EXECUTIVE SUMMARY

OF

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

PUBLIC HEARING

OF

Proposed Expansion in Clinkerization Capacity from 1.98 to 3.2 MTPA

At

Villages Risda & Dhandhani,

Tehsil- Baloda Bazar, District- Baloda Bazar-Bhatapara

(Chhattisgarh)

APPLICANT

M/s. EMAMI CEMENT LIMITED

(A Unit of Emami Group)

Kesharwani Bhawan,Garden Chowk, Civil Lines,

Balodabazar (Chhattisgarh) Telephone No.: 07727-222033,

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EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

Emami group was founded by Mr. R. S. Agarwal and Mr. R. S. Goenka in 1974 with a capital of only Rs. 20,000 has now transformed to a Turnover of Rs. 4963 Crore with a Net Worth of Rs. 1372 Crore (For FY 2011-12).

- Emami group is a well diversified, professionally managed group of company in Eastern India, having interest in FMCG, news print, writing instruments, Health care and Hospitals, Retail pharmacies, Departmental stores, Bio diesel, Edible Oil, Real estate, construction and planning for diversifying in manufacturing of Cement.
- Emami Cement Limited is an incorporated Company under Company's Act 1956, is a unit of Emami Group and has entered MoU with Government of Chhattisgarh for setting up of an integrated Cement Plant along with Limestone Mine and Captive Thermal Power Plant in Villages: Risda,Kukurdih&Dhandhani , Tehsil: Baloda Bazar, District: Baloda Bazar – Bhatapara (Chattisgarh).
- The company's Head quarter is in Kolkata, it has a pan-India presence and footprints in 60 countries across the world.

M/s. Emami Cement Ltd. has proposed Enhancement in Clinkerization capacity from 1.98 to 3.2 MTPA (additional 1.22 MTPA) by increasing the size of the kiln (Capacity from 6000 TPD to 9700 TPD) at villages- Risda&Dhandhani, Tehsil- Baloda Bazar, District- Baloda Bazar-Bhatapara (Chhattisgarh).

As per the New EIA Notification dated 14.09.2006 and its subsequent amendments, this project falls under Category "A" Projects, S.No. – (3)-3(b).

The project has been considered in front of Expert Appraisal Committee (EAC) (Industry) for its First Technical Presentation (for ToR approval) on 19thDecember'2013&ToR Letter was issued by MoEF, New Delhi for the preparation of EIA / EMP Report vide their letter no. J-11011/256/2013- IA -II (I) dated 31stJanuary, 2014.

1.2 BRIEF DESCRIPTION OF THE PROJECT

Brief Description of the Project is given in Table - 1.

Table: 1

Salient Features

S. NO.	PARTICULARS	DETAILS
A.	**Nature and Size of the Project**	Enhancement in Clinkerization Capacity from 1.98 to 3.2 MTPA*(additional 1.22 MTPA)* is proposed to be doneby increasing the size of kiln (capacity from 6000 TPD to 9700 TPD)
B.	**Location Details**	
1.	Village	Risda&Dhandhani
2.	Tehsil	Baloda Bazar
3.	District	Baloda Bazar-Bhatapara
4.	State	Chhattisgarh
5.	Latitude	21° 37' 15" N to 21 ° 38' 30.80" N
6.	Longitude	82 ° 04' 30" E to 82 ° 07' 18.3" E
	Location Map showing the Project Site has been shown in Figure – 1	
C.	**Land Details**	
1.	Total Project Area	No additional land is to be acquired for the proposed expansion project as the expansion will be carried out within the existing project premises. The existing land has already been acquired by ECL.
2.	Greenbelt / Plantation area	Out of the total project area i.e. 188.35 ha, 64.60 ha area (34% of the total plant area) will be developed as green belt area/plantation.
D.	**Environmental Settings** ***(with approximate aerial distance & direction from the project site)***	
1.	Nearest National / StateHighway	SH-9 (6.5 Km in East) & SH-10 (4 Km in North)
2.	Nearest Railway station	Bhatapara Railway Station (24 Km from the project site)
3.	Nearest Airport	Raipur Airport (85 Km from the project site)
4.	Wild Life Sanctuaries , National Parks, Tiger reserve, Biosphere Reserve ,Elephant corridor etc. within 10 Km	No Wild Life Sanctuary, National Park, Tiger Reserve, Biosphere Reserve, Elephant corridor etc. falling within the 10 Km radius area.

S. NO.	PARTICULARS	DETAILS
	radius	
5.	Reserved / Protected Forests within 10 km radius	• Sonbarsa&Latwa RF (7.0 km in NNE) • Dhabadih RF (0.5 km in SW)
6.	Water Body within 10 km radius	• Mahanadi River(seasonal) (3.5 Km in NW) • BanjariNala (8.6 Km in WNW) • KhosriNala (3.0 Km in SE) • KukurdihTalav (0.5 Km in NNW)
7.	Seismic Zone	Zone – II[as per IS: 1893 (Part-I) : 2002]
	Environmental Setting Map is shown in Figure-2	
E.	**Cost details**	
1.	Total Cost of the Project	Rs. 1831Crore
2.	Cost for Environmental Protection Measures	Capital Cost: Rs.30 Crore Recurring Cost: Rs. 0.60 Crore

Source: *Pre-feasibility Report& Site Visit Report*

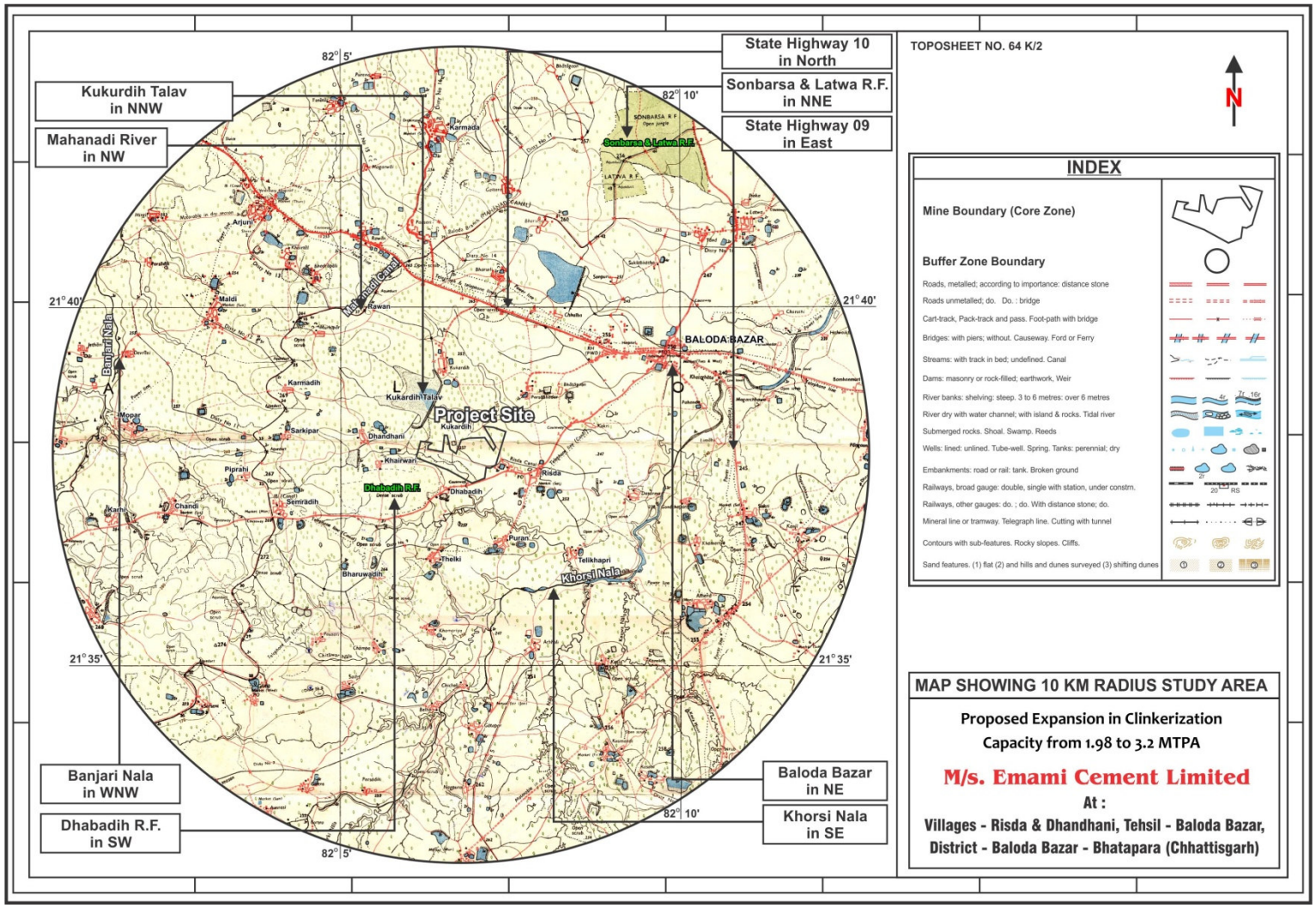

Figure-1: Environment Setting Map

1.3 LOCATION MAP

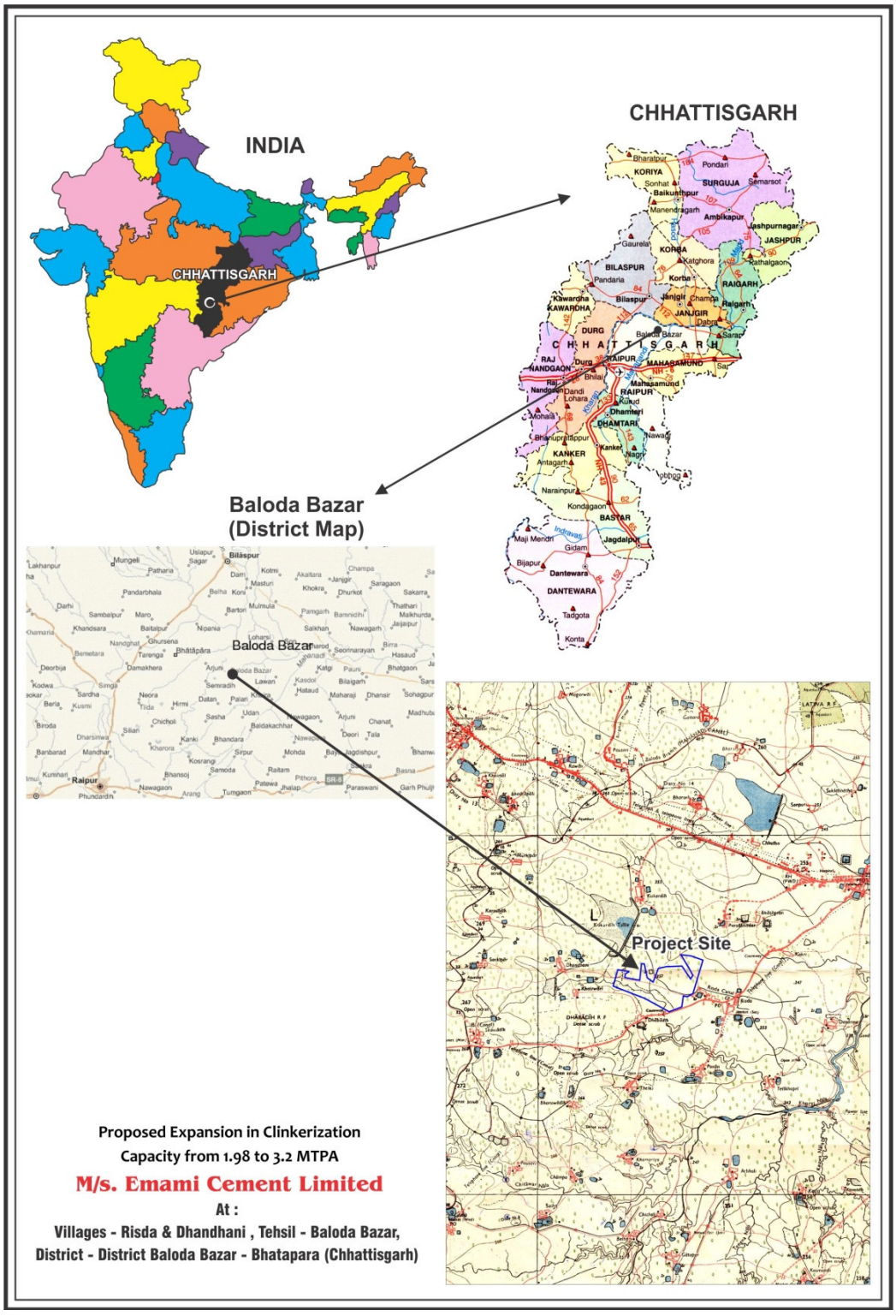

Figure-2: Location Map

1.4 MAJOR REQUIREMENTS FOR PROJECT

1.4.1 Raw Material Requirement

Details regarding quantity of raw materials required, their source along with distance & mode of transportation for proposed expansion project are given in Table - 2.

Table - 2

Raw Material Requirement, Source & Transportation

S.No.	Raw Material Required	Quantity (Lac Tonne/Annum)			Source	Mode of Transportation
		Existing	Additional	Total		
1.	Limestone	3.17	1.82	4.99	Captive Mine	Covered Conveyor Belt from Limestone Crusher
2.	Iron Ore	0.05	0.01	0.06	Dalli Rajhara & Sponge Iron plant in Chhattisgarh	Road/Rail

Source: *Prefeasibility Report*

1.4.2 Other Requirements

Other basic requirements for the proposed expansion project are given in Table - 3.

Table -3

Basic Requirements for the Project

S.No.	Particulars	Existing Requirement	Proposed Requirement	Total	Source
1.	Water (KLD)	1822 KLD	2749 KLD	4571 KLD	Ground Water/Mine Pits/Reservoir & Recycled Water
2.	Power (MW)	46.1 MW	Nil	46.1 MW	Captive Power Plant (2 x 20), WHPG (1x9) & SEB Grid (as Back up).
3.	Manpower	567	38	605	Local People will be preferred

Source: *Pre-feasibility Report*

1.5 MANUFACTURING PROCESS DETAILS

Clinkerization process includes the following steps:

a) **Transport of excavated limestone from mine site**

The excavated Limestone shall be carried to the limestone crushing unit via dumpers where limestone will be reduced in size and transfer to the plant site.

b) Grinding ofraw material

Limestone and additives shall be fed to the Raw Mill where grinding of raw material will take place.

c) Additive unloading and storage

The additives proposed are iron ore which shall be either directly unloaded in the ground hopper or taken to raw material hopper complex or spread on ground. Material spread on the ground will be fed to ground hopper by way of front-end loader.

d) Homogenization

The raw meal from mill will be transported to the homogenizing silo by means of air slides & belt bucket elevator. Kiln feed & dosing, measuring system is installed under this silo.

e) Preheating and calcinations

6-stage preheater with separate inline calciner technology shall be used where calcinations of the raw meal will take place.

f) Clinker Cooling

The cooler with high thermal efficiency, good cooling effect shall be used that will lead to decrease in clinker temperature not exceeding 70° C above ambient.

g) Clinker storage and Transport

Clinker will be stored in the clinker silos. It will be transported to the hopper complex for its further use in cement grinding unit for cement manufacturing by the following steps:

h) Cement Production

- Clinker and gypsum extracted from their respective hoppers, fed to the Cement Mill.
- Fly Ash extracted from their respective Silo/hoppers, fed to the Cement Mill.
- Ground to the desired fineness and ground cement is stored in cement silos.

- Rotary electronic packing machines will do packing of cement.

2.0 DESCRIPTION OF ENVIRONMENT

2.1 PRESENTATION OF RESULTS (AIR, NOISE, WATER & SOIL)

Baseline study of the study area was conducted during Summer Season (March to May, 2014).

Ambient air quality monitoring has been carried out at 8 stations in the study area for 24 hourly basis. The concentrations of PM_{10} and $PM_{2.5}$ at all the 8 AAQM stations ranges between 51.3 to 85.8µg/m^3&22.2 to 39.5µg/m^3 respectively.The concentrations of SO_2 and NO_2 were found to be in range of 5.5 to 10.7µg/m^3 and 11.3 to 24.7µg/m^3 respectively. The concentration of Carbon Monoxide detected are <0.50 mg/m^3 at all monitoring stations whereas Poly Aromatic Hydrocarbons concentration (PAH) was Not Detected (ND) at all Monitoring stations.

Ambient noise levels were measured at 8 locations (*including Plant site & Mine site*) within the 10 km radius area from the project site. During day time Noise level at Project & Mine site measured were 58.98 dB (A) & 56.20 dB (A) respectively whereas at Baloda Bazar noise level measured were 62.10 dB (A) & at rest of the villages it varies from 49.56 to 54.56 dB (A).During Night time Noise level at Project & Mine site measured were 49.20 dB (A) & 46.18 dB (A) respectively whereas at Baloda Bazar noise level measured were 53.65 dB (A) & at rest of the villages it varies from 38.04 to 43.20 dB (A).

The ground water analysis for all the 8 samples collected within the study area i.e. 10 km radius areashows that PH varies from7.09 to 8.23, total hardness varies from16.65 to 545.43 mg/l, and total dissolved solids vary from to 284 to 914 mg/l.

For the surface water analysis samples has been collected from 3 different sampling locations within the 10 km study area. The analysis results of the samples shows that pH varies from 7.59 to 8.12, Total hardness value ranges between 44.40 mg/l to 182.04mg/l, Total dissolved solids ranges between 105.00 mg/l to 349.00 mg/l& Alkalinity as CaCO3 varies from 65.87 to 265.43 mg/l.

Soil Sampling has been done for 8 different sampling locations. The analysis results of soil show that soil is neutral to moderately alkaline in nature as pH value ranges from 7.11 to 8.02 with organic matter concentrationfrom 0.7% to 1.30 %& is Siltyloam in texture. Nitrogen is found to be in better amount while Phosphorous is found in less to more than

sufficient amount, whereas the concentration of Potassium is found to be more than sufficient.

2.2 BIOLOGICAL ENVIRONMENT

Flora: Neem (*Azadirachtaindica*), Semal (Bombax*ceiba*),Bel (*Aeglemarmelous*),Aak (*Calotropisprocera*), Shishum (*Dalbergialatifolia*), Chironji (*Buchananialanzan*),Tulsi (*Ocimum sanctum)* ,Imli *(Tamarindusindica),*Jamun (*Syzygiumcumini)*,Khair (*Acacia catechu*), Pipal (*Ficusreligiosa*),Banana (*Musa acuminate)*, Aam (*Mangiferaindica*),Amaltaas (*Cassia fistula*), Amla (Emblica*officinallis*) etc.

Fauna: Indian Bull Frog (*Hoplobatrachustigerinus*),Cobra (*Najanaja),*Common Crow (*Corvussplendens),*Jungle Cat (*Felischaus),* Flying Fox (*Pteropusgiganteus),* Blue Rock Pigeon (*Columba livia),* House Rat (*Rattusrattus) etc.*

2.3 SOCIO-ECONOMIC ENVIRONMENT

The total populationof the study area(10 km radius)as per 2011 Census recordsis 1,38,764. Scheduled Castesin the study area are28,882and that of Scheduled Tribeis 19,747. Total no. of households is 27,526. Literacy rate of the area is 72.93%. About 43.03% of the total population is working population & remaining 56.91% is non-working.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Anticipated environmental impacts due to the proposed expansion project along with mitigation measuresare given in Table - 4.

Table -4

Anticipated Environmental Impacts & Mitigation Measures

Discipline	Probable Source	Impacts	Mitigation Measures	Remarks
Construction Phase- No major construction work will be carried out for the construction work				
The surrounding environment will not be effected due to the proposed expansion project as the clinkerization capacity will be enhanced by marginal increasing the size of the Kiln capacity (6000 TPD to 9700 TPD). No major construction work for this expansion project will be carried out; hence no major impact is envisaged during the construction phase.				
Operational Phase				
Soil Quality	Settling of air borne dust or wash off of solid particulates. Addition of foreign material from polluted air & water due to various Plant activities.	Change in Soil texture & soil chemistry of the area.	Use of efficient pollution control system & proper stack height.	Soil testing of samples from nearby area will be done on regular interval to keep a check on soil quality.
Land Use & Cropping Pattern	-	-	-	Since the Proposed expansion will take place within the Plant premises hence there will be no change in the land use & Cropping pattern of the area.
Air Quality	Stack emissions & vehicular movements inside the plant premises. Also from loading, unloading &transportation of raw material.	Increase in dust concentration, gaseous emission& fugitive emission.	Adequate pollution Control equipment such as ESPs/Bag Houses/Bag filters will be installed to control the emission from the Proposed expansion project. Water sprinkling will be done on roads & near open yards so as to	The resultant air quality will conform to thestipulated Standards. Particulate emission from stack will be kept below 50 mg/Nm^3.

			overcome the fugitive emission. All the internal roads will be concreted.	
Noise	Running/ working Equipments in the plant and auxiliaries. Vehicles used for raw material transportation & to & fro of manpower.	Increase in noise levels in the plant area	Equipments will be designed to conform to noise levels standards as prescribed by regulatory agencies. Proper maintenance, oiling & greasing of machines at regular intervals will be done to reduce generation of noise. Acoustic Enclosures will be provided to required machineries. Vehicles comply with PUC norms are being/will be used. Green belt and plantation would further help in attenuating noise.	Employees working in high noise areas will be provided with earplugs/ earmuffs as protective device in order to avoid any occupational health hazard.
Water Quality	Cement plant will work on the dry process technology hence no liquid effluent will be generated from the plant process. Although CPP will generate waste water during its process.	There will not be any industrial effluent generation from the plant as the plant will work on Zero discharge principle & hence there will not be any adverse impact on the water quality.	Following measures will be followed: Effluent generated from the CPP will be treated in the Effluent treatment Plant & treated water will be reused for the dust suppression system & for Green Belt development/Plantation. Domestic waste water generated from colony & office building will be treated in STP & treated waste water will be reused in a Green Belt development/Plantation. The domestic waste watergenerated from office area & canteen will be treated in STP.	-

			Rain water harvesting system will be provided.	
Solid waste	Dust collected by pollution control equipment. Sludge from the Proposed ETP & STP. Fly ash from CPP.	No impact is envisaged as proper mitigative measures will be followed. Also there will be no solid waste generation from the Cement plant.	Following measures will be followed: Dust collected from PCE's will automatically be recycled in the process. Sludge from STP will be used as a manure for Green Belt development/plantation. Fly ash generated from CPP will pneumatically store into the Fly ash hopper & finally consumed for cement manufacturing.	-
Hazardous waste	Used oil generated from gear boxes & excess waste oil from oil schemer.	Oil (Used or Excess) will be properly disposed off& therefore no impact on the environment.	Waste oil will be reused in lubrication of other equipment & excess oil be kept in properly designated place into the stores. Transaction with those waste oil reprocessing units which are registered with MoEF.	Generation of used batteries will be very less, which will be kept into the designated place into the stores and sold it to the SPCB/CPCB authorized vendor.
Terrestrial Ecology	-	-	-	The overall impact will be positive as > 34% (i.e. 64.60 ha) of the total project i.e.188.35 ha will be developed under Green belt & appropriate width will be developed & maintained.
Aquatic Ecology	-	-	-	Aquatic Ecology will not be affected as the Proposed expansion project will work on the zero effluent

				dischargePrinciple
Demography and Socio-economics	Corporate social responsibility	Development of the area in respect of the infrastructure development, educational growth, health facilities etc.	-	Overall socio-economic status of the area is expected to improve.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring Programmeis being/will be conducted for various environmental components.

The various environmental components and pollution sources, which is being/will be monitored under environmental monitoring programmeare stack emission, ambient air quality, water quality, noise level, soil quality, socio-economic status etc.

Details of the environmental monitoring schedule / frequency, which will be undertaken for various environmental components,are given in Table - 5.

Table: 5

Post Project Monitoring

S. No.	Description	Frequency of Monitoring
1.	Meteorological Data	Daily
2.	Ambient Air Quality	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.	Biodiversity	Yearly
8.	Socio-Economic Status	Yearly

5.0 ADDITIONAL STUDIES

Additional Studies conducted as per ToR Letter no. J-11011/309/2013- IA -II (I) dated 31January, 2014, issued by MoEF, New Delhi are Disaster Management Plan & Risk Assessment&Hydro-geological Study & Rain water harvesting plan.

6.0 PROJECT BENEFITS

ECLisconsciousforthe overall socio-economicdevelopment of the area andiscommittedtoraisethequalityoflifeandsocialwellbeingofcommunitieswhereitoperates. Company already done work on Women upliftment, Educational Training, Social welfare etc. & will be continue to do so in the future.

The Company has allocated Rs.91.52crore separate budget for all the CSR activities for the proposed expansion project.

7.0 ENVIRONMENT MANAGEMENT PLAN

The present environmental management plan addresses, the components of environment affected during the construction phase of the project *(the existing project is under construction phase only)* as well as during operation phase.

Environmental Management Plan which will be implemented is detailed under the following heads:

7.1 AIR QUALITY MANAGEMENT

The major pollutants of air from the Cement Plant will be the Dust, Gaseous emission &fugitive emissions.

Mitigativemeasure to Control Gaseous& Particulate emissions

- Fly ash, clinker and cement will be stored in the closed silo.
- Covered conveyor belt will be used for transportation of raw material & fuel.
- Adequate Green belt will be developed all around the plant boundary& within the plant premises so as to attenuate the impact of dust as well as fugitive emission.
- Water spraying will be provided around raw material handling area, at the stockyard and on the haul roads for dust suppression.
- Proper maintenance of pollution control equipments like Bag House, ESP and Bag Filters will be done.
- CPCB & CREP guidelines will be followed.

Mitigative measure to Control Fugitive emissions

- Enclosures will be provided for unloading operations.
- Water is being/will be sprayed during unloading of materials, on roads etc. by mobile tankers/water sprinkler.
- Covered conveyer belt will be used for material transportation.
- Bag filters will be provided at all the transfer point as per the requirement.
- All the Roads inside the premises will be concreted.
- Dense green belt within the premises and along the roads to control the fugitive emission from vehicular movement.

7.2 NOISE MANAGEMENT

- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.

- Acoustic enclosures & silencers will be provided as per the requirement.
- Green belt will be developed all along the project boundary.
- Periodical noise monitoring will be carried out on regular basis to keep check on noise level.
- In order to reduce the effect of noise pollution, earmuffs will be provided to all operators and employees working near the machinery.

7.3 WATER MANAGEMENT

No waste water will be released from the proposed expansion project.

However following measures will be followed for existing & proposed expansion project:

- No industrial waste water will be generated from the cement plant.
- Effluent generated from the CPP will be treated in the Effluent treatment Plant & treated water will be reused for the dust suppression system & for Green Belt development/Plantation.
- Domestic waste water generated from colony & office building will be treated in STP & treated waste water will be reused in a Green Belt development/Plantation.
- Rainwater water harvesting system will be provided.

7.4 SOLID & HAZARDOUS WASTE MANAGEMENT

No solid waste will be generated from the proposed expansion project.

However following measures will be followed for both the existing project as well as for the proposed expansion project:

- There will not be any solid waste generation from the Cement plant.
- However dust collected by the pollution control equipment (PCEs) such as ESP, Bag house & Bag filters will be automatically recycled in the process.
- Sludge from the Sewage treatment plant will be used as manure for green belt development/plantation.
- Fly ash generated from Captive Power Plant will be pneumatically store into the Fly ash hopper & finally consumed for cement manufacturing.

7.4.1 Hazardous Waste Management

- Waste oil generated from gear boxes will be disposed off as per the following:
  - Reused for chain lubrication.

- Transaction with those waste oil reprocessing units which are registered with the Ministry of Environment and Forests and have further authorization from the State Pollution Control Board under Hazardous Waste (Management and Handling) Rules for using waste oil for manufacturing lubrication oil.

- Excess waste oil likewise from oil schemer will be kept in a properly designed oil storage area in to the store.
- Generation of used batteries will be very less, which will be kept into the designated place into the stores and sold it to the SPCB/CPCB authorized vendor.

7.5 GREENBELT DEVELOPMENT / PLANTATION

- Out of the total project area i.e. 188.35 ha, 64.60 ha area (~34% of the total project area) will be developed as greenbelt area.
- Plantation will be done all along the Plant boundary & along the internal roads.
- Local / Native species will be selected.
- The trees will be planted at suitable grid spacing to encourage proper growth.