

EXECUTIVE SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT

1.0 GENERAL

1.1 PREAMBLE

M/s. Raksha Cements (P) Limited (RCPL) has proposed to setup a Mini Cement manufacturing Unit. The proposed capacity of the company is 200 MT per day (200 TPD). The Unit location is proposed in Existing Bentonite sick unit which in Motified industrial area at Koraibari village, Silasundarighopa Mouza, Kamalapur Revenue Circle, Kamrup Rural District of Assam state. The unit operates in the manufacture of cement. The process involves Crushing Section, Storage & Proportioning, Raw Milling Blending & Homogenization, Palletizing & Burning, Clinker/gypsum crushing, storage & proportioning Cement Milling and Storage & Packing.

The total project cost will be around 780 lakhs. Out of it land, building and machinery cost will be 556 lakhs.

In order to assess the likely impacts arising out of the proposed project, RCL had appointed PARYAVARAN LABS (INDIA) LTD., HYDERABAD to undertake the Rapid Environmental Impact Assessment (REIA) study for the various environmental components which may be affected, to assess the impact arising out of the proposed project and to prepare a detailed environmental management plan (EMP) to minimize those adverse impacts. It also examines the possible impact on the people, their home land or their livelihoods, or to other nearby developments.

Baseline Data have been collected for the various environmental component such as air environment, water environment, land

environment, noise environment and socio-economic environment during Post monsoon and are presented in this report along with prediction and evaluation of impacts of the proposed project activities. After predicting potential problems, the EIA identifies measures to minimize the problems (adverse impacts) that may arise due to project and outlines ways to improve the project's suitability for its proposed environment.

1.2. UTILITIES

1.2.1 POWER

The total connected load is 600 KVA which is under HT limits. Proposed power shall be obtained from ASEB. However, One D.G sets of 250 KVA is also proposed to be installed in the scheme as a stand by to the ASEB connection

1.2.2 WATER

Total water requirement will be around 100 KLD for cooling + administrative purposes. It will be met by bore well within the project site.

1.2.3 MANPOWER

The regular manpower required for administration, and production purposes will be around 60.

1.3 SITE

1.3.1 SITE SELECTION

The Project site is located at Koraibari Village and 4 Kms from Changsari Town, 4.5 km Changsari Rly. Station, 13 km Kamalapur Rly. Station and 1 kms from National High way No.37. Guwahati is 25 km away from the project site. The land falls under Koraibari village, Silasundarighopa Mouza, Kamalapur Revenue Circle, Kamrup Rural District of Assam state. The company has acquired 4500 M² of land and further proposed acquire 5500 M².

As for transportation of goods, there is already existing black topped roads to the project site. This is quite adequate for the possible truck movement envisaged. Total trucks required will be for RM – 26 Nos, & for FG – 20. Total 46 per day.

1.3.2 SITE JUSTIFICATION

The present site was selected based on environmental consideration and other factors, e.g.

1. Demand of the product
2. Not disturbing any prime agri - land
3. Easy to receive imported RM
4. Transport accessibility for RM & FG
5. Where environment impact should be low.
6. The cement is in demand in the North eastern India.
7. In order to avoid transportation (including RM) which involves a fair share of economy, the present set up was thought to be a viable one.
8. This industry does not need enormous amount of water.
9. The site has a connecting road and easy approachability.

The site plan showing the building, location of stacks, green belt, etc is shown in fig.1.1

1.4 DESCRIPTION OF ENVIRONMENT

Koraibari Village, Kamalpur Revenue Circle, Kamrup Rural District of Assam state bounded by 26° -15' North Latitude 91° -10" East Longitude. The average annual rainfall is 2634.8 mm. Predominant wind direction is NNE. Calm conditions are prevalent more. The minimum to maximum temperatures and Relative humidities of the region during the winter season are 11°C to 30°C and 52% to 95% respectively.

The area of interest for the EIA study is 10 KM radius with Koraibari as its centre. The study area overlaps mainly Kamalapur and North Guawahati Revenue Circles with Changsari town urban area on

North Eastern side in Kamrup Rural district. The Project site is about 150 M above mean sea level. The land around the proposed site is rural background. Base- line data on the socio-economic conditions of the villages within 10 KM radius indicates availability of basic amenities like hospitals, educational institutions public transport. Changsari Railway station is about 4 KM and on North side from the proposed RCL site. Location map of the project area is Not available.

1.7 PROCESS DESCRIPTION:

RCL is proposing to manufacture 150 TPD Ordinary Portland cement and 50 TPD of Pozzolano Portland cement. Total will be 200 TPD.

1.7.1. RAW MATERIALS

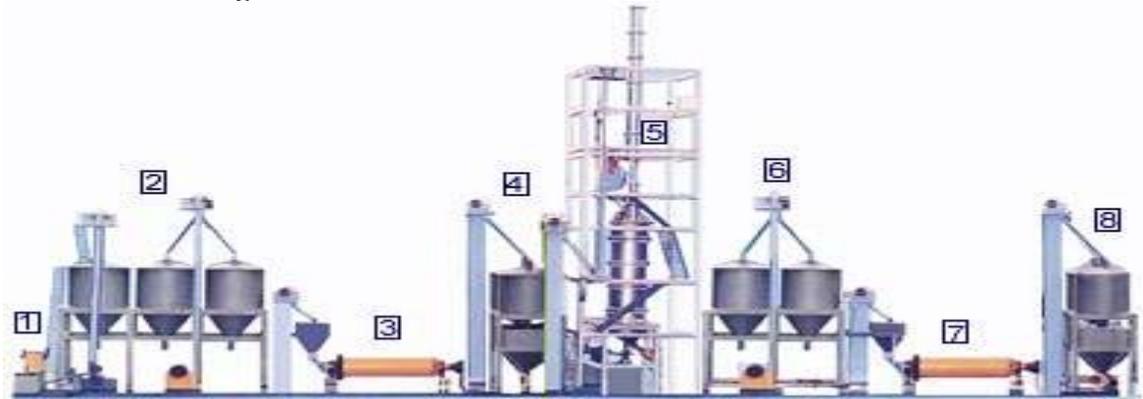
Raw Material	Quantity/Day	Source
Limestone	272.00 MT	Nearby sources(N.C.Hills & Meghalaya)
Clay	034.00 MT	Nearby
Coke breez /coal	050.00 MT	Nearby (Assam & meghalaya)
Gypsum	008.00 MT	Nearby (Bhutan & rajasthan)

Limestone deposits of good grade suitable for cement manufacturing is spread over a large area stretching North Cachar District in Assam upto Jaintia Hills Districts and beyond in Meghalaya. Limestone deposits of good quality are being mined at different locations. The unit is will also be able to procure limestone from Umrangso in N.C. Hills and from Umsolong, Karbialong. Hence, the procurement of limestone [main raw material] will not be problem for the unit.

Coal is available abundantly in Meghalaya. The coal having high volatile matter would be devolatalised using Beehive Coke oven to reduce the volatile matter to less than 4% in a controlled atmosphere. Coke Breeze with low volatile matter is also available from various coke

manufacturing units located in Assam and Meghalaya. Gypsum is available from Bhutan, Rajasthan on regular basis.

Process Flow Diagram :



Brief Manufacturing Process:

- 1. Crushing Section:** - The raw materials mainly limestone, clay, coke are crushed in the separate crushers and stored automatically into the respective silos.
- 2. Storage & Proportioning:** - The different raw materials are extracted from the silos in the desired proportion through table feeders and conveyed to raw mill.
- 3. Raw Milling:** - The raw mix is ground into a Ball Mill at desired fineness to produce Raw Meal, and transported for Homogenizing.
- 4. Blending & Homogenization:** - The raw meal is homogenized in the blending silos, and is stored automatically into a storage silo for feeding to the kiln.
- 5. Palletizing & Burning:** - The nodules are made into a noduliser and charged into the kiln for burning. The clinker after discharge is stored in the clinker yard through deep Bucket Elevator.
- 6. Clinker/gypsum crushing, storage & proportioning:** - Clinker & Gypsum after crushing stored into the hoppers and extracted in the desired proportion with the help of table feeders and transported to the Cement mill Hopper.

7. Cement Milling: - The clinker & Gypsum mix is ground in the cement mill to produce cement.

8. Storage & Packing: - The cement is stored into the cement silos and aerated, tested and packed for dispatch.

2.0 PRESENT ENVIRONMENTAL STATUS

2.1 AIR ENVIRONMENT

WIND PATTERN DURING 10-10 HOURS (FINAL AVERAGE)

The predominant wind directions was NNE with percentage frequencies of 23.5% of the total time. The other wind directions were N, and NE with percentage frequencies of 9.0% and 4.0% of the total time respectively. The most dominant wind direction was NNE in which wind speeds of 0-5 km/hr, 5-10 km/hr and 10-15 km/hr were recorded for 4.7%, 15.2% and 3.6% of the total time respectively. During the study period More percentage of Calm conditions prevailed for 63.5% of the total time.

The maximum and minimum temperatures recorded during the study period were 08 deg. C and 30 deg. C respectively. The relative humidity recorded during the study period ranged between 52% and 95%.

2.1.4. EXISTING AMBIENT AIR QUALITY

At Project site, SPM values ranged between 116 and 175 ug/cu.m. SO₂ and NO_x values did not exceed 8 and 24 ug/cu.m respectively. At Koraibari, SPM values ranged between 112 and 169 ug/cu.m. SO₂ and NO_x values did not exceed 11 and 26 ug/cu.m respectively. At the site Kottamu SPM values ranged between 95 and 158 ug/cu.m. SO₂ and NO_x values at this site did not exceed 8 and 18 mg/cu.m respectively.

At Silasindhuri Ghopa site SPM values were between 91 and 150 ug/cu.m. SO₂ and NO_x values at this site did not exceed 8 and 16 Ug/cu.m respectively. At site Dhopathari bazar SPM values ranged

between 121 and 167 ug/cu.m. SO₂ and NO_x values at this site did not exceed 9 and 21 Ug/cu.m respectively. At the site Changsari SPM values ranged between 88 and 156 ug/cu.m. SO₂ and NO_x values at this site did not exceed 8 and 17 Ug/cu.m respectively.

2.2.3. EXISTING NOISE LEVELS

An assessment of equivalent day-night levels in and around 10km radius from the core zone reveal that noise levels range from 41 to 60 dBA which can be assumed to be the existing baseline status. After commissioning of the RCL plant may also not have any impact on either present noise level status. These results indicate that the existing status of the study zone are within the community acceptable noise levels (Ldn of 50-60 dBA).

2.3.2 WATER QUALITY ASSESSMENT

Selected Physico-chemical and biological parameters have been studied for projecting the pre-project water quality status in and around the core zone. To determine the water quality individual samples were collected from each station and analysed for parameters such as Hardness, Alkalinity, Conductivity, nutrient demand, inorganic substance, heavy metals etc.

2.4 LAND ENVIRONMENT

SOIL ANALYSIS

For land environment studies 5 villages were selected to understand the physico-chemicals and biological properties of the soil. The major soils of this area may be categorized into Red soils comprising heavy loams. Physico-chemical properties of soils (Texture, infiltration, Cation Exchange Capacity, organic matter and moisture), soil biological parameters studied for impact Identification. In this area, soil is

predominantly Red Soil in nature. The moisture content is generally higher in all areas. The porosity (water holding capacity in soil) is generally high. On the basis of chemical properties, soil is slightly alkaline in nature with pH ranging between 7.1. to 7.5.

2.5.SOCIO ECONOMIC ENVIRONMENT

The site is geographical part of Koraibari village, Silasundarighopa Mouza, Kamalapur Revenue Circle, Kamrup Rural District of Assam state The Project site is about 150 M above mean sea level.

The land around the proposed site is mixed are with main Industrial development. Base- line data on the socio-economic conditions of the villages within 10 KM radius indicates availability of basic amenities like hospitals, educational institutions public transport. Changsari Railway station is about 4.5 KM and Kamalapur Railway station is about 13.0 KM from the proposed RCL site.

3.0 PREDICTION OF IMPACTS

3.1. PREDICTION OF IMPACT ON AIR ENVIRONMENT

In the Proposed RCL unit there are no major stacks Only process vents are present. Among process vents only one stack will be provided for Kiln (120 feet height). As there are no boilers air quality simulation models need not be used. Only vents attached to dust collection systems where collected dust is recycled into the process are present. The impact on air quality due to automobile emission has been predicted to be insignificant because the anticipated increase in vehicular movement (46 trucks per day) due to the proposed project is marginal. The impact of these emissions will be limited to a very short distance. The roads from the nearby towns to the plant site are tar roads and hence the fugitive emissions due to vehicular traffic will be insignificant.

The use of the generators is very occasional and as such the impact of its emissions on the air quality will be insignificant. The impacts, if any, will be limited to a very short distance and will also be very occasional. Existing ground level concentrations of ambient air quality monitoring and static air volume sampling also was undertaken as a reference.

3.3 PREDICTION OF IMPACT ON WATER ENVIRONMENT

The proposed RCL plant requires water 100 cu.m/day. Total required water will be met by bore wells within the factory premises. Cooling requires 95 cu.m/day of water will be totally consumed. Domestic washing requires 5 cu.m/day. There is no discharge of effluents and as such no effluent treatment plant is envisaged by the project authorities. However a septic tank followed by soak pit will be constructed to receive the sewage wastes.

Sufficient ground water is available in and around the project site. One number of rain water harvesting pits are provided within the plant area to recharge ground water which will be a positive impact to the water environment. The details of rain water harvesting pits are further addressed in EMP.

3.4 PREDICTION OF IMPACT ON LAND ENVIRONMENT

Solid waste generated from pollution control systems like bag filters will be recycled into the process and no disposal on to the land. So there will not be any load on land. There is no discharge of liquid effluents on to the land.

3.5 PREDICTION OF IMPACT ON SOCIO ECONOMIC ENVIRONMENT

Prediction of the socio-economic impacts of BCPL would be totally a positive main due to the employment opportunities to the skilled and unskilled of the local villages. Also Health, educational facilities and

communication by roads, will be improved which will be positive impact to the socio-economic environment.

The proposed project activities will improve the general environment by planting more number of trees through a planned green belt development which will improve Aesthetic value of the region.

On the whole the project will have a favorable ranking with the local inhabitants and will be looked upon as a blessing for development of the area.

4.0 ENVIRONMENTAL EVALUATION SYSTEM

4.6 OVERALL IMPACT EVALUTION

The net environmental impact due to activity of RCL plant as indicated by ecology is positive. It is attributed to green belt development and land use. The net impact on environmental pollution is negative. The negative impact is mainly due to the slight rise in levels of air pollutants. The human interest parameters show encouraging positive impact due to better job opportunity, transportation, medical facilities. Over all impact is therefore positive from the proposed RCL plant. Table 4.1)

5.0 ENVIRONMENT MANAGEMENT PLAN

An environmental management plan (EMP) is prepared to minimise those adverse impacts. It also examines the possible impact on the people, their home land or their livelihoods, or to other nearby developments.

5.1 CONSTRUCTION PHASE.

In the present project the potential for environmental pollution during construction phase is more and control of pollution is of considerable importance.

Construction site is a potential hazardous environment. To ensure that the local inhabitants and stray cattle are not exposed to these hazards the site will be secured by fencing and manned entry points.

5.2 POST CONSTRUCTION PHASE

AIR POLLUTION SOURCES & CONTROL MEASURES

In the proposed Mini cement plant suitable pollution control equipments shall be selected which will ensure that the emission levels are maintained below the prescribed units. i.e. All the pollution control equipment in the proposed cement plant is designed for an out let emission of less than 50 mg/m³ of Suspended particulate matter.

HAMMER MILL:-

420 cfm (714 m³/hr) (3H.P.)
(Cyclone separator with Multi cyclone collector or pulse-jet bag filter system)
(shown in Fig.5.2.1)

RAW MILL:-

1280 cfm (2175 m³/hr) (5H.P.)
Rivers pulse-jet bag filter system
(shown in Fig.5.2.1)

CEMENT MILL :-

1280 cfm (2175 m³/hr) (5H.P.)
Rivers pulse-jet bag filter system
(shown in Fig.5.2.1)

KILN :-

820 cfm (1393 m³/hr) (7.5 H.P.) output 100 mm dia chimney.
Impingement plate crabbers i.e. Air wet washer system
with 4000 cfm twin lobe rotary compressor.

5.2.2 NOISE

The RCL is procuring Compressors and Generators with acoustic enclosures

5.2.3 WATER ENVIRONMENT

5.2.3.1 WASTE WATER

There will be no waste water generated due to the process. The sanitary waste is diverted into a septic tank followed by soak pit.

5.2.3.2 RAIN WATER HARVESTING

Based on available data on roof area - 1 nos. rain harvesting pits have been envisaged, to ensure charging of ground water. Pits will be made with gravel and sand filled in as filtering media.

5.2.4. SOLID WASTE MANAGEMNT

Solid Waste Generation is mainly from the pollution control equipments which is negligible but Periodically recycled after the containers placed beneath the rotary valve of the respective Dust Collectors are adequately filled in.

5.3 GREEN BELT DEVELOPMENT

To maintain the ecological balance RCL authorities are planning to develop green belt around the plant. Green belt recommendations around the RCL will be evolved as per CPCB norm

5.4 POST PROJECT MONITORING

The project authorities are planning to setup Safety and Environmental cell which will be headed by an expert who reports directly to the Chief of the group. The Safety and Environmental activities of the project will be monitored by this cell.

RCL authorities will be adopting ambient air quality monitoring atleast once in a month. A weather station for wind speed, direction, temperature and rainfall will be installed within the premises of RCL. Stack emission monitoring will also be taken place monthly once.

EXPENDITURE ON ENVIRONMENTAL MANAGEMENT

PLAN

SL	ITEM	RsinLakhs
CAPITAL EXPENDITURE:		
1	Air Pollution control equipment like ID fans, Bag Filters, s connected to cement, Flyash & Fibre handling systems (main equipment) including stacks.	15.00
3	Sewage Treatment for Domestic waste water.	2.00
4	Emission Monitoring equipment at sources and ambient air quality in the vicinity) and laboratory.	5.00
5	Green belt development.	3.00
6	Establishment of Environment cell and Environmental Monitoring.	5.00
7	Total Capital Expenditure	30.00
RECURRING EXPENDITURE:		
8	Recurring expenditure on environmental management cell and on pollution control systems	4.00

BUDGET FOR PROPOSED WELFARE MEASURES

SL	ITEM	INVESTMENT, RS IN Lakhs
1	School & Education	1.00
2	Medical Services	1.00
3	Roads Development	1.00
4	Community Development	1.00
5	Supporting Self-help groups	1.00
	Total	5.00

SUMMARY AND CONCLUSION

RCL strongly believes in the concept of eco friendly industrialization as per standards prescribed by the State and Central Pollution Control Boards. Apart from eco -friendly operations, various socio economic development activities will be undertaken to bring about overall socio economic improvements in the areas.

Hence the project may be accorded environmental clearance.