

EXECUTIVE SUMMARY

OF

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

PUBLIC HEARING

OF

Proposed Limestone Mine

(ML Area: 689.048 ha)

with Production Capacity 4.0 MTPA

At

**Villages-Mohrenga, Math, Murra and Kharora,
Tehsil-Tilda, District Raipur (Chhattisgarh)**

APPLICANT



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1.0 PROJECT DESCRIPTION

1.1 Introduction

M/s. UltraTech Cement Ltd. (UTCL) is a flagship company of Aditya Birla Group and it is the largest cement manufacturing company in India and 8th largest in the world ranking with present annual capacity of 54 MTPA including 3.0 MTPA outside India.

The production units of UTCL are spread across 11 Integrated Plants, 11 Grinding Units besides 5 Bulk Terminals in India. In the year 2011, the Group was ranked 4th globally and 1st in the Asia-Pacific region as top company for leaders in a study conducted by Aon Hewitt Associates, RBL Group and Fortune magazine. In India, the Group has been adjudged the best employer in India and among the top 20 in Asia by the Hewitt-Economic Times and Wall Street Journal Study 2007.

1.2 Type of Project

M/s. UltraTech Cement Ltd. is proposing a new Limestone Mine namely Mohrenga Limestone Mine (ML Area 689.048 ha) with Production Capacity of 4.0 MTPA at four villages namely: Mohrenga, Math, Murra & Kharora in Tehsil: Tilda, District: Raipur (Chhattisgarh).

As per EIA Notification dated 14th September 2006, as amended till date; this project falls under Category "A", Project or Activity 1(a) - (3) and therefore requires Environmental Clearance from MoEF, New Delhi.

The project was considered by EAC (Non-Coal Mining) for TOR approval on 20.02.2013 Terms of Reference (TOR) have been issued by MoEF, New Delhi for preparation of EIA/EMP report vide letter no. J-11015/ 392/ 2012-IA.II (M) dated 28th March, 2013.

1.3 Need for the Project

With respect to the importance of the project to the nation, it can be well said that in a developing country like India, cement is essential for infrastructural development. Thus, keeping in mind this requirement, mining of limestone is necessary for the nation's growth.

M/s. UltraTech Cement Ltd. (UTCL) has proposed this mining project in order to meet the requirement of limestone for the manufacturing of cement in the existing line as well as proposed new line II of cement plant - Cement (2.75 to 6.75 MTPA), Clinker (2.2

to 6.75 MTPA), CPP (50 MW to 100 MW), D.G Set (18 MW to 30 MW) and WHRB (15 MW) at Hirmi Cement Works at Village: Hirmi, Tehsil: Simga, District: Balodabazar - Bhatapara (Chhattisgarh).

Besides this, the project will prove beneficial in terms of socio economic development as it will provide employment to locals. Further, the average income level, which is the indicator of socio – economic status of house hold is expected to increase, which will ultimately result in the better standard of living of the people. There will be increase in revenue to the Government by way of royalty and other taxes.

1.4 Brief Description of the Project

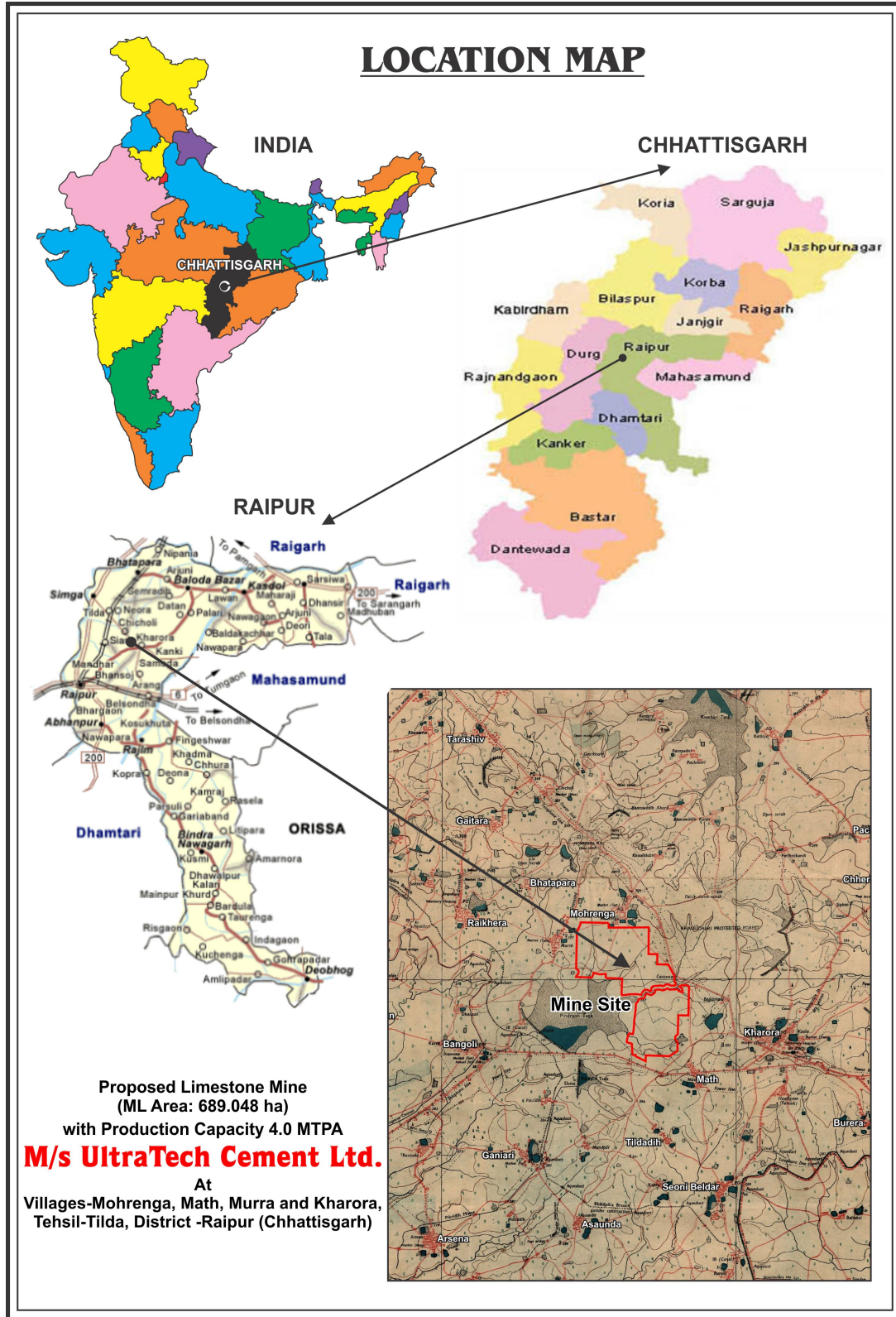
Table - 1
Brief Description of the Project

S. No.	Particulars	Details
A.	Nature of project	Limestone Mining Project
B.	Size of project	
(i)	Mining Lease area	689.048 ha {Govt. Barren Land – 30.597 ha, Private Land – 658.451 ha}
(ii)	Proposed Limestone Production capacity	4.0 MTPA
C.	Project Location	
(i)	Villages	Mohrenga, Math, Murra & Kharora
(ii)	Tehsil	Tilda
(iii)	District	Raipur
(iv)	State	Chhattisgarh
(v)	Latitude	21° 23'44.299" N to 21° 25' 57.367" N
(vi)	Longitude	81°52' 9.521" E to 81°54' 5.610" E
(vii)	Toposheet No.	64G/15. Study area is covered by Topo- sheet no. 64G/15 & 64G/14
D.	Environmental Setting Details	
(i)	Nearest Village	Mohrenga (~0.25 km in N direction)
(ii)	Nearest City	Raipur (~28 km in SW direction)
(iii)	Nearest National Highway	NH - 200 (~19 km in W direction)
(iv)	Nearest Railway Station	➤ Tilda (~15 km in NW direction)
(v)	Nearest Airport	➤ Raipur (~28 km SW direction)

(vi)	National Parks, Wild Life Sanctuaries, Biosphere Reserves etc.	None within 10 km radius of the proposed Mine boundary
(vii)	Reserved / Protected Forests within 10km radius	<ul style="list-style-type: none"> ➤ Mohrenga Protected Forest (~2.5 km in N direction) ➤ Khaulidabri Protected Forest (~0.06 km in NE direction)
(viii)	Water Body within 10 km radius	<ul style="list-style-type: none"> ➤ Kirna Tank (~9.0 km in NW direction) ➤ Kumhari Tank (~5.0 km in NNE direction) ➤ Pikridih Tank (~0.8 km in SW direction) ➤ Pindraon Tank (50 M) ➤ Kosrangi Tank (~ 9.0 km in SE direction) ➤ Mahanadi Canal (~ 4.5 km SE direction) ➤ Patthra Nala (~ 6.5 km in WSW direction)
(ix)	Archaeological Important Site (within 10 km radius)	None within 10 km radius of the proposed mining lease boundary
(x)	Seismic Zone	Zone - II [as per IS 1893 (Part-I): 2002]
E.	Cost Details	
(i)	Total Project Cost	₹ 106 Crores/-
(ii)	Cost for Environmental Protection Measures	Capital cost - ₹ 4.0 Crores/- Recurring cost - ₹ 0.3 Crores/annum
F.	Requirements for the project	
(i)	Land requirement	689.048 ha
(ii)	Water requirement	300 KLD Source: From Bore well and rain water harvested in excavated area (as and when developed)
(iii)	Manpower requirement	120 persons
(iv)	Power requirement	5.0 MW Source: CSEB

Source: Site Visit & Pre-feasibility Report

1.5 Location Map



1.6 MINE DESCRIPTION

1.6.1 Mining Lease Status

Total mining lease area is 689.048 ha, out of which, 30.597 ha is Govt. land and 658.451 ha is Private land.

Letter of Intent has been issued to M/s. UltraTech Cement Ltd. (Unit: Hirmi Cement Works) vide order No. F 2-59/2009/12 dated 19th April 2012 for M.L Area: 689.048 ha area at Village: Mohrenga, Math, Murra & Kharora, Tehsil- Tida, District-Raipur (Chhattisgarh) for grant of mining lease by state Government. Applications for extension of time limit stipulated in LOI have submitted on 27th September, 2012 and 15th April, 2013.

1.6.2 Mining Details

Table - 2
Mining Details

S. No.	PARTICULARS	DETAILS
1.	Method of Mining	Opencast Mechanized Method
2.	Proposed Limestone Production Capacity	4.0 Million Tonne per Annum
3.	Total Mineable Reserves & Resources	120 Million Tonnes
4.	Life of Mine	30 years
5.	No. of Benches	4
6.	Bench Height	6 - 8 m
7.	Bench Width (Working)	25 - 30 m
8.	Elevation Range	287 - 306 m AMSL
9.	General Ground Level	296 m AMSL
10.	Ground Water Table	Pre-Monsoon: 10-15 m bgl or 286 m AMSL to 281 m AMSL Post-Monsoon: 05-07 m bgl or 291 m AMSL to 289 m AMSL
11.	Ultimate Working Depth (at the end of life of mine)	266 m AMSL (30 m bgl)
12.	Overall Pit Slope	45°
13.	Stripping ratio	1:0.47 (Tonne: Tonne)
14.	Number of Working Days	300 days
15.	Number of shifts per day	2
16.	Total waste generation at the end of life of mine	Waste: 33.910 million Cum Screen Reject: 5.416 million Cum

Source: Mining Plan with Progressive Mine Closure Plan

1.6.3 Method of Mining

Mining will be carried out by **Fully Mechanized Opencast** Mining Method, utilizing Heavy Earth Moving Equipments (HEME) in conjunction with deep hole blasting and with the use of milli second delay detonators. Blasting will be carried out to create fragmented material, which shall be loaded using hydraulic excavators of 6.5 m³ bucket capacity. The limestone will be transported via covered conveyor belt from crusher to Cement plant.

1.6.4 Extent of Mechanization

TABLE: 3
Machinery & Equipments

S. No.	Equipment Name	Number
1.	Drill 100-115 mm diameter	2
2.	Hydraulic Excavator PC 1250 6.5 m ³	3
3.	Dumper 55 Tonnes	12
4.	Dozer (D355)BEML 320 H.P.	1
5.	Back Hoe/ Rock breaker	1
6.	Road Grader	1
7.	Portable Tower Lights	4
8.	Explosive Van 8 Tonnes	1
9.	Jeep	1
10.	Water tanker 35 KL	1
11.	Pay Loader 2.65 m ³	1

Source: Mining Plan with Progressive Mine Closure Plan

2.0 DESCRIPTION OF THE ENVIRONMENT

2.1 Presentation of Results (Air, Noise, Water & Soil)

Baseline study of the study area was conducted during Summer Season – (March to May, 2013).

The concentration at all the 8 AAQM stations for PM₁₀ ranges between 50.44 to 67.50 µg/m³, SO₂ ranges between 6.12 to 11.80 µg/m³ and NO₂ ranges between 13.30 to 20.60 µg/m³.

Ambient noise levels were measured at 8 locations around the Mine site. Noise levels vary from 49.24 to 53.84 Leq dB (A) during day time and during night time noise level ranges from 39.02 to 43.90 Leq dB(A).

The ground water analysis for all the 6 sampling stations shows that pH varies from 7.21 to 7.65, total hardness varies from 123.00 mg/l to 365.20 mg/l & total dissolved solids vary from 253.00 mg/l to 541.00 mg/l.

The analysis results for soil shows that soil is slightly alkaline in nature as pH value ranges from 7.48 to 7.88 & is Silty Clay in texture. The concentration of Nitrogen has been found to be in better amount in the soil samples. Phosphorous is medium & Potassium is average.

2.2 Biological Environment

Flora: species which are most commonly found in the study area are *Cassia fistula* (Amaltas), *Mangifera indica* (Mango), *Acacia nilotica* (Babul), *Azadirachta indica* (Neem), *Delonix regia* (Gulmohar), *Dalbergia sissoo* (Shesham), *Ficus religiosa* (Pipal), *Tamarindus indica* (Imli), *Polyalthia longifolia* (Ashok) etc.

Fauna: Commonly found animal in the study area are Common Indian Krait (*Bungarus caeruleus*), Common Myna (*Acridotheres tristis*), Common garden lizard (*Calotes vesicolor*), Rat (*R.rattus*), Indian cobra (*Naja naja*), House Sparrow (*Passer domesticus*), Squirrel (*Funambulus pennanti*), Indian Bull Frog (*Rana tigerinus*) etc.

2.3 Socio-Economic Environment

The population as per 2011 Census records is 186079(for 10 km radius buffer zone). Scheduled Caste population of the study area (10 km) is 37478 (20.59%) and Scheduled Tribe is 8323 (4.39%).

Percentage of literacy is 73.35% and that of workers those actually engaged in occupation is 46.82% including, 67.99 % of Main workers & 32 % of marginal workers. Rest 53.17% of the total population, are considered as non-workers. Total no. of household in the area is 38612.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

➤ **Impact on Air Environment** - The key air emissions from the mining activities (drilling, blasting, loading, haulage and transportation) are Particulate Matter, Oxides of Nitrogen and Sulphur dioxide. Gaseous emissions will be generated from HEMM & transportation of vehicles. Use of proper mitigation measures will be taken

like water sprinkling during transport activities & development of green area along the road sides to control fugitive emissions.

- **Impact on Water Environment** - There will be no outside discharge of liquid effluent from the mine site. Therefore, no significant impact on nearby surface water bodies is anticipated due to mining operations.

Ground water table during Pre Monsoon varies from 10-15 m bgl (286 - 281 mSL) & during Post monsoon - 05-07 m bgl (291-289 m AMSL). Ultimate pit limit will be 266 mRL (30 m bgl) thus the mine workings will intersect the ground water table necessary permission will be obtained from concerned department. Mineral is non-toxic in nature.

- **Impact of Noise** - Major noise generating sources of the mining activity will be drilling, blasting, crushing and trucks movement used for transportation of limestone. The instant noise level from blasting will be high but for a very short duration. The proposed plantation will also check propagation of noise in the surrounding areas.

- **Impact on Land Environment** - Opencast mining activities may alter the landscape of the lease area but will not have any effect on the surface features of the surrounding areas.

At the conceptual stage, out of the total mining lease area (i.e. 689.048 ha), 668.879 ha area will be excavated out of which an area of about 170.420 ha will be reclaimed by backfilling and remaining 498.459 ha area will be converted to water reservoir.

Green belt development will be done in 183.589 ha area, till the end of life of mine.

4.0 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

Table 4

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Meteorological Data	Daily
2.	Ambient Air Quality at mine site	Quarterly/ Half Yearly
3.	Water Quality	Quarterly/ Half Yearly
4.	Noise Level Monitoring	Quarterly/ Half Yearly
5.	Soil Quality	Half Yearly/Yearly
6.	Monitoring of Agricultural crops	Yearly
7.	Socio - economic status of nearby area	Yearly

5.0 ADDITIONAL STUDIES

The Additional Studies as per the Terms of References issued vide MoEF letter no. J-11015/ 392/ 2012-IA.II (M) dated 28th March, 2013 are covered in Draft EIA/EMP Report.

6.0 PROJECT BENEFITS

The proposed project activity will help in meeting the growing demand of cement & hence will help in the economic growth of the country. UTCL is already actively involved in the CSR activities in its other project sites. Infrastructure development in the nearby villages, creation of educational facilities, empowering women through self help groups, gainful employment for rural youths, health awareness programmes & surgical camps, assistance in social forestry programmes in the area are some of the highlights of the CSR activities which will be taken up by the company.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Quality Management

- ✓ Drilling machines will be equipped with water injection or dust extraction system to prevent dust from getting air borne.
- ✓ Blasting will be done in scientific manner by use of non electric ignition system, use of millisecond delay detonators and optimizing the blasting parameters to control & prevent the dust from getting air borne and to control the fly rock.
- ✓ Rock breaker will be used to avoid secondary blasting.
- ✓ Periodical water spraying on the haul roads will be done.
- ✓ De-dusting system will be provided at crushing plant with bag filter arrangements to collect the dust generated during crushing.
- ✓ Green Belt / Plantation will be developed around the quarry edge, along the roads, crusher, office, workshop, etc.

7.2 Water Quality Management

- ✓ Garland Drains will be provided around the pit to prevent the entry of rainwater into the mining pit.
- ✓ Garland drain/ filtration bund will be provided around dumps to retain the rain water percolating from waste dumps.
- ✓ Septic tanks and soak pits will be provided for disposal of domestic effluent.

- ✓ Rainwater falling in the catchments area of mining pit will be collected in mines sump.
- ✓ The waste water from workshop will be passed through oil water separator before its use for plantation and dust suppression.

7.3 Noise Management

- ✓ Control Blasting will be carried out to minimize vibration.
- ✓ Rock breaker will be used to avoid secondary blasting
- ✓ PPEs like earmuffs/earplugs will be provided to all operators and employees working near the machinery.
- ✓ Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- ✓ Green belt development / Plantation will be done to minimize the propagation of noise.
- ✓ Periodical monitoring will be done.

7.4 Solid Waste Management

- ✓ During first five years 1.64 lac tonnes of Top soil will be generated & used for plantation purpose.
- ✓ About 33.910 million Cum of OB/ waste and 5.416 million Cum of screen reject will be generated at the end of life of mine.
- ✓ Waste & rejects will be backfilled in the mined out area and will be reclaimed by plantation.

7.5 Management of Land Use Pattern

The mining activity will affect the present landscape of the ML area. The original topography of the ML area will be affected due to the mining operation.

The total lease area is 689.048 ha. At the end of life of mine total excavated area will be 668.879 ha, out of which an area of about 170.420 ha will be reclaimed by backfilling followed by plantation and remaining 498.459 ha area will be converted to water reservoir.

7.6 Greenbelt Development and Plantation Program

Out of total ML area of 689.048 ha, 183.589 ha area will be covered under plantation & green belt development till the end of life of mine.

Around **458973 trees** (@ 2500 trees per ha) will be planted till the end of life of mine at different locations i.e. along lease boundary, around the quarry edge, along the roads, near crusher, office, workshop, etc.

7.7 Socio-Economic Environment

Better education facilities, proper health care, road infrastructure and drinking water facilities are basic social amenities for better living standard of any human being. UTCL will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities.

