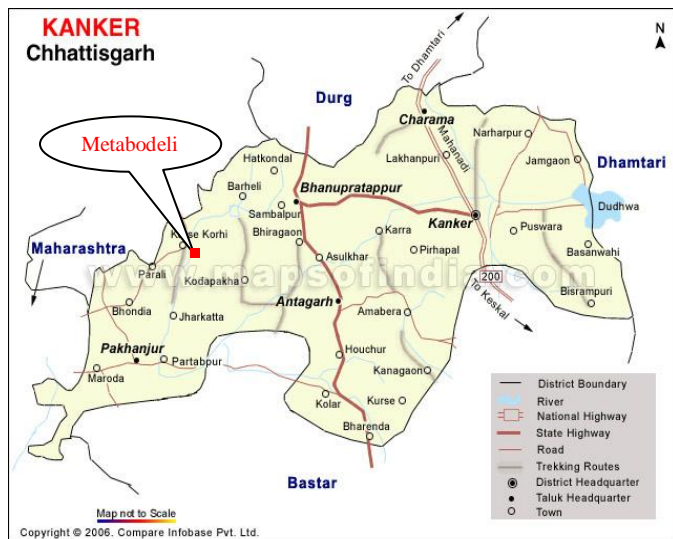


EXECUTIVE SUMMARY

INTRODUCTION : M/s **Jayaswal Neco Industries Limited (JNIL)** belongs to the well-known industrial group of Central India viz. **NECO GROUP** having annual turnover exceeding Rs. 4000 Crores. The **GROUP** operates from Corporate Office at Nagpur with operations spread Chhattisgarh and Maharashtra. The **NECO GROUP** is primarily engaged in Iron & Steel Industry since 1972 and is recognized as a “**MASTER CASTER**” in Indian Ferrous Industries. It consists of several well-established companies in various diversified fields like Steel making through Integrated Steel Plant, Mining, Highway Construction on BOT Basis, Iron & Steel Casting, Ceramics etc. The group manufactures and exports a wide spectrum of core sector products to fulfill the need of Automotive Industries, Petrochemical Industries, Construction Industries, Iron & Steel Industries, Railways etc.

In order to cater the need for iron ore the company applied for the mining lease in Metabodeli Iron Ore Deposit (25.00 Ha), Village Metabodeli/Chargaon Tahsil Pakhanjur, District Kanker, Chhattisgarh. Accordingly the project was executed for mining operations after obtaining all conditions for the capacity of 50000 tonnes / annum including environmental clearance from Ministry of Environment and Forests in 2001. Since the requirement of the iron ore is rapidly increasing, JNIL has decided to increase the capacity of production of iron ore from 50000 tonnes / annum to 10,00,000 tonnes/annum. The iron ore mined from this lease shall be utilized as a captive source for raw material of Integrated Iron Plant at Raipur, Chhattisgarh. The project was appraised by State Expert Appraisal Committee, Chhattisgarh during its 157th, 160th and 194th meeting held on 09.07.2015, 30.07.2015 and 04.05.2016 respectively for determining Terms of Reference (TOR) to undertaking EIA study.

Location Details : Figure gives the location of proposed Iron Ore Deposit along with roads and major towns of area. The applied M.L. area over 25.00 hectares is covered within the Survey of India toposheet No. 64 D/16 on a scale of 1:50,000 and is bounded by the latitude 20°02'21.96" N to 20°02'53.52" N and longitude 80°58'35.58"E to 80°59'09.12" E.



Accessibility - The Metabodeli Iron Ore deposit is approachable from village Chargaon, SE of village a hill is at a distance of 2 km. Chargaon is approachable by 25 km forest road from Pondgaon, on Durg-Rajhara-Bhanupratappur-Narayanpur-Jagdapur state highway. The nearest rail-head is Dalli-Rajhara at a distance of about 84 km.

EXISTING LANDUSE OF METABODELI IRON MINE

Land Use: As per the administrative records the Landuse of the Mine is as under;

Forest Division / Tahsil	Forest Range	Compt.No. Old/ New	Area (Ha)	Ownerships Occupancy.
Bhanupratappur/ Pakhanjur	Koilibeda/ Metabodeli	426(P)/1305	07.50	Govt. Forest land
		427(P)/1306	17.50	

Geological formations & Ore Reserves: The regional geology of the area constitutes Archaean and Precambrian formations represented by Bengpal group and Bailadila group respectively. The Bengpal group comprises metasedimentary, ultramefic gabbro-anorthosites suite of rocks. The granites are observed to be found in a predominantly gneissic area. This group is co-related with Archaean high grade complexes. Bailadila group mainly comprises meta-sedimentary dominated by banded iron formations, metabasics and granite which has been involved in poly-phase deformations and green-schist to lower amphibolite grade. The *in situ and float iron* proved reserves are estimated to be 6.70 million tonnes. The mineable reserves are comes to 4.172 million tones. As described in geological chapter, the investigation in the area proves the existence of sizeable reserves of iron ore, suitable for its use in blast furnace. Iron ore comprises of massive compact nature with very little laterite/soil capping over the ore body. The geological parameters, topography etc., gives an opportunity to choose the low cost opencast mining for winning of iron ore from this.

Mining Method: Considering the scale of operation, geological setting and the nature of deposit, it is proposed to adopt manual to semi-mechanized method of opencast mining. The ore will be sorted, sized by manual method and transported to the plant by tippers/trucks through manual / mechanized loading. The waste rock and intercalated material will be transported and dumped as backfilling material after excavation of float ore. The excavated float ore area will be prospected for persistence of ore and if found non mineralized then only it will be used for backfilling the OB. There will be no top alluvial soil is encountered in first five years. In the first year working will be confined to float ore area . Second year onwards mining will be started in –situ Ore body by developing benches of 5 mts height .

Waste Generation and Management: The waste material in insitu mine will be lateritised soil, intercalations like clayey material and ore reject formed out of BHQ material in float ore zone and highly lateritised low grade ore which cannot be considered for blending. The waste to be generated in the mine will be from float ore mining and insitu ore mining. The waste to be generated has been assumed to comprise about 10% of total excavation (i.e. ROM) from insitu massive laminated ore zone and 65% of float ore zone. Besides the waste material composed of laterite, intercalations and lateritised material..

Mine Drainage : The area applied under M.L. represents a prominent hilly topography with hill ranges trending North-East to South-West direction. There is a prominent structural valley in the SE part of the area. The highest point is 578 m MSL. The lowest altitude is 425 m MSL.

Surface water: One nala in the eastern hill slope and chargaon village flowing almost N-S joins the Chargaon Nadi. Metabodeli is a prominent elongated hill in NE-SW direction. It acts as a water divide line between the river in the north and the Chargaon River in the south with dendritic drainage pattern.

Ground water: The proposed excavations are not going to touch the ground water table as it observed to be 12 m. Thus there will not be any contamination of the underground water because of the proposed mining. The water requirement for the proposed mine will be met from the bore well / dug well. There will be no discharge of waste water from the mine.

Arrangement for Dewatering: It is proposed to create a water sump of 3000 m³ (100 x 10 x3 m) capacity within the lease. Additional accumulation of rain water, if any will be allowed to remain in this sump until pumped out for its utilization to dust suppression and plantation.

ENVIRONMENT MANGEMENT PLAN

Air Pollution Management :

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

Water Pollution Management: The mining project will require continuous supply of water for various purposes during mining, vegetation etc. apart from drinking water supply. The main source of water pollution in opencast mining is the surface run-off due to rainfall. There will not be any mine discharge during dry weather seasons as the proposed mining will be on the escarpment of the hill. There may be small quantity of mine discharge during monsoon season, which contains fine silt. This will be treated in settling tanks followed by desilting tanks and the treated water (overflow) will be let into the natural nallahs during monsoon. While it will be stored and used for dust suppression and plantation during non monsoon season.

Rainwater Harvesting : Check dams with settling ponds will be provided to arrest the silt & suspended solids from surface run-offs along the nallahs at selected sites.

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.

- The equipments to be procured is new and as such as the noise emission will be optimal for their design/operation. Proper maintenance/working 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 done by slicing method the slope and removing all the ore available thus forming bench of 5 m height and similarly continue in subsequent lower horizons. The possibility of persistence of ore will be assessed during exploration programme and accordingly the reclamation will be decided. However the float area, after removal of float in first year will be back filled subsequently with waste material of subsequent year. The same will be reclaimed by plantation.

Plantation: It is proposed to select the local tree species with the help of forest department having 5 tier arrangement for implementation all along the mining lease in order to control dispersion of fugitive dust from the mining lease.

Proposed Plantation Programme

Year	Total Area to be covered (m2)	No of trees to be planted
1.	4000	800
2.	6500	1000
3.	8500	1400
4.	8500	1400
5.	8500	1400
Total	36,000	6000
Conceptual period	2,14,500	35000

Socio-Economic Measures : The socio-economic conditions in the study area indicate the quality of life of the people. The important indicators which decide the quality of life and require to be improved for better living conditions are literacy levels, improved occupational structure, industrial development, infrastructural facilities, transportation, communication linkages, land development and improvement in cropping pattern. The project proponents are envisaging undertaking the following socio-economic measures. Which are based on the need base assessment of the area under study;

- **HONEY BEE KEEPING :** Training for collection, processing & marketing.
- **AGRICULTURE / HORTICULTURE :** Paddy being major crop it is proposed to support the cultivators by providing high yielding varieties of paddy. Awareness campaigns & demonstration for

- improved agricultural practices will be arranged periodically. Promotion of vermicompost, organic fertilizers, Integrated Nutrient Management (INM) & Integrated Pest Management (IPM) etc.
- Each family of the Metabodeli village will be given local fruit plants like guava, chikoo, aam, jackfruit, imli, awala, jamun, sitaphal, Ber, etc.
 - Support to existing kitchen gardens in the form of high yielding varieties of vegetable.
 - Local grass species for village waste land will be promoted as controlled grazing grounds.
 - MINOR FOREST PRODUCE: Collection of Behada, hirda, awala, mahua, tembhre (tendu fruit), achar, imli, karanji, Chironji, ber, gum, lakh etc will be promoted through Tribal Development Corporation. Necessary support for Bamboo artifacts like transport and marketing will be made.
 - Petty works like nursery development, tree plantation, cleaning operations, water conservation etc will be carried out with the help of willing non working population.
 - Medical checkup camps for the villagers shall be arranged on regular basis.
- Awareness camps for hygienic habits and its importance in avoiding water and air borne diseases. Reproductive Child Health programmes, awareness programme on family planning, nutrition improvement with the help of medical practitioner will be arranged on regular basis.
- Encouragement to the students from the village studying in higher studies. Free distribution of school books, uniform, raincoats, bags and stationary. Provision of scholarship for the needy children.
 - Infrastructure support : School building, Aanganwadi repairing, Gotul (community centre) fencing & repairing, sanitation facilities
 - Skill up gradation for unemployed youth will be arranged.
 - Participation in Cultural activity, sports etc will also be made.
 - Provision for street solar lamps at selected places in 5 nearby villages.

Occupational health :

- All the mine workers will be sent to Hospital which have the facilities for chest X-ray, pulmonary function test & audiometry, TB, Malaria, HIV etc. once in 5 year.
- It is proposed to install Reverse Osmosis (RO) plant for drinking water for the mine workers.
- A safety committee will be constituted to implement the proposed OSHA management plan and environment management programme and take proper mitigative measures as per EIA/EMP.
- Services of Occupational Health Specialist will be arranged regularly.
- The proponent will bear all the expenditure related to health check up and treatment of the mine workers.
- Individual health record of every worker will be maintained till the end of service or the end of mining operations. Records will be maintained and corrective action if required, shall be taken by the

management Budget has been allocated under Recurring Annual Cost for Environmental protection

Mining sites in the present case is located at remote area which can be categorized as under developed. Standard of living of people in this area is normally low, therefore due to industrial activity like mining, people residing in the nearby villages within the buffer zone are to be benefited by direct and indirect employment opportunities created by the mining activities. People are also beneficiaries for the facilities developed due to mining activity. A budgetary provision of Rs 4 lakhs as capital investment and recurring expenditure of Rs 11 lakhs is made in the management plan.

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.

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 and Forests (MoEF). 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 Metabodeli Iron Ore Mine (25.0 Ha). We at JNIL are 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.