

# **EXECUTIVE SUMMARY**

*OF*

**DRAFT ENVIRONMENTAL IMPACT AND  
RISK ASSESSMENT REPORT FOR  
200 TPD CEMENT MANUFACTURING UNIT**

*OF*

**M/S. VINAYAK CEMENT**

**AT**

**SORUTARI VILLAGE, BYRNIHAT INDUSTRIAL AREA,  
BYRNIHAT GRAMPANCHAYAT, SONAPUR CIRCLE,  
KAMRUP DIST., OF ASSAM STATE.**

# EXECUTIVE SUMMARY

## INTRODUCTION

M/s Vinayak Cement 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 at Sorutari Village , Byrnihat Industrial Area, Byrnihat Grampanchayat, Sonapur Circle, Kamrup dist., of Assam state.

Category of the project is B, 3(b) Cement Plants (<1 Million tonnes/annum production capacity) as per EIA Notification dated 14 September, 2006.

In order to assess the likely impacts arising out of the proposed project, VC 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.

## PROJECT COST

The total project cost will be around 750 lakhs. Out of it land, building and machinery cost will be 556 lakhs.

## LOCATION OF THE PROPOSED PROJECT

The Project site is located at Sorutari Village. 18 km from Digaru Rly. Station, and 2 kms from National High way No.40. Guwahati - Shillong. Guwahati is around 25 km away from the project site. The land falls under Sorutari Village, Byrnihat Industrila Area, Byrnihat Grampanchayat, Sonapur Circle, Kamrup dist., Assam.

The company has acquired 24220 M<sup>2</sup> of land. 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.

## BRIEF PROCESS DESCRIPTION

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

Main raw material used for manufacture of Clinker	Limestone - 95 to 98.5 % Aluminous Laterite- 1.5 to 5 %
Raw materials used for manufacture of 1. Portland Pozzolona Cement (PPC) 2. Ordinary Portland Cement (OPC) 3. Portland Slag Cement (PSC)	60% clinker+ 5 % gypsum+35% Flyash 90% clinker + 5% gypsum + 5% LS 45% clinker + 50% slag + 5% gypsum

### **Raw Materials:**

SR. NO.	RAW MATERIAL	QUANTITY/DAY	SOURCE
1.	Limestone	272.00 MT	Nearby Sources(N.C.Hills & Meghalaya)
2.	Clay	034.00 MT	Nearby
3.	Coke Breez /Coal	050.00 MT	Nearby (Assam & Meghalaya)
4.	Gypsum	008.00 MT	Nearby (Bhutan & Rajasthan)

### **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 nodulisor 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.

### **REQUIREMENTS FOR THE PROJECT**

**Land:** Around 24220 sq.m. land will be required for the proposed Cement Manufacturing Unit which is already acquired.

**Water:** Total water requirement of the proposed project is 100 KL/Day which shall be met through ground water using Bore Well located within premises. Water requirement will be mainly for the cooling and administrative purpose.

**Electrical Energy:** The estimated power requirement for the proposed project will be 600 KW which is under HT limits. Power supply to the proposed project will be sourced from Assam State Electricity Board. 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

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

### **SOURCES OF POLLUTION AND CONTROL MEASURES**

The particulate emissions are among the most significant impacts of cement manufacturing.

#### **Air Emission:**

##### 1. Sources of Air Pollution

The major sources of emission from the proposed activity are

- |                         |   |
|-------------------------|---|
| 1. Crushing Section     | - Total dust or Suspended particulate matter                          |
| 2. Raw Mill Section     | - Total dust or Suspended particulate matter                          |
| 3. Kiln section         | - Suspended Particulate matter, SO <sub>2</sub> and NO <sub>x</sub> . |
| 4. Cement Mill          | - Total dust or Suspended particulate matter.                         |
| 5. Standby Power Supply | - Suspended Particulate matter, SO <sub>2</sub> and NO <sub>x</sub> . |
| 6. D. G. Set            | - SPM, SO <sub>2</sub> & NO <sub>x</sub> occasionally                 |

##### 2. Air Pollution Control Measures

The major sources of pollution are particulate matter from the proposed cement plant. The unit will install cyclone separators and bag filters to control air pollutants. The stacks will be attached to the air pollution control equipments to disperse the air pollutants to the satisfactory levels. The details of proposed stacks and control equipments are as under.

SR. NO.	STACKS ATTACHED TO	AIR POLLUTION CONTROL EQUIPMENTS	STACK HEIGHT (M)
1.	Hammer Mill	Cyclone separator with Multi cyclone collector	7
2.	Raw Mill	Reverse pulse jet type bag filter	9
3.	Cement Mill	Reverse pulse jet type bag filter	9
4.	Kiln	Impingement plate crabbers i.e. water pollution control system	27
5.	D. G. Set of 205 KAV	None	10

Two stacks with 9 meters height from the top of the kiln will be provided  
The emissions of particulate matters from all the stacks will be limited to 50 mg/Nm<sup>3</sup>.

**Waste Water generation:**

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

**Noise Generation:**

The main Noise generating sources are Generators and compressors. Both the sources are enclosed with acoustic proof material to cut down the noise levels. So the impact of noise is minimized.

**Solid waste generation:**

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.

**DESCRIPTION OF THE ENVIRONMENT**

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 winter 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.

**Air Environment:**

The ambient air samples were collected from six locations and analyzed for SPM, RSPM, SO<sub>2</sub> and NO<sub>x</sub>, for identification, prediction, evaluation and assessment of potential impact on ambient air environment. Design of network for ambient air quality monitoring location was based on guidelines provided by CPCB. The arithmetic mean values of SPM, RSPM, SO<sub>2</sub>, and NO<sub>x</sub> is found within limit at all location.

**Water Environment:**

*Source of Water:* Source of water for the study area are surface water and ground water.

*Surface and ground water quality:* To assess water quality, surface water and ground water samples were collected from different locations. Results of all the water parameters were found within permissible limit.

*Biological Component:* Among the orthopodes mayfly larvae, caddis larvae, and culex larvae are very common. Similarly among annelids, leaches and earthworms among reptiles water snakes, among vertebrates frogs and fishes are also common.

**Noise Environment:**

Ambient noise level monitoring of background & transportation was carried out at eight locations. The noise levels of the study are found low and within the stipulated standards of CPCB for the respective designated areas.

**Soil Environment:**

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 7.0. to 7.5.

**Socioeconomic Environment:**

Any developmental activity will influence the Socio Economic conditions of the population in the region and thus the Quality Of Life (QOL). Socio Economic survey is necessary in EIA report preparation to predict the changes on the social and economic status. Hence base line data for demographic characteristics, occupational status, education, health and amenities existing in the project area have been studied as per MOE&F guidelines.

Population: Population of mainly Sonapur Revenue Circles in the study area covered.

Health Facilities: As per the 2001 Census reports, health facilities in the study area are shows that there are Primary Health Centres and other private dispensaries and first aid centres are existing.

Irrigation: The area is having two main cropping seasons viz, Kharif.

Power And Energy: Firewood, and LPG gas are the chief sources of cooking fuel. Firewood is mainly used in rural sector which indicates the rural atmosphere and restricted to lower income groups. All the villages are having electricity connections given for domestic and agricultural.

Education: The Illiteracy is high among females out of the total illiterates. The coming up of VC factory in this area will help in increasing literacy as well as educational standards. Educational facilities and Social welfare hostels.

Transport: National Highway No.40 which passes 2 km away from the project site on the southern side. Most of the villages are connected with black top roads.

Other Industries: Industrial development is observed in the study area. Other industries like cement and Coke oven Factory, steel factories etc are also found in the study area.

Employment: Increase in number of semi and non-skilled employees will boost the local economic structure.

**ENVIRONMENTAL IMPACT ASSESSMENT**

**Air Environment:** In the Proposed VC 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.

**Water environment:** The proposed VC 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.

**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.

**Noise environment:** Prediction of potential impacts on noise environment from the proposed project is as important as other components of the environment. The impact of noise depends mainly on the characteristic of the noise generating sources, topography and atmospheric conditions.

The main Noise generating sources are Generators and compressors. Both the sources are enclosed with acoustic proof material to cut down the noise levels. So the impact of noise is minimized. Due to the proposed project there will not be any significant increase in Noise levels. Only number of vehicles may increase.

**Socioeconomic environment:** Prediction of the socio-economic impacts of VC would be totally a positive main due to the employment opportunities to the skilled and un-skilled 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.

### **GREEN BELT DEVELOPMENT PLAN**

To maintain the ecological balance VC authorities are planning to develop green belt around the plant. Green belt recommendations around the VC will be evolved as per CPCB norm for noise pollution control, balancing eco-environment, soil erosion /protection, economic sustenance and aesthetics. The scenario of planting arrangement and size will be based on the optimum use of available land. Based on the agro-climatic conditions of the region, location of proposed plant and physico-bio-chemical properties of the soil strata in addition to the nature of pollutants and their rate of dispersion, it is suggested to develop green belt around the plant. Plants suitable to abate the pollution have been identified to be local plants.

The plant authorities have proposed to plant a green belt in the front half portion as well as within the boundary of the land acquired. The remaining area around the plant with lawns and other plants. In addition to the green-belt planted around the project, roadside plantation will also be required within the project. The tree plantation is based on the following principles:

- The plant should be fast growing
- It should have thick canopy cover
- It should be perennial and evergreen
- It should have large leaf area index
- It should be indigenous
- It should be efficient in absorbing pollutants without significant effects on plant growth

### **ENVIRONMENTAL MANAGEMENT PLAN**

The industry shall adopt a comprehensive Environmental Management Plan (EMP) which will cover several environmental protection measures and environmental monitoring plan for abatement of environmental pollution resulting from the project, and also for the improvement in the ambient environment. Budgetary provisions have been made for environment and safety concern. Rs. 30 lacs will be incurred as capital cost for various mitigation measures and a recurring cost provision of Rs. 4 Lacs is made for the operation and maintenance of the proposed environmental Health and Safety management system.