

## **EXECUTIVE SUMMARY**

### **1.0 INTRODUCTION**

**M/s Ultratech Cement Limited (UTCL)** is proposing for Integrated Cement Project Clinker (3.5 MTPA), Cement (5.0 MTPA) Captive Power Plant from (CPP) (50 MW) & Coal Washery (1-MTPA) near Villages Sarkipar, Piprahi & Simradih, Tehsil Baloda Bazar, District-Baloda Bazar (Chhattisgarh).As per EIA Notification dated 14th September 2006 as amended on 01.12.2009, this Proposed Integrated Cement Project falls in Category 'A' and therefore this project requires Environmental Clearance from MoEF, New Delhi.

### **1.1 DETAILS OF THE PROJECT**

**Table - 1**

<b>S. No.</b>	<b>PARTICULARS</b>	<b>DETAILS</b>
1.	<b>Nature &amp; Size of the Project</b>	Proposed Integrated Cement Project (3.5 MTPA of Clinker, 5.0 MTPA of Cement, 50 MW of CPP and 1.0 MTPA Coal Washery)
2.	<b>Location</b>	
	Village	Sarkipar, Piprahi & Simradhi
	Tehsil	Baloda Bazar
	District	Baloda Bazar
	State	Chhattisgarh
	Latitude	21° 37' 04" N to 21° 37' 32" N
	Longitude	82° 03' 13" E to 82° 04' 55" E
	Toposheet No.	64 G/14 & 64 K/2
3.	Total Plant Area	222 ha
4.	Green Belt Development	~73.26 ha (~33 % of the total area, thus the same will be maintained in future as well)
5.	Cost of the project	Rs. 1,200 Crores
6.	Cost for Environmental Protection	Capital Cost – Rs. 150 Crores

**Proposed Integrated Cement Project (Clinker: 3.5 MTPA; Cement: 5.0 MTPA; Coal Washery: 1.0 MTPA) and Captive Power Plant (50 MW)**

At Villages- Sarkipar, Piprahi and Simradih, Tehsil Baloda Bazar, District- Baloda Bazar in Chhattisgarh

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7.	Recurring cost per annum for environmental pollution control measures	Recurring Cost - Rs. 2.0 Crores/annum
11.	Elevation Range	265 m to 280 m with respect to mean sea level
12.	General Ground Level	276 mRL
13.	Nearest Railway Station	Bhatapara, at a distance of 16.5 km (NW )
14.	National Highway	NH - 200 (28 km in NW direction)
15.	Nearest Airport	Raipur at a distance of 58.0 km (SW direction from site)
16.	Nearest Town / City	<ul style="list-style-type: none"><li>▪ <b>Town</b>-Baloda Bazar, (9.0 km NE direction from site).</li><li>▪ <b>City &amp; district Head Quarter</b>- Baloda Bazar (9.0 km in ENE direction from site)</li></ul>
17.	Nearest Water Bodies	<ul style="list-style-type: none"><li>▪ Mahanadi Canal (Approx 0.5 km in W direction).</li><li>▪ Jamunia River (Approx 9.1 km in NNW direction).</li><li>▪ Khorsi Nala (Approx 6.1 km in SE direction)</li><li>▪ Banjari Nala (4.5 km in WNW direction)</li></ul>
17.	Archaeological Important Place	None
18.	Ecological Sensitive Areas	No Wildlife Sanctuaries, National Park, Biosphere Reserve, Reserve Forest, Protected Forest exists within 10 km radius of the project site.
19.	Nearest Reserve Forest	<ul style="list-style-type: none"><li>▪ Dhabadih R.F. (Approx 0.5 km in E direction)</li><li>▪ Latwa R. F., (Approx 9.1 km in NE direction)</li></ul>

*Source: Pre-feasibility Report*

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**1.2 MAJOR REQUIREMENTS FOR DIFFERENT UNITS OF THE PROPOSED PROJECT**

**1.2.1 Raw Material Requirement**

**Table - 2**

**RAW MATERIAL REQUIREMENT, SOURCE & MODE OF TRANSPORTATION**

S. No	Details of Raw Material	Requirement (MTPA)	Sources	Mode of Transportation
1.	Lime stone	5.0	Kukurdihi Limestone Mine at (approx. 1.8 km NE)	By conveyor belt
2.	Iron Ore	0.03	Rajnandgaon Area	Road
3.	Coal	0.99	Captive Coal Washery & nearby market	Road / rail
	Coal for Clinkerisation	0.7		Road / rail
	Coal for Captive Power Plant	0.3		Road / rail
4.	Fly Ash	1.0	Captive /Other Power Plants, Surrounding Areas.	Road / rail
5.	Slag	1.1	Bhilai Steel Plant	Road / rail
6.	Gypsum	0.22	Purchased	Road / rail

*Source: Pre-Feasibility Report*

**1.2.2 Other requirements**

**Table - 3**

**Other Requirements**

S. No.	Particulars		Source
1.	Land	222 ha (203.46 ha Private land + 18.54 ha Govt. Land)	
2.	Water	3650 m <sup>3</sup> /day	Ground Water
3.	Power	40 MW	Captive Power Plant
4.	Manpower	600	Nearby villages

*Source: Prefeasibility Report*

## 2.0 PROCESS DESCRIPTION

### 2.1 Cement Manufacturing Process

The flow chart below shows the process of cement manufacturing

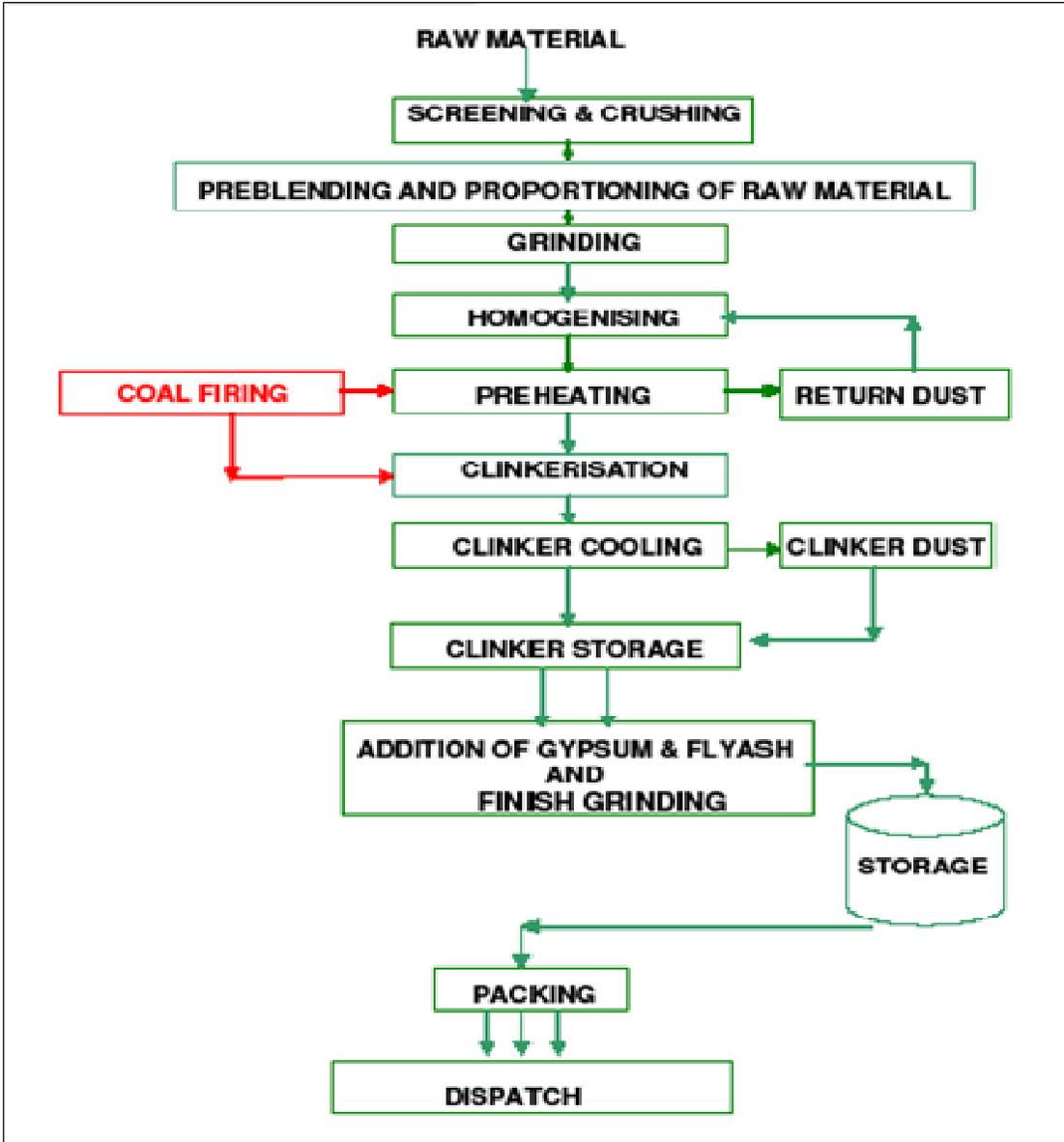


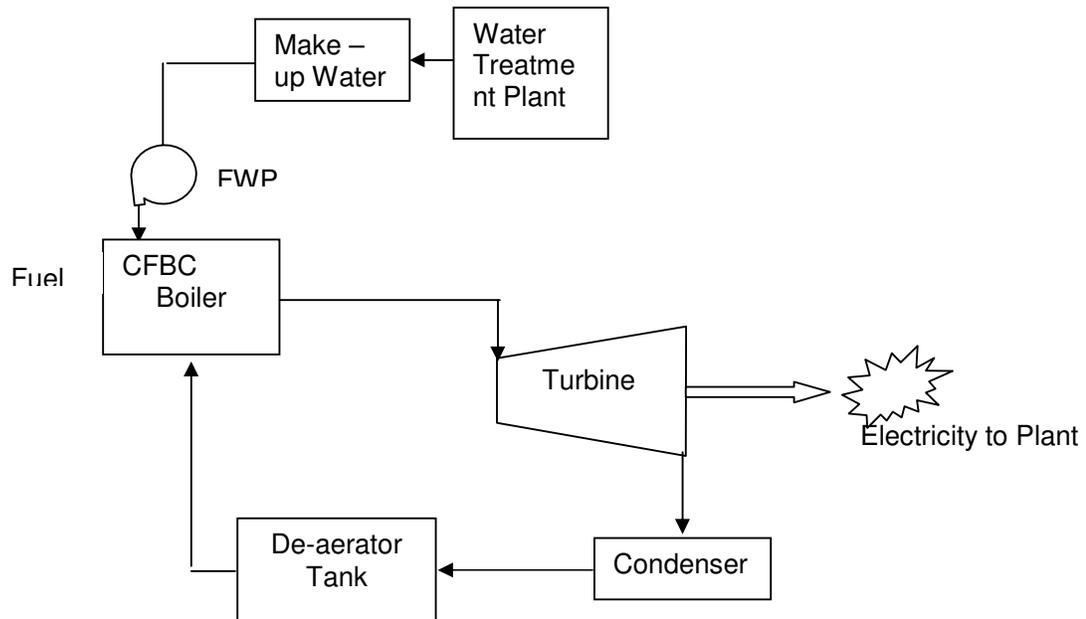
Figure 1: Process Flow Chart

It involves the following steps:

- ◆ Pre-blending of crushed limestone.
- ◆ Drying - cum-grinding of raw materials.
- ◆ Homogenization of raw meal in a blending silo.
- ◆ Clinkerisation of the raw meal in a rotary kiln with multistage pre-heater and pre-calcinator.
- ◆ Grinding, storage and packing.
- ◆ Final dispatch

## 2.2 Captive Power Plant (50 MW)

Figure below shows the process involved in Captive Power Plant:



**Figure 2: Schematic diagram of the Captive Power Plant**

Following steps are involved:

- ◆ Burning of coal in the Boiler
- ◆ Water Cooled system
- ◆ Steam formation
- ◆ Power generation in Turbine
- ◆ Condensation of super heated steam for recirculation in boiler
- ◆ Pre - heating of feed water & air
- ◆ Dust pollution Control

### **2.3 Coal Washery (1.0 MTPA)**

The Wagon tippler, coal crusher & coal stacker reclaimers will cater the material flow and storage requirements of the washery except for the middling / rejects. The plant will be designed to have process with 'No effluent discharge'. The washery rejects will be utilized in the thermal power plant & clean coal. Process will be Heavy Media which will involve Screening plant, Coal preparation plant, Fines circuit, Magnetite Circuit, Heavy Media Hydrocyclone etc.

### **3.0 DESCRIPTION OF ENVIRONMENT**

Baseline study of the study area was conducted during Winter Season, 2011-12

Monitoring results of Ambient Air samples shows that the concentration of PM<sub>10</sub> & PM<sub>2.5</sub> for all the 8 AAQM stations ranges between 34.50 to 62.32 µg/m<sup>3</sup> and 17.43 to 29.56 µg/m<sup>3</sup>, respectively. SO<sub>2</sub> and NO<sub>2</sub> were in the range of 6.64 to 11.80 µg/m<sup>3</sup> and 9.20 to 16.60 µg/m<sup>3</sup>, respectively. PAH was found below the desired limit.

Five surface water samples were analysed which shows that pH varies from 7.15 to 7.52. Total hardness varies from 111.20 mg/l to 141.96mg/l. Total dissolved solids are in the range of 241.00mg/l to 354.00 mg/l. All the parameters are found well within the range of prescribed limits.

The ground water analysis for all the 8 sampling stations shows that pH varies from 7.12 to 7.78, total hardness varies from 205.10 mg/l to 302.12 mg/l & total dissolved solids varies from 282.00 mg/l to 528.00 mg/l.

Noise monitoring was done at 8 locations. The results shows that noise level varies from 38 to 50 Leq dB (A) during day time and during night time noise levels ranges from 32 to 44 Leq dB (A). Thus noise levels at all locations were observed to be within the prescribed limits.

The analysis results for soil shows that soil is moderately alkaline in nature as pH value ranges from 7.10 to 7.60 & is Silty Loam in texture. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

### **3.1 Biological Environment**

**Flora:** Tree species which are most commonly found in the area are Babul (*Acacia arabica*), Neem (*Azadiractha indica*), Arjun (*Terminalia arjuna*), Gulmohar (*Delonix regia*) etc.

**Fauna:** Commonly found animal in the study area are Koel (*Eudyanamus scolopaceus*), Hare (*Lepus nigricollis*), Common garden lizard (*Calotes versicolor*), Rat (*R.rattus*), Goat (*Capra hircus*), House crow (*Corvus splendens*), Squirrel (*Funambulus palmarum*), etc.

### **3.2 Socio-Economic Environment**

The population as per 2001 Census records is 59429 (for 10 km radius buffer zone). Scheduled Caste fraction of the population of the study area (10 km) is 9213(15.50%) and Scheduled Tribe 9985(16.80%). Percentage of literacy is 66.26% and that of workers those actually engaged in occupation is 41.55% including, 73.39% of Main workers & 26.61%of marginal workers. Rest 58.45% of the total population, are considered as non-workers.

### **4.0 Anticipated Environmental Impacts and Mitigation Measures**

- The key emissions generated from Plant process are particulate matter, Oxides of Nitrogen (NO<sub>2</sub>) and Sulphur dioxide (SO<sub>2</sub>). High efficiency ESP/bag house will be installed with Kiln, cooler, raw mill, coal mill and cement mill to meet the PM (Particulate Matter) emission level of less than the prescribed limit.
- Fugitive emission shall be controlled by proper covered storage facilities for raw material & product.
- Installation of bag filters and proper water sprinkling shall be carried out at the material transfer points.
- No industrial waste water will be generated from cement manufacturing process.
- Domestic waste water generated from the office toilets and township will be treated in the STP and treated water will be used for green belt development.
- Solid waste generated from Cement Plant in the form of sludge (from Sewage Treatment Plant) will be used as manure for green belt development.

During operational phase noise will be generated from Process fans, compressors, motors, grinding mills in the cement plant. Ear plugs will be provided to persons working in high noise zone.

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## **5.0 ENVIRONMENTAL MONITORING PROGRAMME**

**Table - 4**

<b>S. No.</b>	<b>DESCRIPTION</b>	<b>FREQUENCY OF MONITORING</b>
1.	Meteorological Data	Daily
2.	Ambient Air Quality at Project site	Quarterly/ Half Yearly
3.	Stack monitoring	Quarterly/ Half Yearly
4.	Water Quality	Quarterly/ Half Yearly
5.	Noise Level Monitoring	Quarterly/ Half Yearly
6.	Soil Quality	Half Yearly/yearly
7.	Monitoring of Agricultural crops	Yearly
8.	Socio – economic status of nearby area	yearly

## **6.0 ADDITIONAL STUDIES**

The Additional Studies conducted as per the additional Terms of References vide MoEF letter no. File No. J-11011/625/2010-IA.II (I) & Letter dated 10<sup>th</sup> March, 2011 are Biological Study; Hydro-geological Study & Rain water Harvesting Plan, Disaster Management Plan.

## **7.0 PROJECT BENEFITS**

The proposed project will help in combating the growing demand of cement in the market & hence will help in the economic growth of the country. UTCL is actively involved in the CSR activities in the nearby villages of the project site. Infrastructure development in the nearby villages, creating educational facilities, empowering women through self help groups, gainful employment for rural, health awareness programmes & surgical camps, assistance in social forestry programmes in the area, are some of the activities further to be undertaken under CSR plan for the development of the society. A well planned CSR of 15 years of time period has been proposed. A sum of Rs. 600000000 has been proposed for CSR activities.

## **8.0 ENVIRONMENT MANAGEMENT PLAN**

The major sources of pollution in a cement plant are Particulate Matter. Air pollution is the major concern to be looked upon for the project activity. No major water, noise & soil pollution is envisaged from the project activity. Various mitigation measures have been proposed to take care of the environment in respect of air, water, noise, soil & the green cover of the project site & nearby villages. A sum of Rs. 150 Crores has been proposed for environmental Management Plan.

### **8.1 Air Environment**

- ◆ To control the dust emission from transfer points of the belt and bucket conveyors, bag filters will be provided at various locations of the transfer points.
- ◆ Greenbelt development will be further enhanced around the plant premises.
- ◆ CPCB & CREP guidelines will be followed to control fugitive emissions.
- ◆ Limestone will be transported via covered conveyor belts to the plant site.
- ◆ Dust suppression/ dust extraction systems with bag filters along with water sprinklers will be provided to prevent the fugitive dust emissions.
- ◆ Sources emission will be maintained below 50 mg / Nm<sup>3</sup> & 100 mg / Nm<sup>3</sup> in cement plant and CPP respectively.
- ◆ The unloading point for Coal tippers will be provided with spraying nozzles, discharging water in to receiving pit.
- ◆ Adequate ventilation for the packing hall will be provided for venting out suspended particulate thereby ensuring dust free work environment.

### **8.2 Water Management**

- ◆ No industrial waste water is generated during plant operation.
- ◆ In Cement Plant process, water is absorbed in the process or it is subjected to evaporation, hence no wastewater generation.
- ◆ The wastewater generated from the CPP will be recycled back to the process and used for cooling and dust suppression.
- ◆ Domestic waste water generated from the colony will be treated in STP and used for green belt development / Horticulture purpose.
- ◆ Air cooled condenser will be used in Thermal Power Plant to reduce water requirement.
- ◆ During monsoon, rain water harvesting will be practiced at plant and colony area.

### **8.3 Noise Environment**

- ◆ Walls and ceilings of the concerned buildings will be lined with sound absorbing materials.
- ◆ Properly insulated enclosures will be provided to staff working close to the high noise sources.
- ◆ Personal Protective Equipments like earplugs and earmuffs will be provided to the workers exposed to high noise level.
- ◆ Sufficient green belt within the plant and colony area will be developed and maintained.

- ◆ Regular monitoring of noise level will be carried out and corrective measures in concerned machinery will be adapted accordingly to the possible extent.
- ◆ Improved silencers will be provided in the machineries generating high noise.

#### **8.4 Solid Waste Management**

- ◆ No solid waste is generated in cement manufacturing process.
- ◆ Fly ash generated from Captive Power Plant will be utilized in the manufacturing of Cement.
- ◆ Dust collected from air pollution control equipment is 100% recycled in process.
- ◆ Sludge from Sewage Treatment Plant (STP) is used as manure for green belt development.
- ◆ The washery rejects will be utilized in the thermal power plant & clean coal will be utilized for the cement manufacture. Ultratech Cement Ltd will implement the

#### **8.5 Greenbelt Development**

- ◆ The total area of the proposed plant is about 222 Ha, out of which, about 73.26 Ha (i.e. 33% of the total area) will be developed as green belt/ plantation.
- ◆ Green belt development will be done all along the road & plant boundary & colony which will attenuate noise level, arrest dust and improve the environment in surrounding.
- ◆ Avenue plantation along the roads and green belt development in the colony and plant will be done under afforestation programme.
- ◆ Native species as per CPCB guidelines will be planted such as *Azadirachta indica*, *Cassia Fistula*, *Dalbergia sissoo*, *Albizia spp.*, *Ficus spp.*, *Jatropha curcas* etc.

#### **9.0 CONCLUSION**

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area would also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of UTCL.

