

# **RUNGTA MINES LIMITED**

**EXECUTIVE SUMMARY**  
OF  
**ENVIRONMENTAL IMPACT ASSESSMENT**  
AND  
**ENVIRONMENTAL MANAGEMENT PLAN**  
OF  
**PROPOSED 4.0 MTPA PELLETISATION PLANT**  
**(1.2X3 LINE + 10% UPGRADATION)**  
&  
**72,000 NM<sup>3</sup>/Hr PRODUCER GAS PLANT**  
AT  
**VILLAGE DUDHAPOSI & BALIBEDA,**  
**DISTRICT KEONJHAR, ODISHA**  
  
**AREA : 51.87 HA (128.18 ACRES)**

JULY , 2013

*Prepared by:*



**MIN MEC CONSULTANCY PVT. LTD.**

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

Ph : 29534777, 29532236, 29535891 ; Fax: 091-11-29532568

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



An ISO 9001:2008  
approved company

## EXECUTIVE SUMMARY

### 1.0 INTRODUCTION

#### 1.1 General background

Rungta Mines Ltd is planning to set up a new Pellet plant with a capacity of 4.0 MTPA (1.2 MTPA X 3 Lines + 10% up gradation) along with 72,000 Nm<sup>3</sup>/hr Producer Gas Plant (24 units X 3000 Nm<sup>3</sup>/hr) at village Dudhaposi and Balibeda in Keonjhar district of Odisha. The proposed Plant will occupy an area of 128.18 acres (51.87 ha). Out of this 37.03 acres of private land has already been acquired and balance land is under acquisition through IDCO. Estimated cost of the project is Rs. 885 Crores.

Environmental clearance is a statutory requirement as per EIA Notification dated 14<sup>th</sup> September 2006 since the capacity of the proposed pellet plant will be more than 0.1 MTPA. The project is covered under Serial No. 2(b) "Mineral Beneficiation" of Schedule and Category 'A'. The Ministry of Environment and Forests (MoEF) was approached with the Form-1, pre-feasibility report on 13.08.2012 for the proposed terms of reference (TOR). Thereafter, the presentation on 31<sup>st</sup> January 2013 and on 16<sup>th</sup> May 2013 after clarification. The TOR was issued vide their letter no. J-11011/309/2012-IA II (I) dated 21.06.2013 by MoEF where after the EIA/EMP report has been prepared in compliance.

#### 1.2 Location and communication

The proposed site for plant is located in villages Dudhaposi and Balibeda of district Keonjhar in Odisha. The geographical coordinates of the plant extent are 21°41'54" to 21°42'30" N and 85°24'50" to 85°25'30" E respectively. The location of plant can be seen in **Fig 1**.

The proposed plant is accessible by all weather road from the district headquarter Keonjhar, located approximately 20 km away. Barsuan is the nearest railway station at about 32 km from the site. The nearest airport is at Bhubaneswar, which is about 250 km from the site.

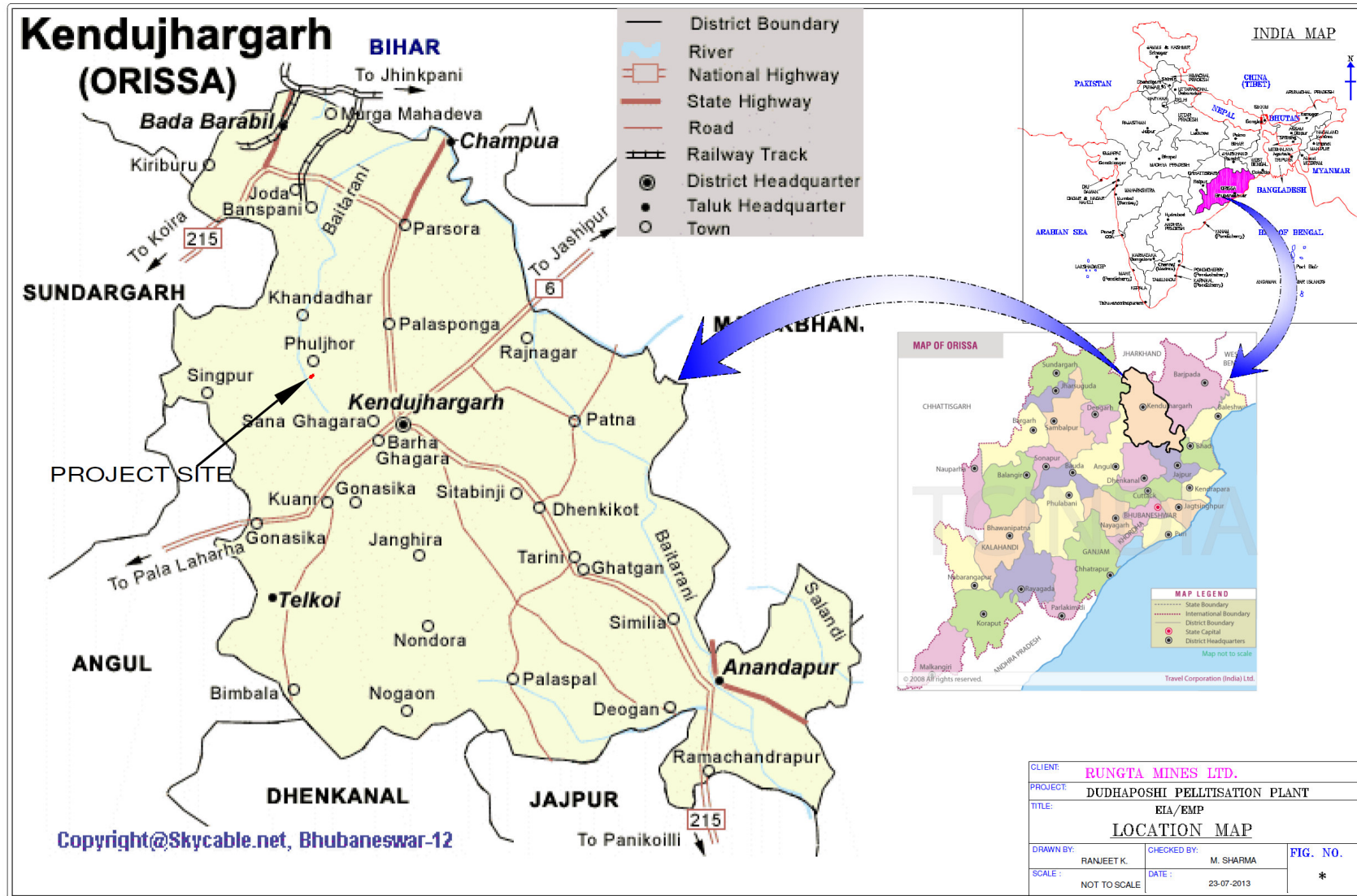
### 2.0 PROJECT DESCRIPTION

#### 2.1 Pelletization plant

The proposed pellet plant is designed to produce 4.0 MTPA (1.2 MTPA X 3 lines + 10% upgradation) of pellets suitable for use in blast furnace/ DRI plants. The various steps involved in the pelletization process are feed preparation, green ball formation, pellet induration and product dispatch.

Main technical parameters of indurating machine are width of machine- 3 m, length of machine- 65 m, total bed height-350 mm (inclusive of hearth layer) and speed of machines- 2.4 m/min.

FIG 1: LOCATION MAP



### ***Raw Material handling and processing***

Trucks carrying the ore fines from sources are tipped in the truck unloading hopper and stockpiled by means of slewing boom stacker. The iron ore fines from the stockpile is reclaimed through reclaimers and transported to 2 silos of 1500 t capacity each. The silos shall be filled with the help of a shuttle conveyor. There are four vibrating feeders (300 t/hr each) provided below each of the two grinding mill feed conveyors of 450 t/hr capacity each.

Additives like cokebreeze, coal, limestone and bentonite, received in the plant through road, are stocked on ground. Additives are reclaimed by front end loaders, unloaded in the ground hoppers and conveyed to storage bins of the additive grinding unit. Coke breeze is also received by road and is conveyed to coke breeze and limestone grinding unit. coal will be used for producer gas plant

A primary crusher for limestone is provided to bring down the size from approx. +50mm to -6mm to improve the throughput of ball mill envisaged for grinding of coke breeze and limestone together. Bentonite will be ground in a Raymond Roller Mill. Coke breeze and limestone will be ground dry in a separate building adjacent for facilitating dry grinding. Coke breeze and limestone are drawn out from the bins in additive grinding unit in a required proportion and fed to the ball mill for grinding. The ground coke/limestone mix is sent to the day bins in the mixing area. Ground products are stored in silos and transported pneumatically to bin/ mixing building.

Slurry received from the crushing plant is stored in the two slurry tanks. Diameter and height of each tank is 20 m and 18 m, respectively. Two slurry pumps of 600 m<sup>3</sup>/hr capacity and 10 m head have been envisaged to pump slurry to filtration building. Out of these pumps, one is working and the other is standby. Slurry is pumped from these tanks to pressure filters.

The filter cake from the pressure filters is collected on a belt conveyor and fed into filter cake bin. A bin for mixed & ground limestone-coke breeze and the other for bentonite are also provided. Proportioning of limestone-coke breeze mix and bentonite to the required quantity of filter cake according to a preselected value is performed by weigh feeders which are installed underneath the bins for filter cake, limestone-coke breeze mix and bentonite. Filter cake, coke breeze/limestone mix and bentonite are mixed in EIRICH mixer, enabling intensive mixing of above materials.

### ***Balling & feeding to indurating machine***

The mixed material is conveyed and distributed to bins with adequate storage capacity, installed directly above the pelletizing discs. Green pellets are formed on the disc. Belt weigh feeders will be provided at the outlet of each bin to draw out required quantity of material. The charging of these bins is done automatically in accordance with a pre-set time schedule. A horizontal conveyor, equipped with pneumatically operated ploughs will

distribute the mixed material and green ball returns into the mix material bins. Any spillage passing under ploughs will be discharged at the head end of the conveyor and recirculated with roller screen rejects.

For distributing the narrow stream of green pellets smoothly and evenly onto the 3 m wide indurating machine, a reversible reciprocating conveyor is installed which feeds the green pellets uniformly onto a 3 m wide belt conveyor.

### ***Induration***

Green balls (green pellets) will be indurated on a traveling grate having a reaction area of 195 m<sup>2</sup>. The traveling grate indurating machine consists of an endless chain of pellet cars moving on tracks.

The dried pellets will be preheated to a progressively higher temperature to initiate 'artificial magnetite oxidation' sulphur burning due to coke breeze present in the mix. The pellet will then be fired at approximately 1300°C to provide the recrystallization and slag bonding which will impart adequate strength to the pellets. An unfired short section designated as 'after firing' allows the heat front to completely penetrate into the bottom of the bed thereby eliminating sudden quenching of pellets and consequent deterioration of properties.

Cooling of indurated pellets will be accomplished by up draughting ambient air through the pellet bed supplied by a cooling air fan. The cooled pellets will leave the indurating machine at 100°C or less.

## **2.2 Producer Gas Plant**

The capacity of producer gas plant will be 72000 NM<sup>3</sup>/Hr (24 nos. X 3000 NM<sup>3</sup>/Hr). Crushed coal of the specified quality and size is carried to the top of the bunker by means of bucket elevator and is put to the bunker. The screen between the bunker and the bucket elevator separates out fines from the feed stock of coal which is taken down through a chute.

Coal from the bunker is fed into the extended shaft of the Gasifier through a Sector Gate and two Bell Cones operated by pneumatic power cylinders which open out the Sector Gate and Bell Cones sequentially after getting signal from the LTC temperature whenever it touches the set temperature of 1400°C or so.

Fed coal travels downwards and gets dried first and then gradually preheated up to a distillation temperature of about 450°C by the product gas moving upwards which itself gets gradually cooled down and picks up the volatile matter of coal and gets auto-carbureted to a much higher calorific value before it comes out to the L.T.C off take pipes. The coal, on the other hand, gets carbonized to nearly coke stage and its reactivity increases for a faster gasification.

### ***Raw material requirement, power and water***

Raw materials such as iron ore fines (48,47,040 TPA) will be sourced from company's own mines in Odisha. Bentonite (33,929 TPA), Coke breeze/coal fines (72,706 TPA) and Limestone/Dolomite (48,470 TPA) will be sourced from open market. Coal (280,000 TPA) will be sourced from coal block linkage in Odisha. Producer gas (518,400,000NM<sup>3</sup> per annum) will be made in house and furnace oil (17,820 KL) will be brought from nearest depot at Raurkela. The transportation shall be done by trucks/rail.

Total power requirement is estimated as 40 MW for pellet plant and 1.2 MW for producer gas plant. Same will be sourced through 132 KV line from Palaspanga grid of M/s NESCO, Odisha.

The total water requirement is estimated as 150 m<sup>3</sup>/hour which shall be sourced from Baitarni River

### **2.3 Manpower**

The total manpower requirement is estimated as 250 persons for various activities like loading, unloading, handling, transportation, general cleaning, horticulture and other miscellaneous works. Three shifts working for 300 days are planned.

### **3.0 PRESENT ENVIRONMENTAL SCENARIO**

The core zone constitutes the plant area, while the buffer zone constitutes the area within 10 km radius of the core zone.

#### **3.1 Topography and drainage**

**Core zone:** The project area is mostly plain land with gentle undulation, sloping towards north. There is a patch of low lying area in the north. The ground elevation in the core zone varies from approximately RL 520 m to RL 538 m.

**Buffer zone:** The study area is largely undulating interspersed with hills throughout the study area. The ground elevation in the study area varies from approximately 500 m to 990 m above mean sea level. Several water bodies exists in the study area.

#### ***Drainage***

In core zone, no perennial stream or water body traverses through or originates from the proposed plant site. Drainage of the project area is through the Bamni nala flowing at a distance of 0.5 m, west of the project site. The entire study area falls within Baitarni river basin. The confluence of Bamni nalla with Baitarni river is at a distance of 6.5 km in north. The Baitarni river flows into Bramhani river.

### **3.2 Climate and micro-meteorology**

The climate of this region is intensely hot in summer and moderately cold in winter. The nearest meteorological station of IMD is at Keonjhar, which is approximately 20 km south east from the site. As per data available from 1998-2008, the average annual rainfall is 1469.0 mm. Monthly average maximum and minimum temperature was recorded as 36.8°C in May and 11.14°C in December. Minimum monthly average humidity is found to be 54.2 % in April at 8.30 hrs and 30.0% in March at 17.30 hrs, while maximum humidity is 80.5% and at 8.30 hrs and 81.8 % in August at 17.30 hrs.

The micro-meteorology was monitored at site for the summer season from March to May 2013. The temperature was recorded between 18.3°C and 41.6°C while relative humidity was between 34.80% and 65.90% during the monitoring period. The wind speed varied between calm to 22.80 km/hr and the predominant wind direction was observed from West with 19.3% of occurrences.

### **3.3 Ambient air quality**

Ambient air quality study was monitored at 8 locations, one in the core and seven in the buffer zone, namely Sankraposi, Kampadihi, Kundruduma, Itapukuri, Badkul, Churiasahi and near Phuljhar villages. Twenty four hour average level was found to range from 41.0 to 60.7  $\mu\text{g}/\text{m}^3$  for PM<sub>10</sub>, 23.6 to 36  $\mu\text{g}/\text{m}^3$  for PM 2.5, SO<sub>2</sub> from BDL to 9.84  $\mu\text{g}/\text{m}^3$  and NO<sub>2</sub> from BDL to 12.52  $\mu\text{g}/\text{m}^3$ . The concentrations of all parameters were within NAAQS permissible limit for residential, rural and other areas. The concentration of CO was found between 125-750  $\mu\text{g}/\text{m}^3$ .

### **3.4 Water quality**

Baitarni River is the only perennial water body within the study area. Ground water occurs within the weathered portions of hard rocks as well as in the unconsolidated alluvial sediments. Water samples were collected from 8 surface water sources i.e. from nalas near core zone, near Sankraposi village, near Talralgura village, near Bininda village, near Aunra village, near Jatra village, Baitarni river near Pudadihi village and Baitarni river near Kendughati village. Eight ground water samples were taken from Gurlasahi, Sankraposi, Kampadihi, near Raiguda, Kundruduma, near Itapukuri, Talralgura and near Dudhaposi village.

The analysis of surface water sample shows that all the parameters are within the permissible limits except turbidity and iron which exceeds the permissible limits in all samples and in some locations lead exceeds the permissible limit. Ground water samples all the parameters are within the permissible limits except iron which is higher than the permissible limits in all the samples except at Gurlasahi village. Lead is higher than the permissible limits in all the samples except at Sankraposi and Gurlasahi village.

### **3.5 Land use pattern and soil quality**

Total area of land under the proposed plant shall be 128.18 acres of which 37.03 acres land has been purchased. The remaining area is under acquisition. The land falls in the villages of Dudhaposi and Balibeda of Keonjhar district. The study area falls has 49 villages. As per Census 2001, the irrigated land is 0.79%, unirrigated land is 22.29%, waste land is 14.9%, area not available for cultivation is 28.27% and the forest land is 34.55%.

Top soil samples, one each from core & buffer zone were collected and analyzed. Soils of the area are lateritic in nature and brownish & reddish in colour. The texture of the soil is sandy and has low fertility. Soil is neutral and deficient in organic carbon, nitrogen and phosphorous while potassium content is medium in core zone and high in soil near Gurlasahi village.

### **3.6 Noise and traffic density**

Noise levels (Leq values) at the eight monitoring stations (1 within the proposed plant area and 7 within study area) were observed in the range from 40.9 to 42.6 dB (A) during day and 37.6 to 39.3 dB (A) during night time. A traffic density survey was conducted round the clock from 8th to 9th May 2013 on road near Ralgada village. Total number of vehicles were found as 379 including cycles.

### **3.7 Ecology**

There is no forest within the core zone. Five protected and three reserved forests are located within the study area. Forests within revenue villages account for 34.55% of the study area. The forest are Sal dominated Northern tropical moist deciduous type. There are 6 species of trees, 1 species of grass and one species of Climber in the core zone and 70 species of trees, 9 species of shrubs, 3 species of herbs, 6 species of grasses and 3 species of climbers in buffer zone.

There are no national parks, wildlife sanctuary, biospheres reserves within 10 km radius. There are no Schedule I species in the study area. The animals identified in the core zone are frog, toad, lizards, baya, crow, parakeet, pigeon, parakeet, pigeon, sparrow, cuckoo, dog, goat, rat, rabbit, squirrel and jungle cat. The study area has 2 amphians, 9 aves, 4 reptiles and 11 mammals.

### **3.8 Socio-economic conditions**

There is no habitation within project area. The total population within the study area is 31073 persons that include 15370 males and 15703 females. The SC population is 4.23 % and ST population is 78.26%. The average literacy rate is 22.94%. The literacy amongst women is poorer at 6.43%. 21.72% of the total population is main workers, while 25.66% are marginal workers and the rest 52.61% are non workers.



### 3.9 Places of archaeological/historical/tourist/religious importance

No historical falls within the study area. Paintings on rock, locally known as Ravana Chhaya and other ancient monuments are located at Sitabhinji in Keonjhar district at 42 km, SE. Local temples of religious and cultural importance exist in the villages.

## 4.0 ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION

### 4.1 Topography and drainage

**Impact:** The topography of the proposed plant area is generally flat and sloping south to north with an elevation from 520 to 538 m. The low lying area is proposed as raw water reservoir, thus minimizing excavation. Due to the constructions of various buildings and infrastructures, there will be permanent changes in topography. There will be no impact on topography of the buffer zone.

As no perennial stream or water body is traversing through or originating from the proposed plant site, therefore no impact on the path of any stream will be there due to proposed plant. A seasonal tributary of the nala flows along the western boundary of the plant site, which is not proposed to be disturbed. During operation phase, impact on topography is envisaged due to solid waste disposal and storage of raw materials.

**Mitigation:** No major change in topography shall occur due to construction of the proposed plant, except for minor leveling of land in majority parts, selective filling in low lying area and slight rise in plinth area. Excavation work will be carried out during dry season and avoided during rainfall events to prevent soil erosion and washout of excavated materials. Rain water harvesting structure shall be constructed and rain water will be also stored in surface reservoir located in the lowest level area in north side within the plant premises.

### 4.2 Climate and meteorology impact and mitigation

**Impact:** The climatic conditions including temperature variations, wind direction and speed, rainfall and humidity are governed by regional factors and the monsoons. As such plant construction and operations and other allied activities will not tend to influence the climate. Further, carbon dioxide (green house gas) contributing fossil fuel in the form of coal, tar and furnace oil in kiln, coal in producer gas plant and diesel will be used as secondary fuel, to operate the trucks and material handling machinery, which will be a necessity. Due to the construction of buildings and roads, an urban heat island effect will get created locally which raises the temperature at the buildings and its immediate vicinity.

**Mitigation :** The operations are to be carried out in a limited area, as a result no large scale climatological impacts are anticipated. Development of

greenbelt in the plant area will contribute in a positive manner towards mitigation of greenhouse gases as well as reducing temperature due to the urban heat island effect. Global warming is a global concern and hence, the company will be undertaking all possible measures to minimize the CO<sub>2</sub> emissions. Since the transportation is through trucks, it will be ensured that the vehicles are having their "Pollution Under Control" (PUC) certificates. The trucks will be maintained in order to ensure optimum fuel utilization.

#### 4.3 Air quality

**Impact:** During construction, activities will generate dust resulting in higher PM<sub>10</sub> and PM<sub>2.5</sub> levels in surrounding area. Further due to deployment of various mechanical equipment and transport vehicle, enhanced SO<sub>2</sub> and NO<sub>x</sub> levels are expected. Thus, air quality is likely to be effected marginally which will require mitigation measures. The impact on the air quality during construction phase will be localized, temporary and reversible in nature.

During operation phase, air quality will deteriorate due to emission of pollutants from the plant stacks. Fugitive dust will be generated from transportation and handling of raw material or finished goods which will require mitigation.

**Mitigation:** During construction phase, water spraying on excavation area, levelling area, roads & material to be handled and spraying on unpaved surfaces twice a day will minimise dust pollution. The designated areas for roads and parking spaces shall be black topped at the earliest. Welding operations shall be carried out within cordoned areas. Construction equipment and transport vehicle will be maintained properly to minimize source emissions and spillage.

During operation phase, assessment of all gaseous emissions and their control are will be through use of highly efficient electrostatic precipitators and dust extraction systems with bag filters. The particulate emission will be ensured below 50 mg/Nm<sup>3</sup>. Stack height shall be between 30-70 m as per CPCB norms. Fugitive dust due to handling of coal, iron ore and other raw materials, etc. will be controlled by sprinkling, dust extraction system and dry fog system. Leakage from the equipment, ducts and transfer points shall be regularly checked and stopped. Use of windbreakers & covering of storage areas will be carried out, where necessary. Transport of coal, iron ore fines, pellets will be by road through covered trucks (outside plant) and covered conveyors (within plant) and the transfer points will be equipped with dust suppression/collection systems. Green area development will be undertaken in 33% of plant area. Green belt will act as wind break and pollutant sink. Low NO<sub>x</sub> burners will be used in Kiln.

#### 4.4 Noise and traffic density

**Impact:** The noise level during construction will be due to construction machinery, which is of temporary nature, the impact of which will be controlled by appropriate mitigation measures. The noise level at sources

like the generator are anticipated to go as high as 95 dB(A).

**Mitigation:** The equipments shall be provided with acoustic shields or enclosures to limit the sound level inside the plant. The proposed green belt will also help to prevent noise generated within the plant from spreading beyond the plant boundary.

#### 4.5 Land use

**Impact:** Out of the total plant area of 128.18 acres, the available private land is mostly single crop agricultural land and government land comprises of various types of land use. The land use will change to industrial since the establishment of the first phase of the plant. A colony shall be constructed within plant boundary.

**Mitigation:** At the end of the construction, the soil will be stabilized through landscape plantation activities. More than 33% of the total plant area has been envisaged to be covered with plantation including green belt. Since the plant species will be capable of checking soil erosion, the soil will be fully stabilized without any adverse change in erosion potential of the area.

#### 4.6 Water environment

**Impact:** Waste water generation from the proposed operations will be due to wastewater from DM plant, producer gas plant, domestic usage, housekeeping and washing. There shall be run off from coal and iron ore handling areas, run off from solid waste storage and handling areas and Sewage from buildings.

**Mitigation:** During construction phase, the domestic sewage that gets generated will be treated in septic tanks. Wastewater from producer gas plant will be reused in washing and cooling of producer gas. The tar recovered from the tar tank will be used in oil burner along with FO in pellet plant or sold. Domestic waste water, housekeeping & washing water will be treated in STP. DM rejects and STP treated water will be reused in dust suppression, horticulture, flysh brick making and ash handling. The run off from coal, iron ore, solid waste handling, storage areas and entire plant will be guided through drains into the reservoir, via settling chambers, thus, minimising water requirement from Baitarni river.

#### 4.7 Solid waste

**Impact:** During operation, there is no solid waste generation from pellet plant. Producer gas plant will generate Tar and ash. DM plant resin and used oils & lubricants will be generated in small quantities. Municipal solid waste will be generated from plant and colony.

**Mitigation:** Waste oil and lubricants shall be sold to CPCB authorised recycling vendors. DM plant resin will be disposed in properly constructed pits as per CPCB norms. Coal tar will be used in furnace or sold. Ash generated will be partly used for brick making and it is proposed to fill in

abandoned mine. Company has earmarked 12.85 acres land for dumping and stacking the solid waste within plant premises. Sludge from STP and organic municipal wastes shall be composted & used as manure for horticultural or given to nearby farmers for agriculture.

#### 4.8 Ecology

**Impact:** During construction phase, there will little impact on terrestrial ecosystem. Tree cutting will be avoided and due permission will be taken as well as compensatory plantation carried out in case of tree cutting. Birds and animals in the surrounding areas will get disturbed due to the noise and light from construction activities.

**Mitigation:** After completion of construction, landscaping shall be carried out and approximately 42.3 acres of land within premises (about 33.0 % area) shall be provided with green cover. This will serve as a micro-habitat for avifauna and small sized mammals, attracting them to take residence in the green belt.

#### 4.9 Socio-economics

**Impact:** Most of the work force required for construction and operation of the proposed project will be drawn from the surrounding areas. During the construction phase, as the area is already under acquisition, no family will be affected in the core zone. Therefore, no impact on demographic profile of the area is foreseen. During operation, 250 people will get employment.

**Mitigation:** It is proposed to hire the manpower in the proposed project locally, to the extent possible, in order to have a positive socio-economic impact. To enable this, training for capacity building shall be undertaken by the company. Other than employment- both direct and indirect, the major benefit to the community will be through CSR activities of the company. The economic growth of the area in terms of employment generation, consumption behavior and market-growth are expected outcome of the project. Indirect employment will be created by the plant for supply of daily domestic goods & industrial requirements.

#### 5.0 ANALYSIS OF ALTERNATIVES

Three alternatives were analysed at (i) Malda Village, District Keonjhar, Odisha, (ii) Nayagadh Village, District Keonjhar, Odisha and (iii) Dudhaposi and Balibeda Village, District Keonjhar, Odisha. Alternative site no. 3 has been selected as adequate land is available in suitable location. Also the land is mostly plain with no forest land. Based on the techno-economic analysis and operating experience of pellet plants, straight kiln process has been selected for the pelletization plant in which drying, preheating, induration & cooling of pellets take place on the same strand.

#### 6.0 ENVIRONMENTAL CONTROL AND MONITORING ORGANISATION

An Environment Management Department (EMD) shall be established

which will also be responsible for environmental monitoring, developing greenbelt, ensuring good housekeeping, ensuring statutory compliance as well as creating environmentally aware work forces. Regular monitoring of the important environmental parameters will be taken up. The total capital investment on environmental improvement work is envisaged as Rs 9.35 Crores and recurring expenditure will be Rs. 2.38 Crores/year.

## **7.0 DISASTER MANAGEMENT PLAN**

All types of industries face certain types of hazards which can disrupt normal activities abruptly and lead to disaster like fires, inundation, failure of machinery, explosion to name a few. Disaster may occur due to fire, explosion, oil spillage, acid spillage, electrocution and hazardous waste. Disaster management plan is formulated with an aim of taking precautionary step to control the hazard propagation and avert disaster and also to take such action after the disaster, which limits the damage to the minimum.

## **8.0 PROJECT BENEFITS**

During operation phase, around 250 persons will be under direct employment of the company. 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. Several activities such as Health, Education, Physically Challenged, Water, Tribal Handicraft Development, Capacity Building, Vulnerable Persons, Infrastructure, Sports and Culture will be carried out as part of “Corporate Social Responsibility” with an annual budget of Rs.49.17 lakhs per pelletisation line for 30 years. Expenditure shall be in consonance with the investment, totaling to 5% of project cost during life of project.

## **9.0 FUGITIVE EMISSION AND CONTROL TECHNOLOGIES**

The measures taken for controlling air pollution include installation of bag filters and ESP, environmental audit and 100% management of ash from producer gas plant. Enclosure/ wind breaks for raw material and finished product, if required, dust suppression system, regular sweeping of roads, adequate ventilation, paving and regular maintenance of roads will be done.

## **10.0 CONSULTANTS ENGAGED**

The consultants engaged for the preparation of the EIA/EMP for the Project are Min Mec Consultancy Pvt. Ltd., New Delhi. Min Mec Consultancy Pvt. Ltd. was registered in July 1983 and has a modern R&D Laboratory. On 2nd Feb. 2003, Min Mec received ISO 9001:2000 certification under ANZ JAS. In June 2006, the laboratory received accreditation from NABL (certificate no. T-1157). In 2012, laboratory received recognition from MOEF (SI. 97). Currently, Min Mec is preparing and presenting reports as per the High Court of Delhi order dated 8<sup>th</sup> & 28<sup>th</sup> January 2013 and 13<sup>th</sup> May 2013. The project report has been prepared by Predominant Engineers & Contractors Pvt. Ltd., Gurgaon.