

EXECUTIVE SUMMARY

1.0 INTRODUCTION

Shri Bajrang Group of companies headed by GOEL GROUP is one of the leading business houses in Chhattisgarh. The group has entered in to the business of Iron & Steel with a Re-Rolling Mill in the name of M/s Shri Bajrang Alloys Ltd. Shri Bajrang Metallica belongs to this group has also entered in the business of TMT Bars, which is sold under the brand name Goel TMT. The group has been further strengthened by establishing Shri Bajrang Power & Ispat Ltd (SBPIL).

M/s SBPIL obtained Environmental Clearance for the Integrated Steel Plant at village Tandwa & Kundru, Tehsil-Tilda, District-Raipur (C.G.). Ministry of Environment & Forests Vide Lr No J-11011/394/2009 –IA.II (I) dated October 6th, 2010 has issued Environmental Clearance for the Project. Consent for Establishment for the project was provided by Chhattisgarh Environmental Conservation Board Vide Lr No 6014/TS/CECB/2011 dated 25.01.2011.

SBPIL now proposes to expand the capacities of Pelletization plant and Iron ore Beneficiation plant within the existing Integrated Steel Plant.

The details of capacities of the proposed expansion are given below:

Details of Environmental Clearance Obtained			Modification Proposed	Total
Facilities	Phase-I	Phase-II		
Sponge Iron	4 X 0.15 MTPA	-	-	0.60 MTPA
Hot Re-rolling Mill	2 X 0.20 MTPA	-	-	0.40 MTPA
Coal Washery	2 X 1.20 MTPA	-	-	2.40 MTPA
Captive Power Plant (WHRB)	5 X 10 MW	25 MW using coke oven gas	-	75 MW
Power Plant (AFBC)	2 X 25 MW	-	-	50 MW
Steel Melting Shop & Continuous Casting Machine	2 X 0.25 MTPA	0.50 MTPA	-	1.00 MTPA
Coke Oven Battery*		0.50 MTPA	-	0.50 MTPA
Sintering Plant		0.70 MTPA	-	0.70 MTPA
Blast Furnace		0.55 MTPA	-	0.55 MTPA
Oxygen Plant		500 TPD	-	500 TPD
Pelletisation Plant		0.60 MTPA	0.80 MTPA	1.40 MTPA
Ferro Alloy Plant		36,000 TPA		36,000 TPA
Iron Ore Beneficiation Plant		0.60 MTPA	1.40 MTPA	2.00 MTPA

1.1 SITE SPECIFIC DETAILS OF THE PROJECT

The site specific details are given in the table below:

DETAILS OF THE PROJECT SITE

Name of the Project	Expansion of Iron Ore Beneficiation & Pelletization Plant within existing Integrated Steel Plant
Location of Project	
Village	Tandwa & Kundru Village, Block Tilda.
District & State	Raipur district, Chhattisgarh
Coordinates of the proposed plant site	N 21 °29'50.59" E 81 °45'50.68" N 21 °29'13.17" E 81 °45'42.80" N 21 °29'20.78" E 81 °46'37.36" N 21 °28'51.77" E 81 °46'26.69"
General Climatic Conditions	
Mean Maximum Temperature (°C)	45.8
Mean Minimum Temperature (°C)	19.6
Relative Humidity (%)	90
Annual Rainfall (mm)	1288.8
Wind Pattern (during study period)	Southwest
Elevation	280m
Toposheet no.	64 G/15
Seismicity zone	Zone II
Present landuse	Agriculture/Barren Land (Proposed for Industrial use)
Accessibility	
Road Connectivity	NH-200 (12 km)
Airport	Mana Airport (Raipur 38 km)
Historical / Important Places	
Archaeological/Historically Important Site	None within the 10 km radius of the proposed plant site
Water bodies	Bhatapara canal (3.5 km from the project site) Kirna Tank (1.0 km) Kulhan Nallah (7.2 km)
Forest Area	Bilari Reserve Forest (10 km)
Sanctuaries / National Parks	None within the 10 km radius of the proposed plant site

1.2 BASIC REQUIREMENTS FOR THE PROPOSED PROJECT

Land Requirement

Pelletization Plant: 15 acres (approx.)

Beneficiation Plant: 21.6 acres

This area will be within the existing project area of 348.89 acres. Hence no additional land procurement is required.

Raw Material Requirement

Pelletization Plant

S.no	Pelletization plant	Quantity (TPA)
1	Iron ore fines	14,28,000
2	Limestone/Dolomite	21,000
3	Bentonite	11,200
4	Coke Breeze	49,000

Iron ore Beneficiation Plant

S.no	Iron Ore Beneficiation Plant	Quantity (TPA)
1	Iron ore	20,00,000

Water Requirement and Waste Water Generation

There will be no impact on water as close circuit water circulation system has been designed so as to minimize make-up water requirement. Further, the total waste water generated in the proposed expansion will be around 150 cubic meter per day which will be over and above 550 cubic meter per day for Integrated Steel Plant before expansion ,therefore 750 Cum per day capacity ETP has been planned instead of 600 cubic meter proposed earlier for treatment of waste water generation. In the Pellet Plant there will be no waste water generation whereas in Iron Ore Beneficiation Plant the waste water generated will be recycled through thickener and residue water shall be treated in the proposed effluent treatment plant and after treatment shall be utilized for green belt development and water spraying on raw material stacks / roads.

Power Requirement

The power requirement for the proposed expansion is about 6 MW

Manpower

The manpower requirement for the proposed expansion project will be around 150 and the total manpower requirement for the project would be 2150.

1.3 DESCRIPTION OF ENVIRONMENT

The report incorporates the baseline data generated for three months during summer (Mar-May) 2009.

Air Environment

Results of ambient air quality indicated that the concentrations of PM₁₀, SO₂, NO_x, and CO are well within the prescribed standards.

PM₁₀ - 24 - 55.4 µg/m³

SO₂- 4.6 - 11.1 µg/m³

NO_x - 5.5 - 13.8 µg/m³

Noise Environment

The day time noise levels ranged between 48.5 to 50.7 (Leq) and night time noise levels ranged between 38.6 to 40.3 (Leq). Both the day and night time noise levels are within the prescribed levels of the CPCB standard.

Water Environment

The surface and ground water quality of the study area was assessed for physico-chemical and bacteriological quality of water. It was observed that all the concentration of physico-chemical parameters and heavy metals in surface and ground water are below the stipulated drinking water standard. However the surface water shows little bacteriological contamination due to human activities.

Land Environment

The study area (10 km radius) comprises of agricultural single crop (35.71%) followed by land with/without scrub (28.84%), agriculture fallow (19.5%), plantations (6.47%), built up land (3.25%), agriculture double crop (2.66%), water bodies (2.36%), degraded forest (0.77%), mining area (0.27%) and industrial area (0.12%).

Biological Environment

Flora and Fauna

The assessment of the study area was carried out by field observation and collating available information. The terrestrial flora species are as given below:

Acacia Arabica	Babul
Acacia leucophloe	Reunja
Albizia procera	Safed
Combretum narum	Kena
Zizyphus manuratiana	Bar
Azadiracta indica	Neem
Eucalyptus sp.	Nilgiri
Tectona grandis	Sagon
Dalbergia latifolia	Shisham

Dalbergai sisoo	Sissoc
Chloroxylon swietenia	Bhirra
Diosphyros melanoxylon	Tendu
Madhuca indica	Mahua
Bauhina retusa	Sehra
Bridelea retusa	Kasai
Emblica officinalis	Aonla
Acacia ceasia	Gurar
Acacia pinnata	Raoni
Millattea ariculate	Gunj
Dioscorea angunina	Bansera

The faunal species are represented with following species

Sus scrofa	Indian wild boar
Hyaena hyaena	Striped hyena
Lepus nigricollis	Indian hare
Herpestes edwardis	Common mongoose
Antilop cervicapra	Black – buck or Indian antilop
Cervus unicolour	Sambar

1.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

Construction phase activity involves erection of equipment and units, infrastructure development like roads, water, electricity, drainage etc. The impact due to the project activities during the Construction phase will be of short-term in nature.

Emissions released from the plant during operation phase will get dispersed in the atmosphere and finally reach the ground at a specified distance from the sources. From the proposed Pelletization and iron ore beneficiation plant (within the existing steel plant) the possible environmental impact on air quality has been envisaged due to the different units of ESP.

Frequent water sprinkling in the vicinity of the construction sites will be undertaken. It will be ensured that both gasoline and diesel powered vehicles are properly maintained to comply with exhaust emission requirements. Installation of electrostatic precipitators downstream of hood exhaust and wind box exhaust sections of the induration process to bring down the emission of dust particles in the exhaust gases well under the acceptable norms, installation of wet scrubbers.

Predictions have been carried out using AERMOD for study period. The predicted ground level concentrations of suspended particulate matter, SO₂ & NO_x were found to be below the AAQ standards at 1 – 2.8 km.

Noise Environment

There will be marginal increase in noise levels during construction phase, which is temporary. To control the noise levels during construction phase, the silencer of the vehicles will be maintained well. Noise prone activities will be restricted to the day time. Onsite workers working in noise prone areas would be provided with ear muffs & plugs.

Water Environment

There will be no impact on water as close circuit water circulation system has been designed so as to minimize make-up water requirement. Further, the total waste water generated in the proposed expansion will be around 150 cubic meter per day which will be over and above 550 cubic meter per day for Integrated Steel Plant before expansion ,therefore 750 Cum per day capacity ETP has been planned instead of 600 cubic meter proposed earlier for treatment of waste water generation. In the Pellet Plant there will be no waste water generation whereas in Iron Ore Beneficiation Plant the waste water generated will be recycled through thickener and residue water shall be treated in the proposed effluent treatment plant and after treatment shall be utilized for green belt development and water spraying on raw material stacks / roads.

Land Environment

The tree plantation will be undertaken during the construction phase only so as these plants grow in considerable height by the time of the proposed activities are in operational stage.

1.5 ENVIRONMENTAL MANAGEMENT PLAN

Air Environment

Pelletization Plant/iron Ore Beneficiation Plant

- Installation of electrostatic precipitators downstream of hood exhaust and wind box exhaust sections of the induration process to bring down the emission of dust particles in the exhaust gases well under the acceptable norms, before discharging it back into the atmosphere. The dust thus collected is mixed with water to form slurry and fed into a thickener/clarifier.

- Installation of wet scrubbers above and below the mixer feed storage bins, hearth layer bin, machine discharge and hearth layer segregation bin to collect the fugitive dust. The dust thus collected is also slurrified and fed into the thickener/clarifier.
- Fugitive dust from the blending feeders and mixing areas are collected in bag filters and recycled back to the mixer feed.
- Miscellaneous and other solids collected from Plant floor wash down system including spilled whole pellets are fed in slurry form to a spiral classifier. This unit delivers the coarse grit (nominally plus 65 mesh solids) to the pellet product conveyor, while the overflow containing fine solids is pumped to the thickener/clarifier.

S.no	Activity	Type of Pollution	Management
1	Transporting of Iron ore fines. By belt conveyor By trucks/dumpers	Fugitive Dust	Since the plant shall be operated wet, the dust problem shall be taken care. Proper road sprinkler system shall be maintained.
2	Handling & Storage at Plant site.	Fugitive dust	Adequate arrangement for water spray shall be provided. Storage yard shall be properly fenced & bushes shall be planted at the periphery of the yard.
3	Operation of DG Set in case of power failure.	PM ₁₀ , SO ₂ , NO _x & CO	Adequate stack height as per CPCB guideline shall be provided

Noise Environment

Pelletization Plant/Beneficiation Plant

All plant equipment will be specified with the basic intention of not exceeding 85 dBA at a horizontal distance of 1000mm. Personnel ear protection may be required in some parts of the facility. This will be determined during start-up. Proper signing will be posted by RML under these conditions.

The areas where noise levels are high will be partitioned off, noise levels will be minimized at the source, and noise reflection and transmission should be minimized.

- The operator's cabins will be properly insulated with special doors and observation windows.
- Supply ducts and grills on the ventilation and air conditioning system will be suitably sized for minimum noise level

- The silencers and mufflers of the individual machines shall be regularly checked
- Green belt around the plant area will reduce the noise level further. Training of personnel is recommended to generate awareness about damaging effects of noise.

Water Environment

There will be no impact on water as close circuit water circulation system has been designed so as to minimize make-up water requirement. Further, the total waste water generated in the proposed expansion will be around 150 cubic meter per day which will be over and above 550 cubic meter per day for Integrated Steel Plant before expansion ,therefore 750 Cum per day capacity ETP has been planned instead of 600 cubic meter proposed earlier for treatment of waste water generation. In the Pellet Plant there will be no waste water generation whereas in Iron Ore Beneficiation Plant the waste water generated will be recycled through thickener and residue water shall be treated in the proposed effluent treatment plant and after treatment shall be utilized for green belt development and water spraying on raw material stacks / roads.

Land Environment

Extensive tree plantation will be carried out during the proposed expansion in factory premises with local species. 25 – 30 meter wide green belt will be developed all long the periphery of the existing facilities. As far as possible maximum available open space will be utilized for plantation purpose.

Plant Species Recommended for Greenbelt

The prominent trees shall be suggested for planting i.e. Carton sp., Mirabilis jalapa, Thespesia populnea (tulip), Techtona grandis (teak), Shorea robusta (sal), Terminalia arjuna (arjun), Poluthia longifolia (ashok), Ficus religesoa (papal), Magnefera indica (mango), Lagerstromia flosregenal (jarul), Bauhinia purpuria (kachnar), Ficus bengalensis (banyan). The prominent trees recommended include Eucalyptus sp., Casia fistula, Polyalthia pendulosa, Syzygyum jambolana (Jamun), Teak, Sal, Ashok, Mango, Bougainvillea spectabilis, Murraya exotica, Nerium odoratum. Dalbergia, Gmelina, Pongamia, Peltaforum, Delonix and Avthocephalus.

Socio Economic Environment

The project proponent would aid in the overall social and economic development of the region. The manpower requirement for the proposed expansion project will be around 150 and the total manpower requirement for the project would be 2150.

In order to mitigate the adverse impacts likely to arise in the proposed project activities and also to minimize the apprehensions to the local people, it is necessary to formulate an affective EMP for smooth initiation and functioning of the project. The suggestions are given below:

- Communication with the local community should be institutionalized and done on a regular basis by project authority to provide an opportunity for discussion
- Project authorities should undertake regular environmental awareness program on environmental management measures being undertaken for improving their quality of life
- To mitigate the strain on existing infrastructure adequate provision of basic amenities viz. education, health, transport etc. should be made considering the immigrating population and the work force in the area
- Job opportunities are the most demanding factor, the local people having suitable skill should be considered for employment
- For social welfare activities to be undertaken by the project authorities, collaboration should be sought with the local administration, gram panchayat, block development office etc for better coordination
- **Budgetary Provision for Environmental Management Plan**

S.no	Particulars	Capital Cost (Rs. Lacs)	Recurring Cost (Rs.Lacs)
1	Pollution Control Devices	150	15
	Fugitive Dust control system	50	5
2	RCC Chimneys	50	5
3	Noise Pollution Control System	25	3
3	Cooling Towers	50	5
4	Bottom Ash /Fly Ash Collection System	50	5
5	ETP/STP	50	5

6	Environmental Monitoring, laboratory equipment, van	25	2
7	Occupational Safety Health Equipment and Fire Fighting system	25	2
8	Green Belt Development	25	3
9	Rain Water Harvesting /Recharge structures	25	2
10	CSR Initiatives	25	3
11	Cooling Ponds/Pits	25	3
12	Miscellaneous	25	2
	TOTAL	600	60

1.7 CONCLUSION

The potential environmental, social and economic impacts have been assessed. The proposed activities will have marginal impact on the local environment. With effective implementation of proposed environment management plan, these effects 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. Quality of life of the people will improve.

With commitment and dedication, Shri Bajrang Power & Ispat Ltd. will commission the proposed expansion with modern equipment. Recommendations made in the Corporate Responsibility for Environmental Protection (CREP) for the power project will be implemented. Bajrang Power & Ispat Ltd. also undertakes various community welfare measures for the upliftment of villages surrounding the plants.