

**EXECUTIVE SUMMARY OF
ENVIRONMENTAL IMPACT ASSESSMENT /
ENVIRONMENT MANAGEMENT PLAN
(AS PER EIA NOTIFICATION 2006)**

Pali Manganese Ore Deposit

Village - Pali, Tahsil - Parseoni, District - Nagpur, Maharashtra
Survey No. Part of 32
Area 4.8 Ha; Production Capacity @ 4680 TPA Manganese

Submission for
Public Hearing
To
Maharashtra Pollution Control Board

PROJECT PROPONENT
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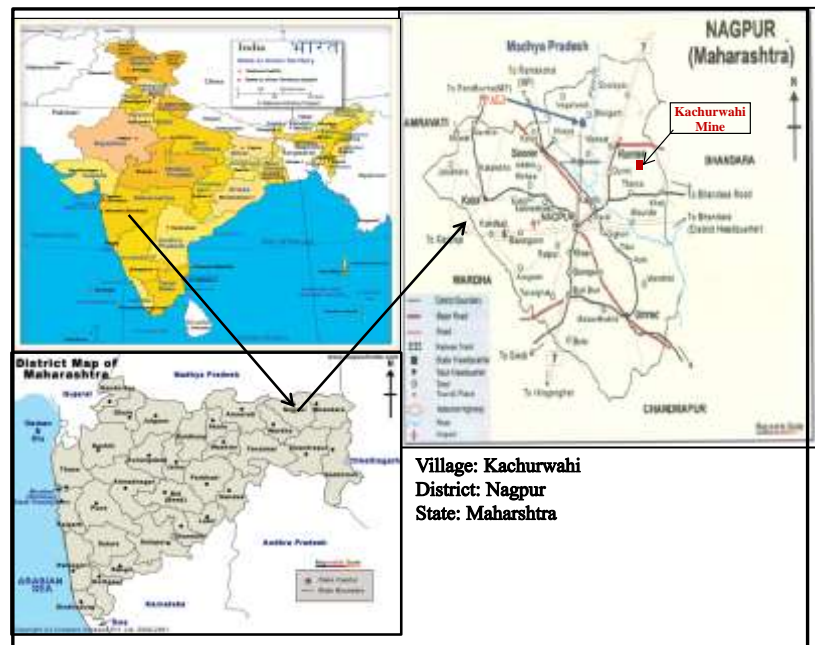
EXECUTIVE SUMMARY

INTRODUCTION: Pali Manganese Ore Deposit has granted manganese mine located at Village–Pali, Tahsil-Parseoni, District-Nagpur, Maharashtra. It is proposed to production capacity of manganese 4,680 TPA (ML Area 4.8 Ha) The proposed production will be achieved by developing this mining lease area by mechanized underground method. For this purpose Mining Plan has been approved by IBM.

An application for obtaining Environmental Clearance was made to the SEAC in accordance with the Notification of MoEF&CC S.O. 1533 dated 14.09.2006. Accordingly, the project was appraised by State Expert Appraisal Committee in its 137th meeting held on 15thOctober 2016 for determining Terms of Reference (TOR) for undertaking EIA study. The present summary is extracted from draft EIA/EMP report which is based on this TOR.

Location Details: The M.L. area over 4.80 hectares is covered within the Survey of India Toposheet No. 55 O/3 on a scale of 1:50,000 and is bounded by the latitude 21°27'01.19" and longitude 79°23'48.30" E.

Accessibility - The area is approachable by NH-7 upto Amdi Phata 36 Km from Nagpur. From Amdi Phata there is diversion towards left to proposed site which is 6 Km. The nearest railway station from the project site is at Ramtek which is about 12.0 km.



Landuse – The mine lease area is private land as per Government record. The proposed production will be achieved from the 4.80 Ha mining lease.

Geological formations & Ore Reserves: The regional geology of the area is represented by Sitasaongi and Mansar rock. The rock outcrops of Sitasaongi formations mostly covered with soil in the area. Whereas the Mansar formations of rocks are clearly visible in the mine workings. The total geological reserves of manganese are estimated to be 18,480 Tonnes with the mining loss of 10% the, whereas the mineable reserves are 16,632 Tonnes.

Mining Method: The mining operation will be carried out from south - east to north-west of the lease area by manual opencast method

Drilling & Blasting: The drilling using jack hammer drills and controlled for blasting would be carried out using delay detonators.

The mining operations will be starting after obtaining necessary permissions from these areas. With the present mineable reserves i.e., 16,632 Tonnes and proposed production as per approved mine plan the anticipated life of the Mine will be around 5.5 years.

Transport of Mineral- Material will be transported mostly by road from the mine to the consumer industries as it is economical and speedy for short distances. mineral transport using tarpaulin cover, proper maintenance of the vehicles will help in controlling fugitive emissions during mineral transport.

Waste Generation and Management: The generation of waste during plan period is estimated to be 25036 m³. The waste rock that will be generated till conceptual plan period will be stacked in year marked area upto 15 m height with a provision of terrace at 10m height. This dump will be stabilized by constructing 35° slope angle. On maturity this dump will be stabilized by garlanding drain, pitching, terracing and planting suitable plant/grass species on the slope of dump. Retaining wall of 2.5m height and 1m width shall be constructed to control runoff.

Drainage: The general drainage pattern is towards the south direction. There is no stream crossing through lease area. However, in the buffer zone there is Pench River at 1.0 Km in west direction. The mining lease area is a more or less plain terrain gently sloping.

Ground water: The ground water available in the well, borewell etc. is of potable nature and no adverse effect has been noticed in the past due to human consumption and in future also there will not be any change in quality due to future mining activity.

Arrangement for Dewatering: Water requirement for dust suppression, plantation and vehicle washing will be met from rainwater collected in mining pit.

Employment Potential: Around 34 Staff & workers will be required initially for this mine. It is proposed to have a mines manager to supervise. He should be a qualified with adequate experience and responsible for implementing the environmental related issues. It is proposed to deploy local manpower meeting the eligibility criteria required for the job under consideration.

Resuming of industrial activity like mining will benefit people residing in the nearby villages within the buffer zone by direct and indirect employment opportunities. People will also be beneficiaries for the facilities developed due to mining activity.

BASELINE ENVIRONMENTAL STATUS:

The total project area (4.80 Ha) of the **Pali Manganese Mine** is considered as Core Zone while the 10 Km surrounding area of core zone is considered as Buffer Zone. Baseline environmental data was collected for all the components of environment like meteorology, air, water, noise, soil, geology, hydrogeology, flora-fauna, demographic and socio-economics, industries, places of archeological and historical importance etc. Standard guidelines prescribed by Ministry of Environment & Forests and Central Pollution Control Board were used for this study. The EIA report incorporates the baseline data generated through primary surveys for three months during 09th October 2016 to 07th January 2017 representing post monsoon season.

Landuse of the Buffer Zone: As per census the total area estimated within 10 km radius of buffer zone (study area) around mine was 31400 Ha. The area under forest is reported to be 65.76% followed by area under cultivation/agricultural (irrigated 3.27% and un-irrigated 20.46%). The area under culturable waste land was 2.62% and area not available for cultivation was 7.89%.

Water Quality: Total 3 surface & 5 ground water sampling stations were monitored in the study area. The analysis indicates that almost all parameters are within the prescribed limit.

Air Quality: The monitoring was carried out for 13 continuous weeks beginning from 09th October- 2016 to 7th January-2017 as per norms stipulated by the Central Pollution Control Board. To assess the baseline ambient quality Nine air quality monitoring location were selected on the basis of wind direction and other meteorological parameters in core and buffer zone area.

The PM₁₀ PM_{2.5} SO₂, NOX values for all 9 stations were below.

- **Particulate Matter₁₀**: The 24 Hourly concentration of PM₁₀ reported during the survey ranged from 55.9 to 79.8 µg/m³. This is lower than the NAAQ permissible level of 100 µg/m³.
- **Particulate Matter_{2.5}**: The 24 Hourly concentration of PM_{2.5} reported during the survey ranged from 31.5 to 49.5 µg/m³. This is *much* lower than the NAAQ permissible level of 60 µg/m³.
- **SO₂**: The 24 Hourly concentration of SO₂ reported during the survey ranged from 20.2 to 25.7µg/m³. This is lower than than the NAAQ permissible level of 80 µg/m³.
- **NO_x**: The 24 Hourly concentration of NO_x reported during the survey ranged from 17.0 to 24.1µg/m³. This is lower than the NAAQ permissible level of 80 µg/m³.

Noise Levels: A noise survey for baseline levels of noise indicates that noise levels are in the range of 31.6 to 48.3 Leq dB(A) and from 33.4 to 41.3 Leq dB(A) in daytime and night time respectively. These are well within prescribed limit for residential area.

Soil Quality: Soil samples were collected at 3 selected locations in the study area to assess the existing soil conditions around the mine. Overall soils are moderately suitable for cultivation of arable crops and have moderate fertility.

Biological Environment: The core and buffer zones include the village settlements with their cultivated fields, forest areas as well as vast areas reduced to wasteland. The detailed inventory of floral and faunal assemblage of the core and buffer zone has been prepared. The details of flora and fauna are provided in EIA/EMP. There are no ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the buffer zone.

Human Settlement and Demography: The area selected for the study constitutes 34 inhabited villages. The population is distributed among 8722 households in the study area. The 34 inhabited villages have a population of 38032 comprising of 19463 males and 18569 females. The number of females per 1000 males is 954. The overall literacy in the villages of the study area has 63.16%.

Proposed Social Responsibility Measures : A systematic approach for the implementation of the peripheral area development in selected villages in the buffer zone starting from the nearest village will be drawn up with the help of local community based organization & in consultation with the villagers. Assistance in the field of health and sanitation, environment conservation, water conservation, literacy, self help groups, development of infrastructure. A budgetary provision of Rs 5.5 lakhs per annum as annual recurring expenses is proposed on this account.

Risk Assessment & Disaster Management Plan: In any mining project, work safety is taken care of as per provisions in the Mines Act, Rules framed there under. Inundation, controlled blasting operations, risks associated with handling and use of explosives, during operations of equipment and movement of vehicles has been dealt. The risk management plan as per the directives of competent authorities will be Implemented strictly.

ENVIRONMENT MANGEMENT PLAN

Air Pollution Management :

- a) Internal roads will be frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement have been provided.
- b) Ore will be covered by tarpaulins to prevent spread of dust from it during transportation.
- c) Regular maintenance of vehicles and machineries will be carried out in order to control emissions.
- d) Green belt development will be taken up at various places.
- e) The dust respirators will be provided to all the workers.
- f) Good housekeeping and proper maintenance will be practiced which will help in controlling the pollution.

Water Pollution Management: During underground mining operation the water encountered shall be collected in the main underground sumps and then pump to surface. This pumped out water shall be treated in settling tanks. Part of this water shall be utilized for dust suppression and plantation and the excess water shall be discharge to the natural water courses.

In the lease area mining operation will be in small scale and manual opencast method. There is no nallah, river or water bodies passing through or existing within or near the vicinity of the lease area which can cause inundation or other water borne disaster in the area.

Noise & Vibration Management

- Noise is best abated at source by choosing machinery and equipment suitably, by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable.
- Proper maintenance of vehicles will be done which keeps the noise level within limits.

- At the boundary of mining lease green belt of local trees will be planted which will act as acoustic barriers. Planting of bushy trees of rich canopy in and around the mine area to intercept noise transmission. A 7.5 m wide belt of trees of different heights will be useful to act as noise attenuator in the mining areas.
- Delay detonators millisecond delay interval will be used. For keeping the vibrations minimum.

Land Reclamation Measures: The mining will be carried out by opencast mining method. It is proposed to carryout plantation in the non mineralized area on regular basis.

Plantation: It is proposed to select the local tree species with the help of forest department having 3 tier arrangements for implementation all along the mining lease in order to control dispersion of fugitive dust from the mining lease. Around 110/year saplings will be planted will be planted till the end of life of mine at different locations i.e. safety zone, around the quarry edge, along the roads, office, workshop etc.

At the conceptual stage, out of the total mining lease area (i.e. 4.8 ha), the dump area will be under plantation would be 0.045 Ha, and area under pits i.e 1.1846 Ha. Will be used for water reservoir with prior permission with IBM and further will be used for pisciculture.

The mitigation measures suggested above shall be implemented so as to reduce the impact on environment due to operations of proposed mining activities. In order to facilitate easy implementation, mitigation measures are phased as per the priority implementation. A separate budgetary allocation of the funds is made for the environmental protection measures. The monitoring of the pollution to know the effectiveness of the applied control measures will be carried out at regular interval. A budgetary provision of Rs. 5.5 lakhs as annual recurring expenditure is made in the management.

AN EPILOGUE

In compliance with the environmental procedure the environmental clearance application is made. Necessary scientific studies have been undertaken as per the guidelines set by the Ministry of Environment, Forests & Climate Change (MoEF&CC). The suggestions/recommendations of all the experts, competent authorities, and government officials are being sought for the impacts of the proposed project. Views and guidance of the local residents, community based organizations, social organizations are extremely important in order to devise a full proof Environment Management Plan for the proposed mining project and also mitigate the damages caused due to the project. Allocation of necessary funds, manpower and machinery will be made to for the protection and conservation of all the components of environment. It is ensured that all mandatory clearances will be sought from respective competent authorities before operating the proposed **Pali Manganese Ore Deposit** (area 4.80 Ha). **Anil M Gupta & Others** committed to implement the suggestions for the improvement of the environment and assure that every attempt will be made for the conservation and protection of the natural resources to the maximum extent.