

Pre-feasibility Report

1.0. Geographical conditions:

Location of the area, Climate, Topography, Lat-Long etc.

The Mining lease area of Metabodeli iron mine over an area of 50 Ha belonging to M/s Jayaswal Neco Industries Ltd. Nagpur, falls in Protected forest, Village - Metabodeli, Tehsil - Pakhanjur, Koilibeda forest range, Forest Division / District - Kanker (Chhattisgarh).

The area is divided by a hillock belong to forest department and separated the two blocks 11 Ha and 8.78 Ha and situated on slope of the eastern and western portion of the hillock. The highest elevation of the hillock is 382m MSL in forest land between these two Blocks.

The lease area falls under Survey of India Toposheet no. 64 D/16 and lies between Latitudes 20°02'12.40" to 20°02'54.32"N Longitudes 80°58'40.18" to 80°59'19.75"E.

The maximum temperature rises to 46°C during peak summer, while winter, minimum temperature falls down to 10.9°C. The rain fall is confined to the rainy season at annual rain fall is average 1492 mm.

2.0. Infrastructure:

(a) **Public utility-** All the public facilities, like school, college, hospital, etc. are available at Bhanupratappur. Drinking water is available on bore-holes.

(b) **Road, Railway-** The area 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 Rajnandgaon-Durg-Rajhara-Bhanupratappur-Narayanpur-Jagdalpur state highway. The nearest rail-head is Dalli-Rajhara at a distance of about 84 kms.

(c) **Man Power-** The skilled and unskilled labourers are available at nearby villages.

3.0. Geology:

Regional Geology: The regional geology of the area constitutes Archaean and Precambrian formations represented by Bengal group and Bailadila group respectively. The Bengal group comprises metasedimentary, ultramafic 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 metamorphisms.

Local Geology: The Metabodeli deposit is a prominent hill elongated in NE-SW direction. The geological mapping conducted in the applied area, the stratigraphy sequences are as under:

- Laterites, Soil and alluvium
- Canga and Iron-ore floats
- In situ - massive/ laminated ore
- Banded Hematite Quartzites / BMQ.

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4.0. Legal Matters:

The area falls under Govt. Protected forest land. The forest clearance and environment clearance is under process, after the clearances the mining lease will be granted.

5.0. Operating:

Mining method:

The mining work will be carried out by open cast manual mining method, using wagon drill for primary drilling & blasting, jack-hammer drilling for secondary drilling & blasting and shovel for loading of ore into 20 tonner dumpers and transport to the Steel plant

The mined out iron ore is transported to the Steel Plant at Siltara, Raipur.



6.0. Environment:

The base line information regarding environment has been collected and enclosed as Annexure No. VI.

7.0. Market Analysis:

The mine is a captive mine of M/s Jayaswal Neco Industries Ltd. The ore mined out from the mine will be sent to Steel Plant of the company situated at Siltara, Raipur (Chhattisgarh).

8.0. Financial Analysis:

(a) Capital Cost:-

- i) Cost of Land + resettlement - ₹ 150,00,000 /- (@ ₹ 3,00,000/- per Ha)
- ii) Cost of crusher - ₹ 10,00,000/-
- iii) Cost of site services - ₹ 1,00,000/-
- iv) Cost of Mining plan preparation and lease processing + EIA & EMP studies + miscellaneous etc - ₹ 10,00,000/-

(1) (a) Total Capital Investment - ₹ 171,00,000/-

(b) Cash Flow forecast:- ₹ 1856,40,000/-

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(c) Investment Cost:-

- i) Interest on capital investment @ 12% = ₹ 20,52,000/-
 - ii) Depreciation of cost of Land- ₹ 10,50,000/-
 - iii) Depreciation of site services per year - ₹ 5,000/-
 - iv) Depreciation of cost of Mining plan preparation and lease processing +EIA & EMP studies + miscellaneous etc. - ₹ 2,00,000/-
- (2) Per year cost incurred on fixed Investment = ₹ 33,07,000/-

(e) Operating cost:-

Mining cost (₹ 450 + Royalty ₹ 183 + taxes ₹ 30) = ₹ 663 /- per T

Production:- Proposed production per year will be about 2,97,500 tonnes.

Hence, Mining cost of production per year

$$= 2,97,500 \times 663 = ₹ 1972,42,500/-$$

(3) Total operating cost of production per year = ₹ 1972,42,500/-

(f) Sensitivity studies:- The area does not require any such study.

(g) Closure cost:- Cost incurred on fencing, parapet wall, warning board, gate, decommissioning, rehabilitation of people etc. - ₹ 200,000/- retaining wall

(4) Total closure cost - ₹ 2,00,000/-.

(h) Rehabilitation cost:- PMCP/FMCP implementation cost (including pit/dump management/backfilling, afforestation and other measures etc) = per year ₹ 25,000 Plantation + ₹ 2,50,000/- (EIA monitoring) = ₹ 2,75,000/-

(5) Total Rehabilitation cost= ₹ 2,75,000/-

Thus, Total cost of Production (2+3+4+5) = ₹ 33,07,000 + ₹ 1972,42,500 + ₹ 2,00,000 + ₹ 2,75,000 = ₹ 2010,24,500/-



Total cost of production per T = ₹ 2010,24,500 ÷ 2,97,500 T = ₹ 676/-

Sale value Per T = 1,300/- Per T (including royalty)

Profit (per T) = ₹ 1,300 (sale value) - ₹ 676 (production cost) = ₹ 624/-

Total cash flow = Profit (per ton) x Yearly Production (tons)

= ₹ 624 x 2,97,500 T = ₹ 1856,40,000/-

9.0. Risk Assessment:

No risk is involved.



10.0. Economic viability of the project:

If cost of Production (2+3+4+5) = ₹ 33,07,000 + ₹ 1972,42,500 + ₹ 2,00,000 + ₹ 2,75,000 = ₹ 2010,24,500/- is invested @ interest 5%. The Bank interest per year will be ₹ 100,51,225/-.

Total cash flow is ₹ 1856,40,000/- **per year** and profit is ₹ 624 /- per T, hence profitability is established based on sale price of mineral and total cost incurred on per tonne basis. On Economic axis E1 can be assigned to mineable mineral reserves considered.

11.0. Geological Reserves:

After the pre-feasibility study and economic axis study the iron ore has been categorized as per the norm of UNFC is as under:

	Geological reserve (tonnes)	Blocked out reserve (tonnes)	Mineable reserve (tonnes)
Insitu ore	42,07,385	3,30,750	38,76,635
Float ore	1,93,987	19,425	1,74,562
Total	44,01,372 (332)	3,50,175 (222)	40,51,197 (122)

Thus, the Anticipated Life of the mine is computed by considering the proposed rate of ROM production about 2,97,500 T/ year and subsequent years of production when the mine is fully developed. Considering the above factors anticipated Life of the mine will be about 13 years (mineable insitu ore reserve is 38,76,635 tonnes).

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