

EXECUTIVE SUMMARY

of

Iron Ore Beneficiation Plant & Pellet Plant

Plant Area : 26.44 Ha.

**At Somalapur – village, Tailing Area: 101.17 Ha at kalingeri &
Ankammanahalli
village of
Sandur-Taluk, Ballari - District,
Karnataka State**

PROPONENT

**M/s. MSPL LIMITED
Hosapete, Ballari District**

April -2022

EIA Consultants

BENEFICIATION PLANT

MINERAL ENGINEERING SERVICES

(Accredited by QCI-NABET ORG000756)

Lab Recognised by MoEF

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PELLETIZATION PLANT

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

MSPL Limited – Baldota Group is a veteran name in Mining, Processing of Minerals by using advanced techniques of mineral beneficiation and has its operations in the state of Karnataka and having vast customer base in South Region & across India. Baldota Group flagship company, Keeping in view the better utilization of iron ore minerals available in Karnataka, Baldota group is actively taking MSPL to new expansion mode with an objective to be a leading iron ore processing & pellet manufacturer in Karnataka in close vicinity of mining zone.

The proposed project forms a green field iron ore processing & Pellet plant which will also yield many socio - economic benefits by way of employment generation, opportunities for setting up of ancillary units besides other service facilities benefiting the local population in the area. The proposed project is a Green Field Project and there are no earlier existing industrial structures or machineries installed. Now, the Proponent had applied for Environmental Clearance (EC) from MoEF&CC, New Delhi in line with the provisions of Environment Impact Assessment (EIA) Notification 2006 (incl. its amendments from time to time), the MoEF&CC had issued the Standard Terms of Reference (ToR) along with additional Terms of Reference, for carrying-out EIA Studies and preparation of an EIA/EMP Report, for onward submission to the EAC, for appraisal and issue of Environmental Clearance. The capacity of proposed plant is 5.00 MTPA Iron Ore Processing Plant & 3.0 MTPA Pellet Plant over an area of 26.44 Ha, Integrated with Downhill Pipe Conveyor over an area of 16.58 Ha at Village Somalapura, Sandur Taluk, Bellary District, Karnataka. An additional area of 101.17 Ha is being proposed for acquisition in Kalingeri village for tailing storage and other activities in future.

Address

Site Office

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S.No	Particulars	Details
1.	Project Coordinates	Latitude: N 15° 01'26.00" to N 15° 01' 57.3" Longitude: E 76° 29' 47.10" to E 76° 30' 12.0"
2.	Nature of the project	5.00 MTPA Iron Ore Processing Plant & 3.0 MTPA Pellet Plant over an area of 26.44 Ha, Integrated with Downhill Pipe Conveyor over an area of 16.58 Ha at Village Somalapura, Sandur Taluk, Bellary District, Karnataka
3.	Nearest Habitat	Yashwantnagar Village is about 1.5 km
4.	Capacity	5.00 MTPA Iron Ore Processing Plant & 3.0 MTPA Pellet Plant over an area of 26.44 Ha, Integrated with Downhill Pipe Conveyor over an area of 16.58 Ha.

EXECUTIVE SUMMARY

S.No	Particulars	Details
5.	Category of the project	“A”
6.	Topo Sheet No	57A/8
7.	Total water requirement	103.79 m ³ /hr or 2491 KLD
8.	Man power requirement	752 direct & 900 indirect employment
9.	Nearest Town, City, District Headquarters along with distance in km	Sandur Town is 9.5 km by road, Nearest City Hosapete 40 kms.
10.	Nearest railway station	Nearest Railway station is Yashwantnagar 1km
11.	Nearest Airport	Vidhyanagar Airport 30 Km
12.	Nearest highway	SH 49 Sandur- Kudligi 1.2Km
13.	Ecological sensitive areas (wild life sanctuaries, national parks, biosphere reserves, protected forest etc.,)	Ramgad Reserve Forest 2.3 Km Kumaraswami Betta RF 0.68 Km Somalapur RF 0.47 Km
14.	Historical Places	Kumaraswami temple 7.5 kms

OPERATION TECHNOLOGY & PROCESS

The main plant facilities proposed to be established in the project include raw material receipt and storage, weigh-bridge, crushing of the ore in the crusher(s) followed by screening, washing of iron ore fines in a wet scrubber & wet screening, followed by grinding in a ball mill, hydro-cyclones, Spiral Classifiers, thickeners, filter press and storage of concentrate/ tailings. To utilize the tailings, it is proposed to convert them into bricks or will be sold to cement plants, in the region.

Downhill pipe conveyor

Iron Ore produced at mines head will be transported to plant located at Somlapur Village, Sandur Taluk through the Down Hill Pipe Conveyor system. The proposed Downhill Conveyor system is a single flight pipe conveyor utilizing a 1,200 mm wide steel cord belt formed into a 305 mm nominal inside pipe diameter operating at a speed of 3.5 m/s with a designed capacity of 1500 TPH. The downhill conveyor alignment is both vertically and horizontally curved with an overall length of 4.3 Km and an overall decline of 300 meters with a maximum inclination of 21° as it travels down the steep hill from the mine towards plant.

The Downhill Conveyor is powered by two (2) 700 kW, 4 pole motors with variable frequency drives for starting and stopping control with regenerative operation capability. One drive is located near the head and the other is located at the tail station to reduce the overall tension variations. Iron Ore processing unit shall receive the iron ore fines from MSPL captive mines through a downhill conveyor as well as additional nearby mines & subjected to dry & wet processing.

EXECUTIVE SUMMARY

Iron Ore Processing Design Parameters - Input & Output:

The feed for the proposed plant shall be sourced from the MSPL captive mines and other adjacent mines working in the region. The feed size shall be -10 mm.

Iron ore feed thus received will be subjected to screening, grinding and beneficiation and the final product will be a feed to the pellet plant.

Processing equipment will consist of grinding mills, Magnetic separators, Reverse Flotation etc. For thickening and water recovery purposes concentrate thickener shall be provided.

Pellet Plant

The pellet plant has been envisaged within the same premises to produce Iron ore pellets by utilizing the iron ore concentrate. The finished pellets shall be sold in the domestic/international market. Grate kiln process has been envisaged considering the operating experience of major existing pellet plants in India with Hematite as input iron ore feed. The major technology units are as follows

Proportioning and Additives system and mixing unit

Feed & Handling: Coke breeze/coal, limestone, dolomite & bentonite.

Balling unit

Induration system (Grate Kiln Process)

Pellet screening

Fuel handling and utilizing system

Belt conveyors, junction houses, inter-connecting & galleries.

IRON ORE PROCESSING PLANT - FEED PARAMETERS

Sl.	Parameter	Iron Ore processing Unit
A	Feed	
	Total feed to the proposed plant (-10 mm)	5 MTPA
B	Product	
	Concentrate from Process	4.1MTPA
C	Reject	
	Tailing (Reject)	0.9MTPA

Water Requirement

A comprehensive water supply scheme for supplying water to various units of Iron ore processing unit, pellet plant complex and other service facilities has been envisaged. The total freshwater requirement from the source for the proposed plant complex has been estimated as 103.79 m³/hr, i.e., 2491 KLD, which will be met from Tungabhadra dam water.

Power Requirement

The power requirement of ~40 MW for the proposed plant has been envisaged to be made available from Kudligi 220 KV grid substation of State Electricity Board of Karnataka.

EXECUTIVE SUMMARY

Description of Environment

Study Area

The study area of 10 kms radius around the proposed plant is considered as buffer zone. The study period for baseline data collection was from Oct-21 to Dec-21 which is the post-monsoon season.

Methodology of collection of baseline data

For Baseline data collection services of Environmental Laboratory of M/s. Mineral Engineering Services, Ballari have been engaged who are duly recognised by MoEF&CC , GOI, New Delhi.

Micro meteorology

Micro meteorology and Micro climatic parameters have been recorded by installing a Weather Monitoring Station at proposed plant site.

Nearest State Highway: Bellary–Sandur-Kudligi Bypass (1.2 km)

Nearest Habitation Yeshwanth Nagar (1.0 km)

Nearest major Railway Station: Toranagallu (35.0 km)

Max./ Min Temperature : 35°C/ 15°C

Relative Humidity (Max/ Min): 106 /68 %

Annual Rainfall: 740mm

Ambient Air Quality

For Ambient air quality 12 stations have been fixed covering 11 villages and 1 core zone covering all the directions, the frequency of monitoring is 2 days/ week for 3 months and the parameters covered were as per CPCB NAAQS guidelines.

The values of SO₂, NO₂, PM₁₀ & PM_{2.5} in the core zone are observed to be ranging between SO₂ 5 to 13, NO₂ 9 to 19, PM₁₀ 29 to 69, PM_{2.5} 12 to 36 µg/m³. All the parameters including CO, Pb, and O₃ as per NAAQS are monitored and monitoring results compared to AAQS are observed to be well within the limits. The maximum values in buffer zone villages also were well within the permissible limits.

Noise Levels

For noise quality 13 stations including 1 station in core zone and 12 in buffer zone villages were monitored and Leq during day & night are observed. The Leq value during day in the core zone is observed as 53.9 dB(A) and in night 42.5 dB(A) and monitoring results when compared to Noise Quality Standards are well within limits. The Leq values in buffer zone during day and night were found to be ranging from 53.3 to 45.3 dBA and 41.2 dBA to 36.8dBA respectively. Monitoring results when compared to Noise Quality Standards are well within limits.

EXECUTIVE SUMMARY

Water quality

Water Quality Monitoring was done by grab sampling once in a season for 10 surface Water and 14 Ground Water samples. IS: 3025, APHA 21st Edition, & IS:1622 standards are used for analysis. The analysis results were compared with IS standards IS:2296 & IS:10500:2012 and the results were found to be within the permissible limits.

SOIL QUALITY

Soil Quality Monitoring at 11 locations including one from the core zone and others from nearby village agricultural fields were collected and analysed during the study period for Textural & Physical Parameters and the Nutrients. They are all observed to be within the limits for normal soil quality fit for cultivation.

LAND ENVIRONMENT

Include land use of buffer zone table

The existing land use of study area covering 10 km radius is Forest area 15%, 5.2% settlement, mining area 2.7 %, water bodies 1.5 %

Land use Pattern in 10 Km radius area around the Project Area and Kalingeri			
Sl.No	Type	Area in Ha	%
1	Dense Forest	7031	15.16
2	Water Bodies	695	1.50
3	Mining Area	1268	2.73
4	Settlements	2416	5.21
5	Agricultural Land	11933	25.72
6	Scrub Forest	22842	49.24
7	Stone Quarry and Solar Pannels	204.6	0.44
Total		46390	100.00

Land Use – Plant area

Sl. NO	Description of Unit	Area in Ha
1	Iron Ore Processing	1.68
2	Pellet plant	1.88
3	Green zone	9.82
4	Water Storage	0.85
5	Raw material Yard	4.56
6	Office Space & Ancillary	5.95
7	Slime (tailing reject) storage & Management in Plant	1.70
	Total Land	26.44

EXECUTIVE SUMMARY

Land Use – Tailing Dump area

Sl.No	Description	Area in Ha
1	Tailing dumping /stacking & Installation of filtration/dewatering unit.	20.33
2	Buildings, water complex & reservoir system.	8.09
3	Internal roads & drainage system.	7.58
4	Future expansion for ancillary facilities	33.38
5	Green belt development.	31.78
Total		101.17

BIOLOGICAL ENVIRONMENT

A detailed biological study report of the study area core zone and 10 km buffer zone with details of flora and fauna, endangered, endemic and RET Species is furnished. Entire beneficiation plant 26.44 ha falls within private land owned by the company and this land is historically seasonal Agriculture land.

The land has remnant isolated species like Neem, Teak. The core area has one seasonal Nallah (natural canal). Tailing disposal land of 101.17 ha is open degraded revenue land, leased from the local authority, of which, 20.33 ha land area will be used currently for stockpiling filter cake and tailing pond establishment, remaining land of 81.17 ha will be kept for future expansion and also forest plantations and water conservation purposes. A total of 123 plant species were recorded from 47 families in both core and 10-km radius buffer region; of these, there were 68 trees, 28 shrubs, 29 herbs including climbers and grass.

The dominant families are *Fabaceae* , *Euphorbiaceous* and *Combretaceae* and *Caesalpinaceae* and *Verbenaceae* recorded. Totally, 13 species of mammals were recorded of which arboreal mammal – Squirrel, Bonnet Macaque, and Hanuman Langur and remaining were ground dwellers. The carnivorous’ Leopard, and omnivorous Mongoose were hinted by rural communities. The most common species sighted by us and local communities are Indian hare, Rats, Wild boar.

SOCIO -ECONOMIC STATUS

No Rehabilitation or Resettlement is involved and it is a forest land and there are no human settlements or PAPs within the Plant areas which require Rehabilitation and Resettlement. There are 25 main villages and two small towns which fall within the buffer zone with a total population of 1,31,648 . Due to the proposed plant activity, no significant adverse changes are visualized in the traditional way of life of the people residing in the villages of buffer zone.

This proposed plan shall provide employment for about 1500 people by both direct and indirect employment during construction and 752 employment by direct and 900 employment by indirect during operational period which include officials, skilled, semi-skilled and unskilled labour and indirect employment, in contractual works & transport. Preference shall be given to local people for employment.

EXECUTIVE SUMMARY

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact on Air Environment

The maximum uncontrolled PM10 emission level due to proposed mining operations like production and transport of iron ore & waste generation, predicted by using the software are observed to be well within the limits and does not exceed 100 µg/m³. The dust is not containing harmful free silica

Mitigation Measures for Air Environment

- Water sprinkling, barricading, covering of demolition waste
- Major Raw materials Iron ore fines will be transported by downhill pipe conveyor, trucks/dumpers covered with tarpaulin.
- Dust extraction with Bag house to be installed.
- The finish product will transport from plant via trucks with covered tarpaulin.
- Additives like Bentonite, limestone and coal will be under covered storage area. Dust
- Suppression System and Dry Fogging System will be installed at all the junction houses/transfer points.
- Water sprinklers along the internal roads and, raw material yard and product storage yard will be installed.

Following APCDs are proposed:

- A high efficiency (99.8 %) electrostatic precipitator (ESP) will be installed in the induration Furnace section.
- Dust extraction with Bag house to be installed at following locations:
- Raw material handling
- Coke grinding
- Proportioning
- Ball mill

Impact on Noise Environment

Maximum noise is produced from operation of earth moving m/c's & movement of dumpers and operation of Heavy Plant machines

Mitigation Measures for Noise Level:

- The overall aim towards control of noise pollution is not only to restrict the ambient and work zone noise within the specified norms but also to have minimum noise above the
- Prevailing ambient noise levels in the vicinity of the pellet plant. The noise of rotary equipment will be kept low by the suitable equipment design.
- Heavy noise generating equipment like – blowers/fans, compressors provided with acoustic barriers.
- Proper grouting of equipment to avoid rattling and vibrations.
- Regular monitoring and maintenance to avoid pneumatic (air) leakages in lines

EXECUTIVE SUMMARY

- Provision of PPEs, ear plugs/muffs provided to personnel working close to the noise generating equipment.
- All rotating equipment / parts lubricated and provided with enclosures as far as possible to reduce noise transmission.
- Isolation of equipment to the extent possible.
- Regular ambient noise level checks shall be carried out at the site

Impact on Water Environment

- The wastes and ore generated are nontoxic, no heavy metals are present. The possible pollutants in the water are the suspended solids which are derived from erosions within the mining areas, dumps controlled by sedimentation.

Mitigation Measure for Water Environment

- Domestic waste water will be treated in STP of 50 KLD capacity. 54 KLD effluent will be generated which will be treated in ETP. As the project is proposed to have Zero Liquid Discharge (ZLD), very little to no negative impact on any surface water bodies in nearby areas is envisaged.

Mitigation Measure for Land Environment

- Apart from change in land use, no adverse impact is envisaged. Minor construction work will not affect the topography. Pollution control measures for air and water would ensure low risk of land contamination.
- Materials will be stored on concrete floor or floor with liners. Material storage area garland drains will collect the surface run-off and routed to clari-flocculator and then reused.

Mode of disposal of solid & hazardous wastes-

The type of waste that would be generated due to operation and maintenance of the Beneficiation Plant include 1. Tailings, 2. Hazardous waste and 3. Metal scrap,

- Used Oil 25 KLA, Wastes/ Residues Containing Oil 3 KLA to be sold to Authorize Tar Processing Vendor by SPCB.
- 5 mtpa of Iron ore feed to Beneficiation will produce a waste tailing of 0.9 mtpa which will be stored at tailing pond

IMPACT ON SOCIO ECONOMIC ENVIRONMENT

This proposed plant shall provide employment for about 752 people by direct employment and 900 by indirect employment during operational period and 1500 employment during construction in contractual works & transport. The mining activities help in sustainable development of this area including further development of physical & social infrastructural facilities.

Also by this activity, the country achieves the revenue in terms of taxes on iron ore and pellet production and exchequer revenue for State in terms of royalty etc.

EXECUTIVE SUMMARY

The project proponent shall assess the health conditions of the workers as per the DGMS guidelines. Noise, air, water quality will be maintained well within the limits. Corporate Environmental Responsibility (CER)

For Corporate Environmental Responsibility the PP has allocated a Rs.3002 In lakhs/ annum as detailed below.

Annual Budget for Corporate Environmental Responsibility

Sr.No	Activity/Items	Rs. In Lakhs	
		Capital Cost	Recurring expenses/year
1	Air Pollution Control	960	22
2	Water Pollutuon Control	100	5
3	Solid Waste Management	15	5
4	Pollution Monitoring	100	10
5	Plantation	20	3
6	Occupational health	117	34
7	ESP & Stack	1200.00	120
8	Bag filter system (PP+IOBP + IOGS)	190.00	19
9	Any Other pollution control Equip.	300.00	30
	Total	3002	248

Corporate Social Responsibility (CSR)

Annual budget to be provided for socio-economic development of the area shall be given below

Recurring expenditure shall be involved for further improvement of socio-economic status :

Sl. No	Particulars	Expenditure (Rs. in Lakhs)
1	Education	45
2	Health & Sanitation	45
3	Village Plantation	5
4	Skill development & Self-help groups	5
6	Infrastructure development	80
7	National Heritage	10
8	Support for sports	10
	Total	200

ENVIRONMENTAL MONITORING PROGRAM

Regular environmental monitoring will be conducted during the plant operating period covering the study area to maintain the pollutants level from the plant activity within the permissible limits by engaging the services of External Environmental Monitoring Lab, which is recognized by MoEF&CC. Environmental Monitoring shall be done as per National Ambient Air Quality Standards, CPCB Notification, New Delhi, the 18th November, 2009. Water Quality Monitoring and Analysis shall be done using IS methods.

EXECUTIVE SUMMARY

CONCLUSION

There shall be no major impact on environmental status of the area by establishing the proposed beneficiation and pellet plant. Thus iron ore processing of 5.0 MTPA for Beneficiation Plant & 3.0 mtpa for Pellet plant is viable and helps in providing direct employment to 752 people and indirect employment of about 900 people during operation period and 1500 employment during construction period besides employment from the neighboring villages for various activities. This project also helps in socio economic improvement of the neighboring villages. The proposed project would cater to the rising raw material demand for the steel plants located in the neighborhood and also in meeting the export demand.