dated 17th July, 2025 by MoEF&CC.

SITE SELECTION CRITERIA

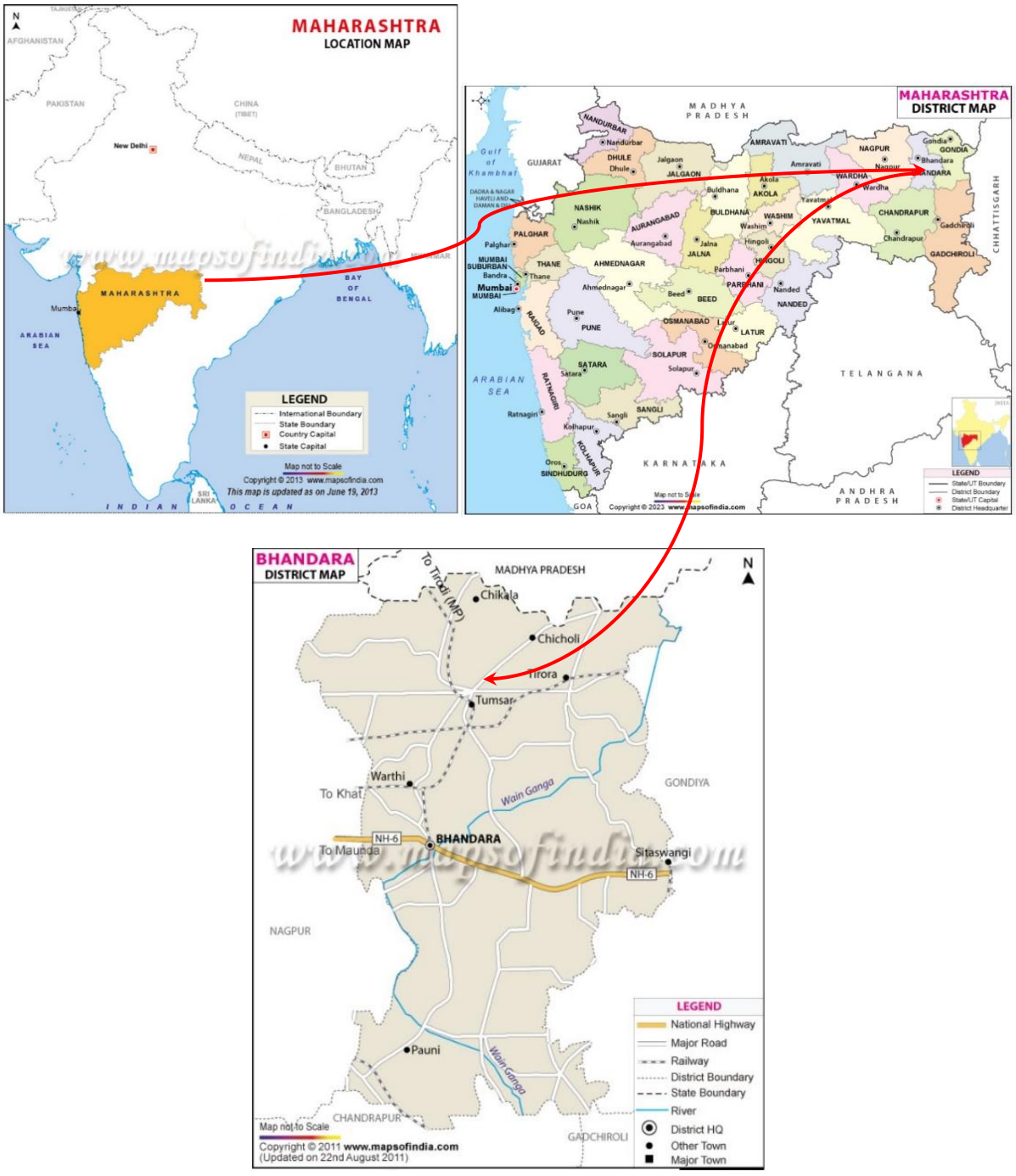
The proposed site is an existing under construction plant area for Manganese Ore Screening and Grinding having capacity 1000 TPM at Khasra No. 67/6 & 67/3, Village Hingana, Taluka-Tumsar, District-Bhandara, Maharashtra for which CTE already obtained from MPCB.

- The proposed project will be setup in the existing under construction plant premises.
- Water Supply through Groundwater as an assured source in safe zone.
- No Rehabilitation/Resettlement required.
- No archaeological monument and defence installation.
- No nallah/water body within the project site.
- Availability of Raw Material.
- Assured Power Supply
- Availability of Man power.

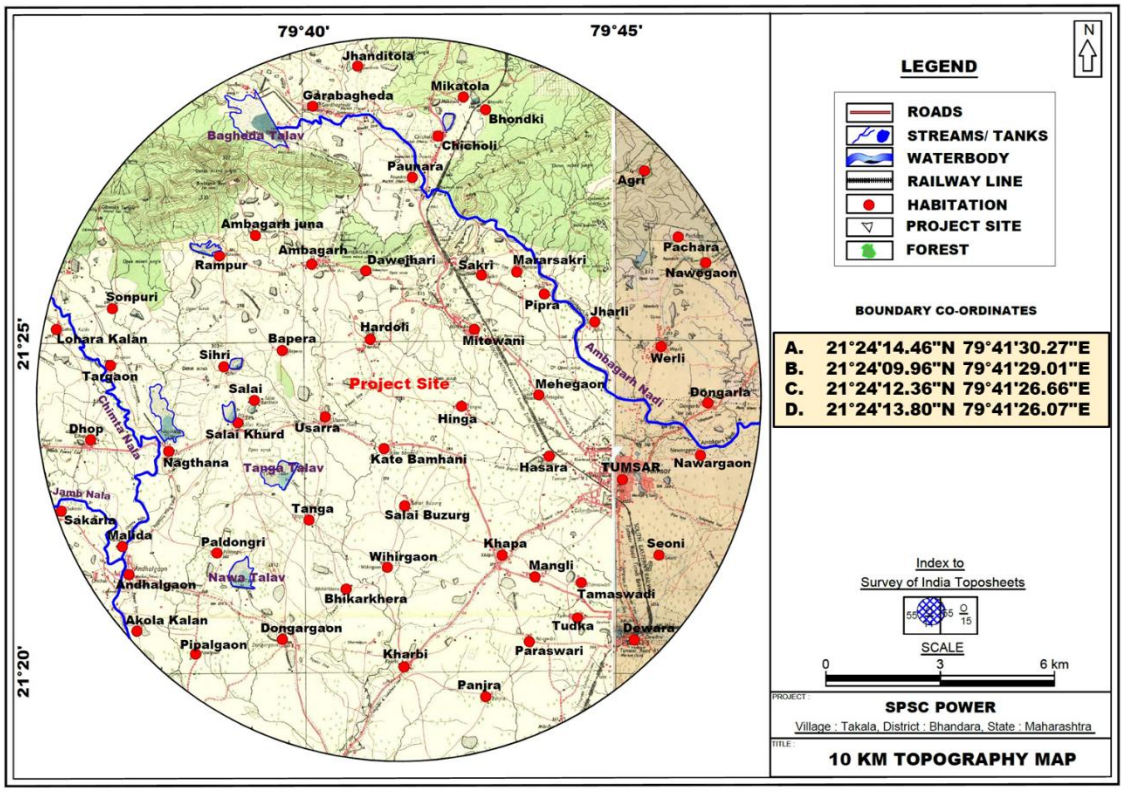
DETAILS OF THE PROJECT SITE

Sr. No.	Particulars	Details
1	Project Site	Khasra No. 67/6 & 67/3, At Village Hingana, Taluka-Tumsar, District Bhandara, State Maharashtra
2	Latitude Longitude	A: 21°24'14.46"N 79°41'30.27"E B: 21°24'09.96"N 79°41'29.01"E C: 21°24'12.36"N 79°41'26.66"E D: 21°24'13.80"N 79°41'26.07"E
3	Elevation above MSL	304 MSL
4	Toposheet	55 O/11, 55 O/15
5	Present land use	Industrial Land
6	Nearest National Highway / State Highway	SH-249: 1.2 Km (S) SH-88: 2.52 Km (NE) NH-753: 1.2 Km (S)
7	Nearest Airport	Dr. Babasaheb Ambedkar International Airport: 74.5 Km (SW)
8	Nearest Railway Station	Mitewani Railway Station: 3.7 Km (NE)
9	Nearest Village	Takala: 780 m (NW)
10	Nearest Town	Tumsar: 6.6 Km (ESE)
11	Forest	• Ambagarh R F: 3.7 Km (N) • Sauth Bawanthari R F: 6.8 Km (NW) • Chandrapur South R F: 5.4 Km (NNE)
12	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	Nagzira Koka & Navegaon Wildlife Sanctury: 18.47 Km (SE)
13	Water Bodies	• Canal: Adjacent • Ambagarh Nadi: 4.9 Km (NE) • Chimta Nala: 6.7 Km (WSW) • Bagheda Talav: 7.5 Km (NNW) • Nagthana Talav: 6.0 Km (WSW) • Tanga Talav: 3.3 Km (SW) • Nawa Talav: 6.0 Km (SW)
14	School	• Nearest School: 1.74 Km (NNW) • Z P Primary School: 1.4 Km (SSW) • Primary School: 2.6 Km (ENE) • Z P Upper Primary School Hasara: 4.4 Km (SE) • St. John Mission Minority English M High School: 5.5 Km (SE) • Z P Primary School Sihari: 5.0 Km (WNW) • Z P Primary School Sakhali: 4.0 Km (NNE)
15	Hospital	• Nearest Hospital: 2.0 Km (NNW) • Sub District Hospital Tumsar: 6.1 Km (SE) • Kodwani Hospital: 6.3 Km (SE)

Sr. No.	Particulars	Details
		• Chopkar Hospital: 6.2 Km (SE)
16	Temple	• Hanuman Temple: 2.0 Km (WSW) • Swami Smarth Temple: 5.4 Km (SE)
17	Industries	• Nearest Industries: 210 m (S) • Nearest Mine (Stone Quarry): 2.7 Km (N)



Location Map of the Proposed Project Site



Source: SOI Toposheet

Topographical Map (10 Km Radius)

PURPOSE OF EIA

The purpose of the EIA study for the proposed expansion project by M/s. SPSC Power is identifying existing environmental condition, predicting environmental impacts associated with the proposed project and suggesting measures to mitigate the adverse impacts and to delineate a comprehensive environment management plan along with recommendations and suggestions. The different activities that are likely to take place have been identified and mitigation measure has been proposed.

As a part of EIA process, proponent has made online application on 07th July 2025 along with Form-1, copy of pre-feasibility report and other documents for proposing Terms of Reference (TOR) for undertaking detailed EIA study. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 and granted Standard Terms of Reference (TOR) vide IA-J-11011/255/2025-IA-II(Ind-I) dated 17th July, 2025.

In order to assist the M/s. SPSC Power for getting the Environmental Clearance, M/s Pollution and Ecology Control Services (PECS) Nagpur is assigned for undertaking (EIA) study and prepare Environmental Impact Assessment report and Environmental

Management Plan. The EIA report is prepared using the baseline data generated undertaken by PECS during 1st March 2025 to 31st May 2025.

PRCOESS DETAILS

SIZE OR MAGNITUDE OF OPERATION

The production scenario of the proposed plant is given in following Table

Sr. No.	Product	Configuration	Production Capacity
1	Manganese Oxide by Roasting Furnace	8 x 15 T	2500 TPM (30,000 TPA)

RAW MATERIAL

The raw material requirement for the proposed unit is given as follow

Sr. No	Product	Raw Material Quantity	Source	Mode of Transportation
1	Manganese Ore	39,000 TPA	MOIL / Dongri Buzurg	Tarpaulin covered trucks. Distance: 50 kms
2	Hard Coke	7,500 TPA	Open Market	Tarpaulin covered trucks. Distance: 60 km
3	Fire Wood	3,000 TPA	Open Market	Tarpaulin covered trucks. Distance: 60 km

WATER REQUIREMENT

Water requirement for the proposed project is 50.0 KLD. Water is mainly required for Furnace Cooling and Jigging process as well as for domestic uses, drinking, plantation & other purposes. Water will be sourced from groundwater. Unit wise water requirement is given in Table.

Water Requirements during Operation Phase (m^3/day)

Sr. No.	Unit	Water Requirement KLD	Wastewater Generation KLD	Mode of disposal of wastewater	Treatment
1	Furnace Cooling and Jigging	45.0	40.5	Reused	Settling Tank
2	Domestic Purpose	3.0	2.5	Recycle and reused in Process or Plantation	Packaged Type STP
3	Green Belt Development	2.0	0.0	NA	NA

Wastewater from Furnace Cooling and Jigging process will be collected in settling tank which will be further recycled and the domestic sewage will be treated in packaged type STP and reused in process or used for the Greenbelt/Plantation. Hence, the zero-wastewater discharge is proposed for the said project.

POWER REQUIREMENT

The estimated power requirement for the proposed project will be 300 KW and will be supplied by Maharashtra State Electricity Board.

LAND REQUIREMENT

The land required for the proposed project is 9000 sqm (0.900 Ha). The plant will be setup in the premises of the existing plant (under construction).

EMPLOYMENT POTENTIAL

The proposed project creates employment for about 60 people.

TECHNOLOGY AND PROCESS DESCRIPTION

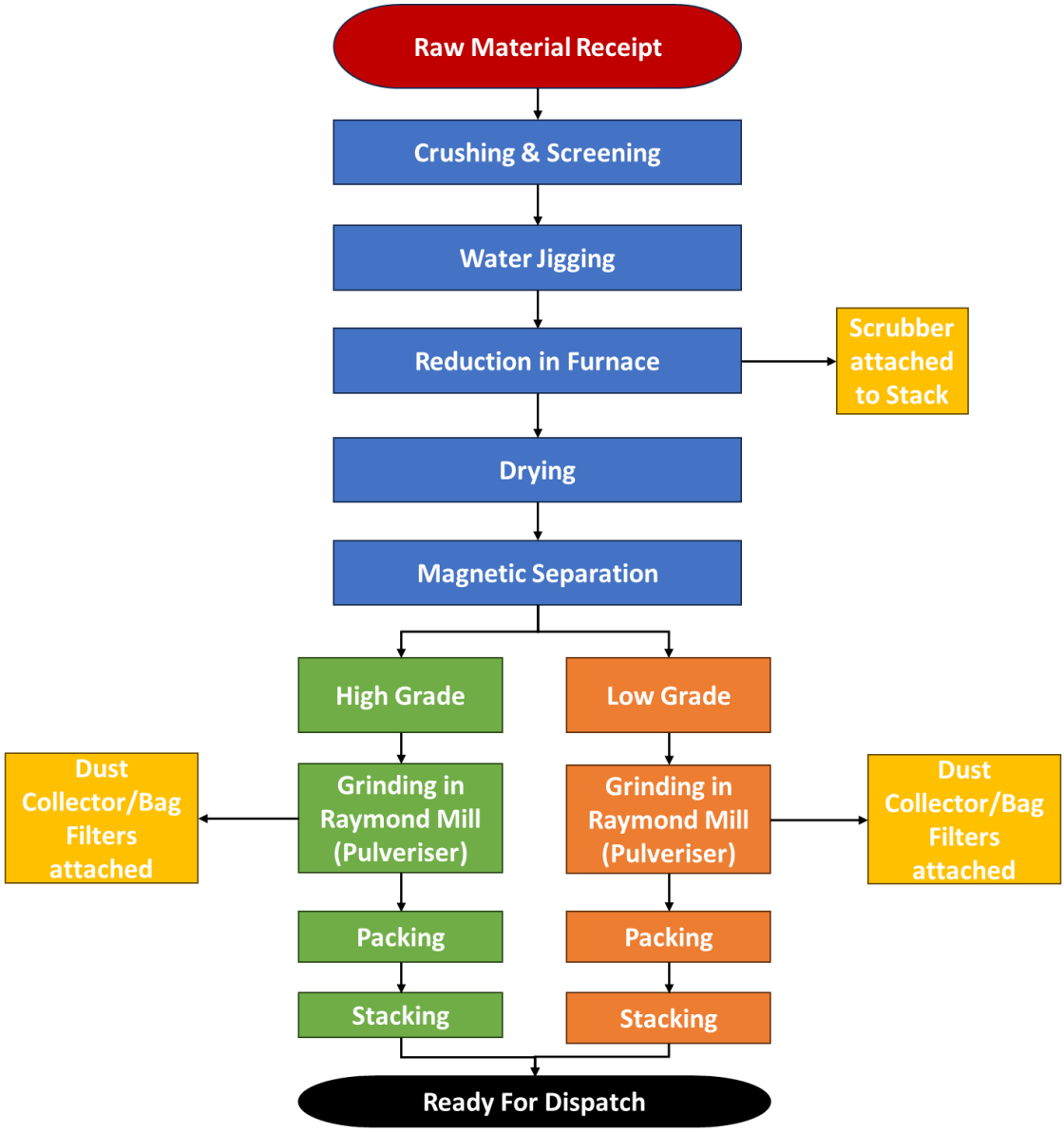
MANUFACTURING PROCESS OF MANGAESE DIOXIDE

- After Manganese Ore receipt at the site, it is tested for the contents of various elements and then the material is crushed and then screened. After screening you get different sizes which are jigged in automatic water jigging machine.
- The material is then roasted in Hard Coke fired furnace (Bhatti) for 10 to 12 hours. After cooling the furnace, it is unloaded and then shifted for drying and magnetic separation.
- Then the material is dried (through wood fired hot plate driers) and after Magnetic Separation it is fed to grinding Machine, where it is powdered in grinding machine in the required mesh size.
- After grinding it is semi automatically packed in 25 kg/50 kg HDPE Bags and 1250 kg Jumbo bags and kept ready for dispatch.

Manufacturing Process

The proposed project is for Crushing, Screening, Jigging, roasting in Furnace, Drying Magnetic Separation and Grinding of Manganese Oxide. The flow diagram showing manufacturing process is given below.

PROCESS FLOW CHART OF MnO PRODUCTION



MITIGATION MEASURES

Air Environment

In the proposed project the source emission is envisaged from furnace during roasting of manganese ore with coal and grinding of Manganese Ore. A common Stack of 30 m height will be attached to both the roasting Furnace/Bhatti with movable hood attached to dust collector and bag filters followed by stack to control PM emission within 50 mg/NM^3. Dust suction system will control fugitive emission due to material and raw material handling. Dust suppression system will be provided in the form of water sprinklers.

Noise Pollution & control measures

Noises from fans, centrifugal pumps, electrical motors etc. will be kept in control so that the ambient noise level shall not exceed 75dBA during daytime and 70dBA during nighttime. Noise pollution control measures will be provided in respective departments by way of providing silencers soundproofs cubicles / covers and proper selection of less noise prone machinery and by development of green belt. In plant, workers shall be provided with ear plugs or ear muffs working in plant in order to avoid exposure to high levels noise. The employees shall be trained in the mitigation measures and personal protection measures to be taken to prevent noise related health impacts.

Impact on Water

The total water requirement for the proposed activities is 50 KLD. During plant operation wastewater will be generated from the Furnace Cooling and Jigging process. The wastewater generated in this process will be stored in the settling tank and will be reused in the process. The sewage will be treated in Packaged Type STP. No wastewater be discharge outside the plant premises and maintained Zero liquid discharge

Solid Waste Generation & Management

The solid waste generation and management in the proposed plant is given in following Table.

Solid Waste Generation & Mitigation Measures

Waste	Quantity TPA	Mitigation Measures
Hard Coke Ash	800	Will be sold to brick manufacturers
Firewood Ash	240	Will be sold to brick manufacturers

DESCRIPTION OF THE ENVIRONMENT (BASELINE DATA)

Air Environment

Ambient air quality (AAQ) samples were collected on basis of 24-hour sampling and twice a week at each site. The ambient air quality samples were collected from March 2025 to May 2025 for continuous 12 weeks in an area of 10 km radius around the proposed project site. Results for various parameter are as follows

PM_{10} – 50.6 to 68.9 µg/m^3.

$PM_{2.5}$ – 29.4 to 45.7 µg/m^3

SO_2 – 16.0 to 28.7 µg/m^3

NO_2 – 19.0 to 41.9 µg/m^3

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_2 were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 16 samples including eight surface & eight ground water samples were collected and analysed during March 2025. The water samples were analysed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication. The data indicates that the ground water as well as the surface water quality is below the permissible limits of drinking water standard (IS 10500 – 2012).

Noise Environment

It has been found that the noise levels are in the range of 40.5 – 51.8 dB (A) at all eight stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours. Noise levels measured are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Land Environment

The characteristics of the soil sample were compared with respective parameters in eight stations. The soil analysis report indicates that the soil has sufficient nutrients and better in fertility which will support plant growth.

Socio Economic Environment

The Socio-economic environment was studied by collecting Data/Information through secondary sources (i.e. Census 2011, Government department, maps, literature research etc.). The data indicated that average Sex ratio is 898.85 in the study area. Employment pattern indicated that total working population was 37,433 (32%) of total population which indicated that about two persons from each family are working. Out of main workers, 7,244 (19%) were cultivator workers, 11,034 (30%)

workers engaged as agricultural labours, 1,766 (5%) were involved in household industry related work and other working population were 17,389 (46%).

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Air Environment

In the proposed project the source emission is envisaged from furnace during roasting of manganese ore with coal and grinding of Manganese Ore.

Cumulative Predicted 24-hourly Ground Level Incremental Concentrations (GLCs) are given in the following table.

Predicted Ground Level Concentrations

Parameters	Maximum Incremental Levels (µg/m^3)
	Proposed
PM_{10}	0.642
Distance/Direction	400 m/E
$PM_{2.5}$	0.29
Distance/Direction	570 m/NE
SO_2	0.914
Distance/Direction	460 m/NE
NOx	0.45
Distance/Direction	460 m/NE

Air Pollution Control Measures

- Particulate matter will be controlled below 50 mg/Nm^3 by providing dust collector and bag filer to stack. Water spray system shall be installed in the material handling system transfer points.
- Green belt will be developed inside plant area.
- The internal road will be concreted to reduce the fugitive dust due to vehicular movement
- Water spraying will be practiced frequently.
- The emissions from the stacks shall be monitored regularly for exit concentration of Sulphur dioxide, Nitrogen dioxide and PM. Sampling ports shall be provided in the stacks according to CPCB guidelines.

Noise Pollution & control measures

In plant, workers particularly working near higher noise sources, may be exposed to

higher level upto 75 dB(A) for longer durations. However, provision of ear plugs or ear muffs shall be made for in-plant workers working at such locations in order to avoid exposure to high levels whenever they come near the high noise generating sources.

Impact on Water

The water requirement for the proposed activities is 50.0 KLD. During plant operation wastewater will be generated from the jigging/washing process. The wastewater generated in this process will be treated in the settling tank and will be reused in the process and cooling. The sewage generated from the domestic usage in the proposed plant will be 2.5 KLD which will be treated in packed type STP and treated sewage will be reused in the plantation purpose.

Solid Waste Generation and its Management

The major solid waste generated will Hard Coke Ash and Firewood Ash.

- Solid waste is non-hazardous and non-toxic in nature.
- Hard Coke Ash and Firewood Ash generated will be sold to brick manufacturing.

ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring will be carried out on regular basis. The ambient air quality, water quality, noise levels etc. will be monitored as per the MoEF&CC/CPCB & MPCB guidelines.

ADDITIONAL STUDIES

The additional studies as per the TOR issued by MoEF&CC are Public Consultation, Risk Assessment, & Disaster Management Plan.

PROJECT BENEFITS

Company will give direct employment to near about 60 persons. The proposed capital budget of Rs. 4 Lacs which is 1% of the project cost will be spent towards CER activities in 3 years. The amount will be spent in various activities like health camps, environmental awareness camps, construction of toilets, education etc.

ENVIRONMENTAL MANAGEMENT PLAN

Company is committed towards protection of environment and the community and

also to practice best environmental management practices, regular maintenance and consistent operation of pollution control systems, and adoption of cleaner and environment friendly technologies etc. company are bound take all the necessary steps to identify and control pollution and EMP which includes effective pollution control measures, green belt development, adequate safety measures, and post project monitoring facilities for the estimation of pollutants.

Total cost of the project will be Rs. 400 lacs. The budgetary provision for EMP will be Rs 28.00 lacs and Operation & Maintenance Cost will be 6.00 lacs/year.

OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

M/s. SPSC Power will provide all necessary provisions under Factory Act. In addition, a Safety committee will be formed and manned by equal participants from Management and Workers. All personal protect equipment like Safety shoes, helmet & uniform will be issued to each employee based on the nature of job involved.

CONCLUSION

The potential environmental, social and economic impacts have been assessed. The proposed activities will have the marginal impacts on the local environment. With effective implementation of proposed environment management plan and mitigation measures, these impacts will be insignificant. Implementation of the project has beneficial impact in terms of providing direct and indirect employment opportunities. This will be a positive socio-economic development in the region.