

M/s RATHI STEEL & POWER LTD.

**EXECUTIVE SUMMARY
OF
ENVIRONMENTAL IMPACT ASSESSMENT
AND
ENVIRONMENTAL MANAGEMENT PLAN
OF
KESLA NORTH COAL BLOCK
VILLAGES BELA AND TAPRA,
DISTRICT KORBA, CHHATTISGARH
(EXTENT : BLOCK AREA 750 HA.; ML AREA 750 HA.,
PRODUCTION 0.30 MTPA BY OPENCAST & UNDERGROUND METHODS)**

SEPTEMBER, 2011

Prepared by :



MIN MEC CONSULTANCY PVT. LTD.

A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110 030

Ph : 29534777, 29532236, 29535891 ; Fax: +91-11-29532568

Email : min_mec@vsnl.com; Web site : <http://www.minmec.co.in>



An ISO 9001:2008
approved company

EXECUTIVE SUMMARY OF EIA/EMP FOR KESLA NORTH COAL BLOCK, CHHATTISGARH

1.0 INTRODUCTION

1.1 General background

Kesla North block has been allotted to M/s Rathi Udyog Ltd. (formerly known as M/s Rathi Steel & Power Limited) vide allotment letter no 38011/2/2007-CA-1 dated 5th August, 2008 to meet the coal requirement of their own Sponge Iron Plant of capacity 0.75 million tonnes per annum situated at District Sambalpur in Orissa.

The allotted coal block lies in north-eastern part of Korba Coalfield, which is located in the south central part of the Son-Mahanadi Valley basin belt. It is located entirely within the Korba district of Chhattisgarh. The coal is proposed to be mined by underground as well as opencast method. Kesla North block has an area of 750 Ha. It will have an annual production 3 lakh tonnes.

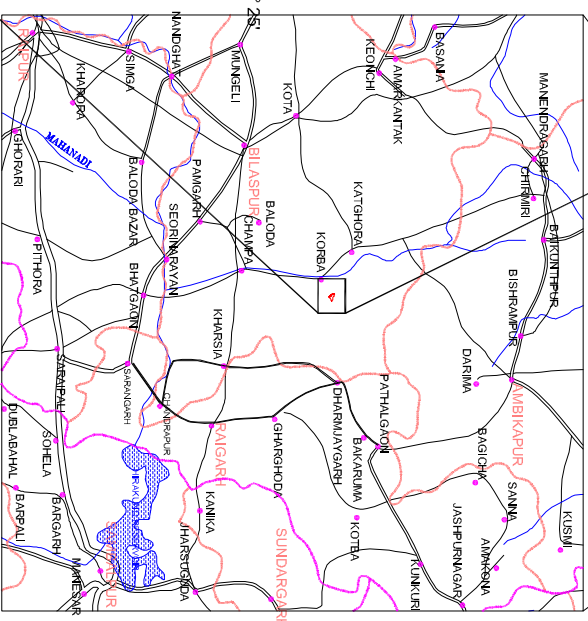
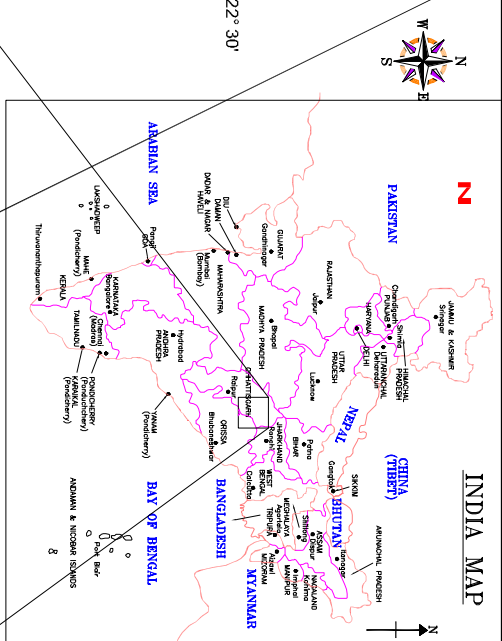
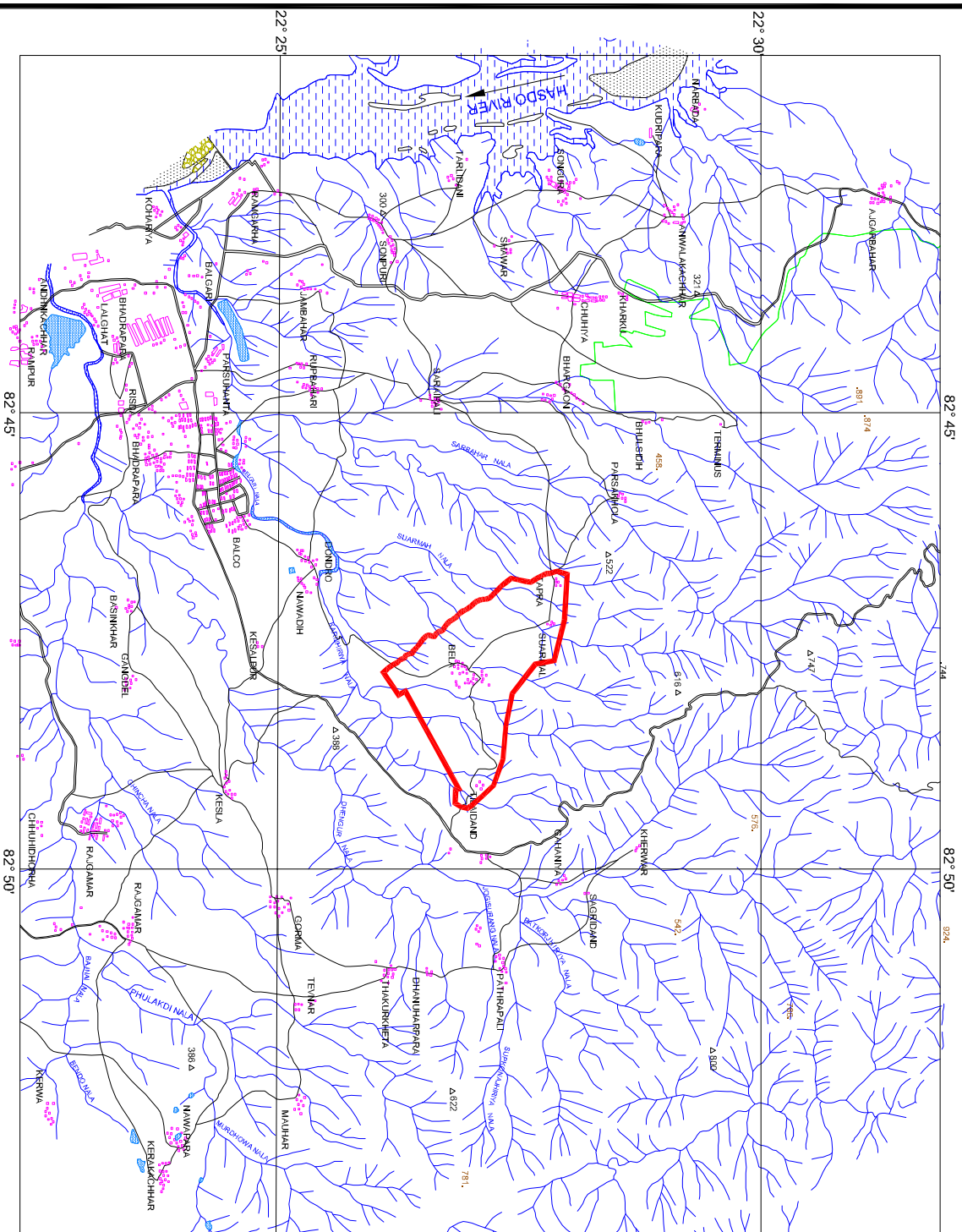
1.2 Location and communication

The mine lease is located in villages Bela and Tapra of Korba District in Chattisgarh state. The block falls in the Survey of India Toposheet no. 64 J/15 and lies between latitudes 22°26'05" to 22°28'0.48" and longitudes 82°46'36.84" to 82°49'20" as per GPS measurement. The western and eastern parts of the Korba coalfield lying on either sides of the Hasdeo river are approachable by a 72 km road from Bilaspur and by a 38 km road from Champa, respectively. The nearest railway station is Korba which is about 40 km south west of the block and lies on the Bilaspur-Champa-Gevra road branch line of South Eastern Railway. The nearest airport Raipur is about 215 km towards south-west from the project site. The location map is given in Fig 1.

2.0 PROJECT DESCRIPTION

2.1 Geology

The Korba Coalfield in the lower Hasdeo valley is an integral part of the Son-Mahanadi Master Gondwana basin. The block is mostly covered with sandy soil and has some exposures of weathered sandstone. Kesla North block is free from any dolerite and mica peridotite intrusion. Block has simple geological structure and is free from any structural disturbance as it is completely free from faulting. The strike takes a northerly swing in the northern and western part of the block. Local undulations in the strike are commonly seen in the block. The dip varies between 3° and 7°.




MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company

CLIENT: RATHI STEEL & POWER LTD.

PROJECT: KESLA NORTH BLOCK

SUMMARY

LOCATION PLAN








DRAWN BY: B.R. MATLOTTA	CHECKED BY: B.D. SHARMA	FIG. NO.
-----------------------------------	-----------------------------------	-----------------

SCALE : AS SHOWN	DATE : 05-09-2011	1
------------------	-------------------	---

1



LEGEND

- | | | | |
|---|------------------------|---|-----------------|
|  | APPLIED LEASE BOUNDARY |  | RAILWAYLINE |
|  | DISTRICT BOUNDARY |  | OTHER ROAD |
|  | RIVER / DRAINAGE |  | FOREST BOUNDARY |
|  | HABITATION | | |

2.2 Reserve estimation

A total of 36.148 million tonnes of net in-situ coal reserves from the four major seams, namely, R-IV, R-III, R-II & R-IA have been estimated. The maximum reserves of 17.080 million tonnes (47.3%) are available in sector IV, followed by 8.050 million tonnes (22.3%) in sector III and 7.195 million tonnes (19.9%) in sector II. Out of the total reserves, 29.095 million tonnes (80.5%) belong to the superior quality grades 'A', 'B' & 'C' while 4.329 million tonnes (12%) belong to the medium quality grade 'D' and 2.724 million tonnes (7.5%) to the inferior quality 'E', 'F' & 'G' grades. Of the total reserves, 8.027 million tonnes (22.2%) are available up to 1.20 m thickness range, 21.306 million tonnes (58.9%) in 1.2 m to 2.0 m and 6.815 million tonnes (18.9%) in 2.0 m to 3.5 m thickness range. Of the total reserves, 32.307 million tonnes (89.4%) are available beyond the 15 m hard cover zone and 3.841 million tonnes (10.6%) within 15 m hard cover zone. Out of the total reserves, 28.908 million tonnes (80%) are available outside the different barrier zones and 7.240 million tonnes (20%) within the barrier zones. The life of the mine will be 51 years at 0.30 million tonnes per annum.

2.3 Mining

Both opencast as well as underground mining methods have been chosen for the proposed mine.

Opencast mining: Seams R-IV, R-II & R-IA will be worked by opencast method up to 50 m depth line. Mining and transport of coal and OB will be fully mechanised. The total extractable coal reserve is 1.994 million tonnes and overburden is 36.433 million cubic metre. The overall stripping ratio including all pits is 18.27 cum:te. It is estimated that a total of 0.87 million cubic metre (Loose) of top soil will be generated. The life of the opencast mine will be 11 years. Production will begin in first year. It is proposed to use shovel of 0.9-1.10 m³ backhoe (Diesel hydraulic operated) in combination with eight 10 tonnes rear dump trucks for coal production. 8 m to 10 m high benches will be developed to excavate the over burden. Crawler-mounted, pneumatically operated, down the hole drilling rigs with hole diameter of 110/160 mm will be deployed in over burden. In coal, rotary bore hole drills will be used for drilling 110/115 mm diameter holes. The surface transport of coal will be done by Coal Tippers to the pit head stockpile. The over burden will be transported by dumpers to the surface dumps and backfill dumps.

Underground mining: All the four seams (R-IV, R-III, R-II and R-IA) are also viable for working through underground mining due to very good quality of coal varying from 'A' to 'C', less thickness and high over burden to coal ratio. Seam R-IV & R-IA will be worked with one pair and Seams R-III and R-II will be worked by another pair of inclines. There will not be any coal production from underground mining in first three years. From 4th year underground mining will be started and will continue till the end of life of mine. The seams can be approached by driving inclines in stone. The

length of inclines in 4:1 gradient will be 160 m which will take about 6 months time to drive. Working is done mostly on conventional board and pillar system of working. About 50% of coal reserve is in the thickness range of less than 1.5 m, if 1.58 million tonnes of 'A' grade is included for thickness between 0.5 to 0.9 m. The extractable reserve will be 12.266 million tonnes. The extraction will be carried out in all seams with blasting off solid and loading with low height site dump loader to chain conveyor/pony belt conveyor and finally by skip to surface.

2.4 Blasting

Opencast mining: The drill will be deployed on the horizontal bench cut by the shovel. A powder factor of 0.30 to 0.35 kg per bank cubic metre for overburden and 0.2 kg/m³ with 110/115 mm diameter drills for coal has been adopted. Short delay detonators and heavy ANFO explosive with daily requirement of 5.93 tonnes is proposed to be used.

Underground mining: The daily requirement of explosives for mining will be 0.400 tonnes. Additional 10% consumption of explosives may be considered for stone drifting.

2.5 Mine drainage

The ground water table will be intersected during the 1st year of mining. During open cast mining, the water will be pumped out from mine sump to settling reservoir on surface. The water seepage into the underground mine workings will be collected at the lowermost points of workings in each seam where the sumps of appropriate capacity will be provided.

2.6 Waste disposal

The surface dump of overburden generated during the initial years will be made on north-west side of Bela village within the block boundary. The height of the dump will be 60 m and its capacity will be 4.2 million cubic metres (Loose). Backfilling will start from 1st year of the project operation with a quantity of 3.05 million cum (Loose) of overburden. Till 5th year, 22.16 Million cum (Loose) material will be backfilled. Crown dump at a height of 20m will be made from 2nd year onwards on both pits. The total topsoil generated will be 0.76 Million cum (Bank) during the development of mine. The remaining void area of 32.30 Ha and 15.80 million cum volume of the excavated pit will ultimately become a water reservoir, having a maximum depth of about 50 m.

2.7 Site services

There will be a garage-cum-workshop-cum-engineering store meant for regular repairs and maintenance of earth moving equipment and dumpers etc. for quarry operation. Provision for colony for about 50% manpower has been proposed at Bela village within the block boundary. An underground

50 KL diesel pump and a 10 Tonnes capacity magazine will be provided with in the ML area.

Total requirement of water for mining and allied activities is estimated as 586 m³/day. Out of this, the requirement of 276 m³/day potable water will be met from bore well and 310 m³/day industrial water requirement will be met from mine sump and surface water reservoir.

The power line of 11 KV will be drawn from nearest sub station to the local sub-station from where the power will be supplied to the mine and other functional buildings.

The total manpower of 740 will be required for both opencast and underground operations.

3.0 PRESENT ENVIRONMENTAL SCENARIO

3.1 Topography and drainage

The block exhibits gently undulating topography with general elevation of the ground ranging between 314 m in south-western part to 396 m reference level (RL) in north-eastern part of the block. The study area represents hilly and undulating topography with regional south westerly slope with maximum elevation of 983 mRL in the eastern part.

The core area is drained by a number of small nalas which originate from the hillock present in the northern part and flow in the southerly direction. The drainage pattern of the study area is dendrite type and at place sub parallel in nature. The study area forms a part of Hasdo river basin. Large number of natural drainage network cutting across the study area originates from hilly terrain located in north west parts and drain off the entire storm water to river Hasdo flowing southerly along the western border of the study area. The important natural streams are Phulkadi, Ghincha, Karijharia, Dhengur and Sarbahar.

3.2 Climate and micro-meteorology

The climate of the study area is of subtropical type with monsoon characterized by hot summer. South-west monsoon season starts from June and extends to October. As per data from 1994-2006 of nearest IMD station at Raigarh (80 km, SE), average annual rainfall is 1302.0 mm, monthly maximum and minimum recorded temperatures are 45.70°C and 10.80°C and monthly average relative humidity varies from 56% to 68%

The micro-meteorology was monitored at the site from March to May 2011. The temperature recorded as a minimum of 16.9°C and maximum of 43.6°C, relative humidity as a minimum of 15.9% and maximum of 60% during the monitoring period. The wind speed varies between calm to 23.8 km/hr and the predominant wind direction was observed from NE with 15.55% of occurrences.

3.3 Ambient air quality

Ambient air quality was studied at five locations, one in the core and four in the buffer zone namely Suarmal, Kherwar, Dandro and Parsakhola villages. PM₁₀ was found to vary from 37.4 to 69.3 µg/m³, PM_{2.5} was found to vary from 20.9 to 41.0 µg/m³, SO₂ from 6.5 to 11.7 µg/m³ and NO_x from 6.8 to 13.0 µg/m³ values are much on the lower side. CO values were found to be less than 1000 µg/m³ at all location.

3.4 Water environment and quality

The core zone is drained by a number of small nalas. Large number of natural drainage network cutting across the study area originates from hilly terrain located in north west parts and drain off the entire storm water to river Hasdo flowing southerly along the western border of the study area. The depth to water table over the study area lies between 1.7 to 9.0 m below ground and over the core zone varies between 6.0 to 8 m below ground. The average slope of water table is 6.4 m / km over the study area. The annual ground water resource of the study area is 61.31 MCM and the utilization is 6.28 MCM.

2 surface water samples (Hasdo and Sarbahar rivers) and 7 ground water samples (core zone, Tapra, Gahaniya, Thakurheta, Gorma, Kesla and Dondro villages) were collected for assessing the water quality in study area. The ground as well as surface water is potable and the various parameters are well within the desirable limits for human consumption.

3.5 Landuse pattern and soil quality

The total area of 750 Ha, covering part of the three villages is mostly in the form of village land (278.313 Ha) and forest land (471.687 Ha.). As far as buffer zone is concerned about 5.31% of the total area is occupied by unirrigated agricultural land while irrigated agricultural land is only 0.22%. Out of the total area, 14.95% area is under forest land, area not available for cultivation is 14.54% and culturable waste land 64.98%.

Top soil samples were collected and analysed from core zone and buffer zone. The soil of the area is mostly sandy loam and is generally yellowish to reddish brown in colour and pH is acidic in nature.

3.6 Noise and Traffic Density

Ambient noise levels were measured at ten locations in and around the site. Noise level varied from 51.0 to 57.5 d(B)A during day and 38.8 to 43.7 dB(A) during night. The traffic density survey was conducted on Bela to Balco road for 24 hours on 11-12 May 2011. Total numbers of vehicles were found as 620 including cycles.

3.7 Ecology

In the buffer zone, the Reserve/Protected forest covers 6624 ha i.e. about 14.95% of the total area of the buffer zone. The common plant species forests are Sal, Mahua, Saja, Kusum, Tendu, Palas, Mango etc. while the crops grown in the area are gram, maize and paddy.

Mammals found in the study area include Jackal, Jungle cat, five striped squirrel, Mongoose, Porcupine, Indian Hare, etc., birds include Jungle crow, House crow, Parakeet, Spotted dove etc. and reptiles include Common Indian Krait, Lizard, etc.

3.8 Socio-economic condition

As per Census 2001, 228 households are located in the two villages of core zone i.e. Tapra and Bela. Three families (8 sub families) of Tapra village will be displaced and rehabilitated. Total project affected persons are 327 including displaced and land losers, which are subject to finalisation. There are 26 villages in the buffer zone. Total population of the villages is 208351. The literacy rate is 65.49%. The literacy among women is 26.78%. 25.78% of the total population are main workers, while 4.33% are marginal workers and 69.89% are non workers.

3.9 Places of archaeological/historical/tourist/religious importance

There is no important archaeological/historical place or other place of tourist or religious importance within the study area. There are local places of worship in some villages.

4.0 ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION

4.1 Climate

The climatic conditions including temperature variation, wind direction and speed, rainfall and humidity are governed by regional factors and the monsoon. As such the mining and allied activities will not tend to influence the climate. The operations are to be carried out in a limited area, as a result no large scale climatological impacts are anticipated.

4.2 Air environment

Impact: The opencast mining operations are prone to generation of higher levels of SPM and to a limited extent of SO₂, NO_x and CO due to blasting, fuel, oil combustion, operation of DG sets, etc. The other source will be the road transport and coal handling system. There are limited stationary sources of air emission in a mine and hence air pollution from the operation of these stationary sources is not anticipated. The maximum Ground Level Concentration of PM₁₀, SO₂ and NO_x concentration will be 0.21 µg/m³, 2.61 µg/m³ and 4.52 µg/m³ respectively due to DG set operation and 65.89

$\mu\text{g}/\text{m}^3$, $1.31 \mu\text{g}/\text{m}^3$ and $2.62 \mu\text{g}/\text{m}^3$ respectively due to mining activities. mining activities.

Mitigation: Drilling and blasting will generate dust which will be controlled through sprinkling. Coal handling transfer points in the coal handling plant will be provided with dust suppression system like water sprinklers, fixed sprinklers etc. Plantation all around the coal handling plant (CHP) will be done. Transport vehicles shall be maintained leak proof. Transfer points of coal will be provided with appropriate hoods/chutes to prevent fugitive dust emission. Dust masks will be provided as safety measure to the workers, engaged at dust generation points like drills, loading/unloading points, crushers etc. A mechanical ventilator of following specification will be installed in an air drift connecting to shaft.

4.3 Water environment

Impact: Neither coal nor the OB, contains any harmful ingredients. No impact on the surface water resources is envisaged as no water is drawn specifically from any surface water source. Availability of ground water at shallow levels, most of water requirement is planned to be drawn from ground water (mine sump), which will have some impact on the ground water resources. Other sources of pollution can be by oil spillage at the pit head and at the facilities viz. workshop, resulting in oil and grease contamination of surface water

Mitigation: The garland drain will be provided all along the mine boundary in the applied area in order to protect the mine working from inflow of storm water in mine pit. A surface water reservoir is proposed to store the run off water as well as water pumped out from the mine. To prevent surface and ground water contamination by oil/grease leak proof containers for storage and transportation will be used. All effluent from mine, workshop, and domestic water shall be treated. Oil water separator shall be installed. The sewage waste generated will be drained by underground impervious drains, and will be treated in Sewage Treatment Plant. Any areas with loose debris within the leasehold will be planted. Garland drains will be constructed around freshly excavated and dumped areas so that flow of water with loose material is prevented.

4.4 Noise, traffic density and ground vibration

Impact: Ambient noise levels in the core area are likely to increase from deployment of additional noise generating equipment like Heavy Earth Moving Machines, drills and blasting operations. The main noise generating sources during coal mining will be due to dozers, loaders and dumper movement, service vans and truck movement. Intermittent noise will be generated due to operation of diesel generator. The increase in traffic will also result in increased emissions which will cause impact on the ambient air quality. The blasting operation may generate ground vibration, after commencing the mining operations.

Mitigation: Air Silencers will be used to modulate the noise generated by the machines. Workers will be reduced to higher levels of noise exposure by rotation. Proper maintenance of noise generating machinery including transportation vehicles will be done and blasting will be carried out in the daytime and controlled blasting shall be implemented. Coal will be transported in completely covered trucks and shall be maintained leak and spillage proof. In order to ensure slope stabilization, controlled production blasting will be adopted to avoid tension cracks and back breaks.

4.5 Topography, drainage and land use

Impact: The total mine lease area is 750 Ha. Out of which, 148.11 Ha i.e. 19.74 % of land will be disturbed at conceptual stage. Therefore, 80.25 % land will remain undisturbed. The disturbed area within ML will comprise excavated land, external dumps, area occupied by infrastructure, roads etc. Another activity affecting the topography will be construction of various buildings and infrastructures. The ground water table will be intersected even during the 1st year of mining. The water will accumulate through precipitation as well as mine seepage in the mine sump.

Presently, the core zone is virgin and plain terrain sloping towards south-west. The mining operations are not anticipated to cause any adverse impact on topography outside the core zone. Within core zone about 60 m deep void will be formed.

Mitigation: Adequate measures to protect the mine workings from surface water flow during the rains will be taken by way of providing garland drains around the mine excavation, surface dumps and also providing suitable drainage gradients for mine benches. The creation of the water body will help recharge the ground water and serve as a source of water for nearby areas. The post mining land use of core zone shows that all the disturbed areas will be reclaimed before abandoning the mine excluding the void. Whole of the excavated area is proposed to be developed into a picnic spot due to the formation of water body created as a result of the left out void. The water body will be used for irrigation, watering the forest at earlier stages and it will also attract avifauna.

4.6 Solid waste management

Impact: Four types of solid wastes are likely to be generated through mining activities which can be categorized as over burden (Top soil & waste), sludge from oil / water separator, sludge from mine water settling pond, domestic waste.

Mitigation: The over burden will be initially dumped out side the mine area within the lease hold area during initial stage and the backfilling will be ensured in mined out area at appropriate time in phases at an early stage. The solid waste, which is biodegradable in nature, will be composted by conventional or non-conventional techniques (vermi-composting) into manure for use in greenbelt and reclamation. The recyclable waste will be

sold to by vendors while the disposable waste will be land filled. The sludge other than oil and grease obtained from the workshop water treatment system will be disposed in an impermeable pit. Whole of the excavated area is proposed to be developed into a picnic spot due to the formation of water body created as a result of the left out void. The water body will be used for irrigation, watering the forest at earlier stages and it will also attract avifauna.

4.7 Ecology

Impact: Impacts of different activities like noise, vibrations, lighting will result in moving away of fauna. Flora over the area to be excavated will get removed. Negligible adverse impact on agricultural crops is anticipated as the mining activity areas will have green belts to minimise the spread of fugitive dust into surrounding agricultural areas, within and outside the lease area.

Mitigation: The ML area includes 471.687 Ha of Forest area. The impact on the forest will be minimized by carrying out mining by underground method of mining in the forest area. The forest to be disturbed shall be 83.85 ha. Plantation is proposed to be provided and maintained around the mining area and along the roads. During peak requirements, additional plants will be transported from Govt./Forest nurseries, located around the area. The common species used for plantation in the region are Kala siris, Sisam, Imli, Mahua, Aam, Rohan, Sidha, Bargad, Pipal, Umar, Pakar, Neem, Sal, Karanj, Bel, Maharukh, Chichwa, Asta, Kasai, Amaltas, Mainphal, Lasora, Jamrashi, Baranga, Kari, Kusum, Bakain and Tendu.

4.8 Socio-economics

Three household comprising of eight sub families of Tapra village within the mine lease area will have to be displaced and resettled. Total 327 persons will be affected including land losers and displaces. The land owners will be deprived of their land and the non land owners who depend upon agriculture will be deprived of their earnings. Care will be taken for rehabilitation and employment of the displaced people. Mining and allied activities will provide job opportunities for eligible persons and many will find employment in service sector and marketing of day-to-day needs viz. poultry and other agricultural products. The facilities and amenities like dispensary and communication, to be set up for the project will improve the basic infrastructure and these amenities can also be used by the people of the nearby villagers. The proposed long term activity will open up market and opportunities growth for self employed and cultivators. To this extent, the impact will be significantly beneficial since un-employment and under employment is the main socio-economic problem faced by the people in this area. A detailed resettlement and rehabilitation plan is under draft stage. It has been prepared in line with the Model R&R Policy of Chhattisgarh 2007. It encompasses the compensation scheme for land losers as well as the displacees in terms of monetary settlement as well as economic rehabilitation.

4.9 Occupational Health

The medical facilities will be provided for all the employees of the mine. All the employees and contractual workers will be sent for regular health check up for the occupational diseases like silicosis, pneumoconiosis, etc., which are prevalent in the mining industry and tests like optometric, audiometric, cardio-vascular etc will be done.

5.0 ANALYSIS OF ALTERNATIVES

Being a mine project, it is a site specific project. Thus, the mine is being established where the mineral is available. Kesla North Coal Block has been allotted to M/s Rathu Udyog Ltd. by Ministry of coal to meet the coal requirement of their own Sponge Iron Plant of capacity 0.75 MTPA situated at District Sambalpur in Orissa. Mining will be done through opencast as well as underground mining method under economic viability keeping in view the conservation of minerals. Mechanized mining will be followed with shovel dumper combination as the dip conditions of the block are gentle.

6.0 ENVIRONMENTAL CONTROL AND MONITORING ORGANISATION

A team has been proposed to take care of pollution monitoring aspects and implementation of control measures headed by an Projects Manager (Mines). A schedule has been spelt out for periodical monitoring of the important environmental parameters. The total capital investment on environmental protection works is envisaged as Rs. 439.89 lakhs and recurring expenditure during the stage of production is Rs. 110.71 lakhs per year. The specific environmental protection investment is Rs. 146.63 per tonne of the mineable reserves and recurring cost is Rs. 36.91 per tonne of coal produced. Total investment in the project is Rs. 92 crores approximately.

7.0 DISASTER MANAGEMENT PLAN

Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine should be able to work under conditions, which are adequately safe and healthy. In case a disaster takes place despite preventive actions disaster management will have to be done. There are various factors, which can result in a disaster in the mine. These hazards are pit slope failure, overburden dump slope failure, heavy machinery

To avoid very high dumps, early backfilling is planned. In order to prevent the danger of overburden sliding a sturdy stonewall should be built around the toe of each active dump. To prevent accidents due to trucks and dumpers all transportation within the main working should be carried out directly under the supervision and control of the management. In order to prevent disaster due to surface fire/Coal stack fires sufficient fire extinguishers will be installed at selected locations on surface like electrical sub-stations, work shop, garage, diesel depot, stores, etc. Besides,

sufficient number of water hydrants with sufficient hose pipes will be made available on the surface for fire protection. In the case of flooding water courses shall be diverted to other water courses, diversion of dams/bunding arrangement shall be made as part of water course diversions to prevent water entering the mining area, garland drains shall be provided around the mine pit at surface to divert surface water from flowing inside the pit. Various inlet, outlet and erosion protection structures shall also be provided.

8.0 PROJECT BENEFITS

The mining project is located in one of the most undeveloped and backward area. During operation phase, around 740 persons (Opencast and Underground) will be directly employed at the mine. Many more persons will be indirectly engaged either on contract basis or in transportation of materials in provision of different services associated with the project. Better education facilities, proper health care, road infrastructure and drinking water facilities are basic social amenities for better living standard of any human being. One time capital expenditure on CSR shall broadly be to the tune of Rs. 50 lakhs as directed by Ministry of Environment in their Terms of Reference issued for the project. The recurring expenditure shall be @Rs.5/tonne of coal production.

9.0 PROJECT CONSULTANTS

The consultants engaged for the preparation of the EIA/EMP of the project are Min Mec Consultancy Pvt. Ltd. Company. It was registered in July 1983 with the Registrar of Companies, Delhi & Haryana, India. In 1994, Min Mec established a modern R & D laboratory. Min Mec is ISO 9001: 2008 certified under ANZ-JAS. In June 2006, the laboratory received accreditation from NABL. Min Mec has already applied for accreditation for EIA Consultant with the Quality Council of India. As per MoEF circular of June 30, 2011, it is listed at No. 16 of List B, Stage III.