

**Executive summary
of
Draft EIA/EMP for Proposed Expansion of
Limestone Mine Project (0.36 MTPA to 0.72
MTPA in an Area of 167.048Ha) located in
Village- Kirari and Chorbhatti,
Tehsil- Akaltara, District- Janjgir Champa,
State Chhattisgarh**

Project Proponent



M/s. Lafarge India Pvt. Ltd.



Environmental Consultant



**Recognized by MoEF (GOI) as per EPA and valid upto Jan'2019
Accredited by NABL for Chemical & Biological), valid up to 03.10.2014
Accredited under the QCI-NABET Scheme for EIA Consultant
Certified by ISO 9001:2008, ISO 14001:2004, ISO 18001:2007**

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	<p>Executive Summary of draft EIA/EMP for the Proposed Expansion of Limestone Mine Project (0.36 MTPA to 0.72MTPA in an area of 167.048Ha) located in Village Kirari, Tehsil- Akaltara, District- Janjgir Champa, State-Chhattisgarh</p>	
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1. Introduction

This is a proposed expansion project of limestone mine of M/s Lafarge India Pvt. Ltd. (LIPL) from 0.36 MTPA to 0.72 MTPA within the existing lease area of 167.048 ha located in Kirari and Chorbhatti Villages, Akaltara Tehsil, Janjgir-Champa District. Limestone mined from the lease area shall be fed to Arsmeta Cement Plant of Lafarge India Private Limited.

The Environmental Impact Assessment (EIA) report has been prepared as per the project specific Terms of Reference (ToR's) issued by MoEF vide its letter No.J-11015/55/2013-IA.II (M) dated 08 January 2014 for obtaining Environmental Clearance (EC) from the Ministry of Environment and Forests (MoEF), Government of India, New Delhi and for the Consent to Establish (CTE) from the Chhattisgarh Environment Conservation Board (CECB) for expansion of open cast limestone mine project.

The Project Proponent i.e. M/s Lafarge India Pvt. Ltd is a subsidiary of Lafarge group. Lafarge group is a worldwide leader in the manufacture of Construction material with their Headquarters at Paris France. Their operations are spread in over 75 Countries, having 800 odd quarries. Cement is their single largest business with cumulative production capacity over 154 million tonnes/annum from nearly 157 Cement and grinding plants. Lafarge India Pvt. Ltd. is operating two Cement plants in the state of Chhattisgarh, one cement plant in the state of Rajasthan, one grinding unit at Jharkhand & other one in state of West Bengal .



Need for the Proposed Expansion of Kirari Lime stone Project

The Arasmeta Cement Plant located at Janjgir –Champa is one of the two cement plants of Chhattisgarh with the annual production capacity of 2.2 MTPA Portland Pozzolona Cement. The annual requirement of lime stone is 2.475 Million Tonne for 1.65 MTPA clinker, which is mostly met by its two (Arasmeta & Kirari) captive lime stone mines. Both these two captive mines have Environmental Clearance from MOEF. Kirari vide Letter no. J-11015/23/2002-IA.II(M) dt 09.12.2003 for an annual production of 0.36 MTPA and Arasmeta vide Letter no. J-11015/64/2003-IA-II(M) dt 18.07.2005 for an annual production of 2.7 MTPA.

The Arasmeta Limestone Mine is the major source of Limestone for the plant which is at present having feeding capacity of 1.98 MTPA, whereas the Kirari Mine is of 0.36 MTPA capacity. In addition, 0.130 MTPA is required to be fed to plant as sweetener from outside source. The quality of Arasmeta Limestone Mines has become poor and also reserves there have depleted due to mining of the lease from last 32 years. In order to balance the quality & quantity, both mine's life, cost effectiveness of raw material production and to reduce the procurement of sweetener from outside, the expansion is planned to double the Limestone production capacity the from Kirari Limestone Mine i.e from 0.36 MTPA to 0.72 MTPA without increase of mining lease area (167.048 ha).

2. PROJECT DESCRIPTION

This is a proposed expansion project of limestone mine (from 0.36 MTPA to 0.72 MTPA) within the existing lease area of 167.048 ha located in Kirari and Chorbhatti Villages, Akaltara Tehsil, JanjgirChampa District owned and operated by M/s Lafarge India Pvt. Ltd.

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Salient Features of the Existing 0.36 MTPA Project:

- i. Date of Start :13.10.2006
- ii. Lease Area :167.048 ha
- iii. Mining lease validity : upto 18/04/2020
- iv. Environmental clearance :byMoEF vide letter No. J11015/23/2002-IA.II(M) dated 09.12.2003.
- v. Consent to Establish :277/TS/CECB/2005 dt. 14.01.2005
- vi. Consent to Operate : Renewed upto 30.09.2014 vide letter no. 2174/TS/CECB/2013 dt. 26.07.2013
- vii. Production details :

Year	Production (MT)
2007-08	0.010074
2008-09	0.037063
2009-10	0.072982
2010-11	0.044736
2011-12	0.081623
2012-13	0.253774
2013-14	0.333063

2.1 LOCATION DETAILS:

1.	Village	Kirari and Chorbhatti
2.	Tehsil	Akaltara
3.	District	JanjgirChampa
4.	State	Chhattisgarh
5.	Toposheet No.	64 K/5
6.	Lattitude	21° 57'09.86" to 21° 58'36.33"
7.	Longitude	82° 26'56.82" to 82°28'12.16"

2.2 Land Details :

Land Use	Area (Ha)
Agriculture land	97.321
Govt. Land	69.727
Forest land	Nil
Total	167.048

2.3 Water Requirement (KLD)

S. No.	Particulars	Existing	Additional	Total After Expansion	Source
1	Dust Suppression	40.00	10.15	50.15	Mine water & Borewell
2	Green Belt	02.00	02.00	4	
3	Drinking & Sanitation	00.10	00.35	0.45	
4	Mine Workshop	00.20	00.20	0.4	
Total		42.30	12.70	55	

2.4 Man Power Requirement:

S. No.	Manpower	Number of Person
1	Existing	60
2	Additional Manpower for Proposed Expansion	38
Total		98

2.5 Power Requirement

The electric power requirement for mine facilities will be received from Chhattisgarh State Electricity Board, as is the case in existing mine. The total power requirement for the proposed expansion of mines is about 300 KVA.

2.6 Extent of Mechanization

The list of machines as existing and additional to be used is as follows:

LIST OF MACHINERY

Equipment	Model	Existing Capacity	Existing No's	Additional Requirement	Total Requirement
Excavator (shovel)	PL 300	1.8 cu.m.	1	1	2
	PL 200	1.2 cu.m.	1	1	2
Tippers	Tata Make	20 Te	10	15	25
Dozer	BeML D-155	-	1	Nil	1
Drills	ICM-260	115 mm dia.	1	1	2
Rock breaker	PC-200 & crupps hammer	1500 Mpa	1	1	2
Water tanker	Tata Leyland	20 KL	1	Nil	1
Dewatering pumps	Kirloskar diesel	30 HP	1	Nil	1
Crusher with screen	----	----	0	1(350 TPH)	1

2.7 Mineable Reserves & Anticipated Life of Mine as per approved Scheme of Mining

The total mineable reserves are 37.147 Million tones at ultimate pit slope of 45°. These reserves will give a life of about 52* years to the mine with targeted production of 0.72MTPA.

Mineral	Total Geological Reserve(MT)	Mineable Reserves (MT)	Production (MTPA)	Life of Mine (Years)
Limestone	57.90	37.147	0.72	52* years

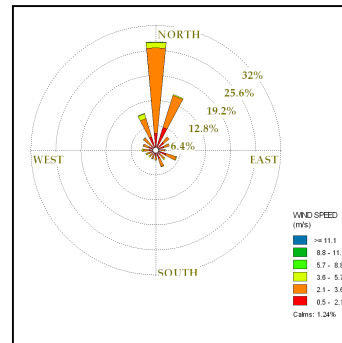
*Life of mine will be reduced to 34 years when taking into consideration the 108 ha of mineable area due to presence of surface water tank, safety zone and other infrastructures like office, dumps, roads etc.

3. DESCRIPTION OF THE ENVIRONMENT

Study Period: 12th December 2013 to 12th March 2014

3.1 Meteorology

Parameters	Data
Maximum temperature (°C)	37.0°C
Minimum temperature (°C)	11.0°C
Maximum Relative Humidity (%)	93.0%
Minimum Relative Humidity (%)	14%
Predominant wind direction	N
Average Rainfall (mm)	0.0-0.13
Calm winds frequency (%)	1.24



3.2 Ambient Air Quality

The summary of monitored ambient air quality within the study area is presented below.

SUMMARY OF AMBIENT AIR QUALITY RESULTS

Station code	Location	PM ₁₀ (µg/m ³)				SO ₂ (µg/m ³)				NO _x (µg/m ³)			
		Min	Max	Avg	98 th %le	Min	Max	Avg	98 th %le	Min	Max	Avg	98 th %le
AAQ 1	Mine Site	57.4	81.9	67.1	81.7	5.8	12.6	8.3	12.0	16.4	28.7	21.2	27.9
AAQ2	Kirari village	49.7	68.7	60.2	67.9	5.5	8.4	7.0	8.3	13.7	24.3	19.5	24.2
AAQ3	Chorbhatti village	49.7	76.8	61.8	74.4	5.7	11.3	7.7	11.2	15.9	32.7	21.2	30.7
AAQ4	Pauna Village	47.5	71.9	58.4	70.0	5.9	9.8	7.4	9.7	16.7	27.4	20.6	27
AAQ5	Tarod Village	48.6	68.4	57.9	67.8	5.4	8.7	7.1	8.5	16.7	24.7	20.3	24.2
AAQ6	Jhilmil Village	46.7	63.8	52.8	62.4	5.4	8.2	6.6	8.1	15.8	23.1	18.4	22.7
AAQ7	Kuthur Village	46.7	61.8	52.7	60.0	5.2	7.9	6.5	7.7	14.6	24.3	19.2	23.6
AAQ8	Putpura Village	46.7	67.2	54.7	66.2	5.2	7.6	6.4	7.4	14.6	23.4	18.6	22.2
AAQ9	Mahmadpur Village	46.9	64.8	55.2	63.4	5.7	8.3	6.9	8.2	13.9	23.9	18.7	23.6
AAQ 10	Pamgarh Village	48.2	67.4	58.1	66.0	5.4	8.7	6.9	8.5	15.4	28.4	20.0	27.2

3.3 Ambient Noise Level: Noise levels in the study area were observed as follow

Sr. No.	Location	Noise Level (dB(A))	
		L(Day)	L(Night)
1	Mine Site	65	58
2	Kirari village	53	42
3	Chorbhatti village	48	39
4	Pauna Village	51	43
5	Tarod Village	53	42
6	Jhilmil Village	48	37
7	Kuthur Village	52	41
8	Putpura Village	48	39
9	Mahmadpur Village	51	41
10	Pamgarh Village	49	42
Range		48-53	37-42

3.4 Water Environment

DETAILS OF WATER SAMPLING LOCATIONS:

Sr. no.	Location	Location Code	Direction.	Distance (in ~km)
			w.r.t Project Site	
Ground Water				
1	Mine Site	GW1	Core Zone	
2	Kirari village	GW2	N	1.5
3	Chorbhatti village	GW3	E	1.0
4	Pauna Village	GW4	SE	3.8
5	Tarod Village	GW5	NW	3.3
6	Jhilmil Village	GW6	SW	5.2
7	Kuthur Village	GW7	SE	8.2
8	Pamgarh Village	GW8	S	9.2
Surface Water				
1	Pond (Near Chorbhatti Village)	SW1	E	1
2	Near Banga Dam Village	SW2		
3	Near Kuthur Village	SW3	SE	8.2

Sr. no.	Location	Location Code	Direction.	Distance (in ~km)
			w.r.t Project Site	
4	Near Khisora Village	SW4	N	6.4
5	Near Pamgarh Village	SW5	S	9.2

Groundwater Quality

The physico-chemical characteristics of groundwater samples collected from the study area were analysed and compared with the IS-10500 standards. The pH of the water samples analysed ranges from 7.10 to 8.23 being within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 332-1584 mg/l in all samples. The total hardness varied between 172.62-197.56 mg/l for all samples collected at 8 locations.

In all samples, Iron content varied in between 0.08-0.16 mg/l, Nitrate in between 5.20-15.60mg/l, the fluoride varied between <0.1 to 0.68 mg/l, chloride in between 21.65-204 mg/l, Sulphate in between 18.5 to 116.52 mg/l, alkalinity in between 93.20-184.80 mg/l, calcium in between 48.24 to 67.20 mg/l, magnesium in between 5.80 -23.82 mg/l. Also total coliform & the faecal coliform were absent in all the samples. It was observed from the analysis that, the ground water quality is within the acceptable limit.

Surface water quality

The pH of the surface water samples collected was 8.15 to 8.41 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found to be 175-282 mg/l. The total hardness was observed between 187.21-196 mg/l. Iron content in all samples was found in the range of 0.15-0.21 mg/l, concentration of nitrate was 5.70-28.25 mg/l. The fluoride concentration was found to be <0.1 to 0.79 mg/l and chloride concentration was varied between 17.91-195.20 mg/l. The sulphate content in all samples was in the range of 9.25 and 71.12 mg/l. The variation in alkalinity recorded was in the range of 142.40 and 192 mg/l, magnesium was found to be in the range of 7.30 to 25.80 mg/l in all samples. It was observed from the analysis that, the surface water quality is within the acceptable limit of drinking water.

3.5 Soil Quality

The bulk density of the soil in the study area ranged between 1.18-1.66 g/cc which indicates favourable physical condition for plant growth. The porosity was found in the range of 19.42-25.28 %, water holding capacity was found between 40.26-57.00% whereas the texture of soil in the area was found to be sandy loam. pH of the soil in the study area was found to be neutral to slightly basic (6.60-7.41). Electrical conductivity, a measure of soluble salts in the soil was in the range of 19.95-157.3 µS/cm. The important cation in the soil is magnesium whose concentrations ranged from 16.70-24.40 mg/Kg. Chlorides are in the range of 94.30-121.39 mg/Kg. Organic matter present in soil influences its physical and chemical properties and is responsible for stability of soil aggregates. Organic matter and nitrogen are found in the range

of 1.42-2.84 % and 218.6-526.2 kg/ha respectively. This shows that soil is moderately good in organic and nutrient content.

Analysis report shows that CEC of soil samples collected from 8 locations within study area varies from 10.24 to 19.94. As per relationship of CEC with productivity & absorptivity, all the soil samples are moderately absorptive with low productivity.

3.6 Biological Environment

Flora Biodiversity of the Study Area

Naturally grown trees were rarely observed in the core zone and there was no forest land involved in mine lease area, planted trees observed along the mine periphery which includes *Pongamia pinnata*, *Delbergia sissoo*, *Delonix regia*, *Cassia fistula*, *Azadirachta indica*, *Ailanthus excelsa*, *Mangifera indica*, *Psidium guava*, *Lucinalaucociphala* & *Peltophorum pterocarpum*. However, various shrubs and herbs are naturally grown with the planted trees and along the perennial water body and natural drain in the core zone; a consolidated list of flora in Core Zone is given in EIA/EMP report.

The tree species, herbs and shrubs and major crops in the study area were documented during this baseline study. The list of floral species documented in the study area is enlisted in EIA/EMP report.

Faunal Biodiversity of the Study Area

For the documentation of the faunal biodiversity were studies in core and buffer zone (study area) with respect to Mammals, reptiles, birds, and butterfly species, a baseline survey had been conducted in December 2013.

3.7 Socio-Economic Environment



The socio-economic status (Based on Census 2011) of the villages within the study area is given in table below:

Sl. No.	Description	Numbers
1	Total Villages	87
2	Total no. of House Hold	54036
3	Total Population	249678
4	Total SC Population	70790
5	Total ST Population	17538
6	Total Literate Population	163866

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Ambient Air Quality

Impact on air quality due to limestone mining depends on the magnitude of limestone extraction, transportation and handling of the minerals and wastes. The intensity of operation is directly related to the rate of production of mineral from the mine.

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Air Pollution Control Measures

There will be a slight increase in PM level due to proposed expansion of limestone mine from 0.36 MTPA to 0.72 MTPA without increase in lease area. PM levels will be higher within the active operational areas (mine area) due to blasting, transportation and crushing. However, the buffer zone it is not likely to be affected by dust problems, because of proper dust suppression measures is being taken and will be strengthen if required.

Following measures shall be adopted to mitigate air pollution generated due to the mining activities:

- A. Delay blasting under unfavorable wind and atmospheric conditions.
- B. The production of blast fumes containing noxious gases should be reduced by the following methods:
 - Use of adequate booster/primer; and
 - Proper stemming of the blast hole.
- C. Drilling machines is equipped with wet drilling arrangements or dust collector.
- D. Regular sprinkling of water on haul roads at regular intervals.
- E. Installing permanent/mobile water sprinklers at strategic areas/locations/stretches
- F. Regular maintenance of vehicles and machinery should be carried out.
- G. Cabins for shovel and dumpers and dust respirators to workmen should be provided.
- H. Dust suppression will be done on exposed area using water trucks and sprinkler.
- I. Development of green belt/plantation around lease boundary, roads and other places is being carried out to control air pollution.
- J. Re-vegetation of mined out area and inactive dumps.
- K. The dust respirators should be provided to all workers working in dusty environment and
- L. A good housekeeping and proper maintenance should be practiced which will help in controlling pollution.



4.2 Ambient Noise Level

The mine is being operated by opencast fully-mechanised mining method. Noise is generated in the mine lease area due to operation of Heavy Earth Moving Machinery like loaders, dozers and drilling and blasting operations, transportation of mineral and waste in the mine lease area. The resultant ambient noise levels at the boundary of the mine lease was predicted to be about 66 dB(A) which further reduces to less than 53 dB(A) at the nearby habitations.

Noise and ground vibration control measures

The following control measures are being adopted to keep the ambient noise levels well below the limits. The same will be continued in proposed expansion project:

- Drilling is being carried out with the help of sharp drill bits to reduce noise.
- Hydraulic rock breaker is being used for breaking boulders to avoid secondary blasting.
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay is being maintained.
- The blasting is being carried out during favorable atmospheric condition and less human activity timings;
- Adequate safe distance from blasting is being maintained.
- Blasting operations is carried out only during day time.

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- The charge per delay is minimized and preferably more number of delays is used per blasts;
- During blasting, other activities in the immediate vicinity is temporarily stopped;
- Proper maintenance, oiling and greasing of machines at regular intervals is being done to reduce generation of noise.
- The prime movers/diesel engines are properly maintained;
- Provision of sound insulated chambers for the workers deployed on machines (HEMM);
- Proper designing of plant & machinery by providing inbuilt mechanism like silencers, mufflers and enclosures for noise generating parts and shock absorbing pads at the foundation of vibrating equipment.
- Green Belt/Plantation is being developed around the mining activity area and along haul roads. The plantation minimizes propagation of noise.
- Personal Protective Equipment (PPE) like ear muffs/ear plugs is being provided to the operators of HEMM and persons working near HEMM; and
- Reducing the exposure time of workers to the higher noise levels.
- Periodical monitoring of noise is being done.

4.3 Water Environment

Impact of mining on surface water and their management

Mining activity increases sediment load and total dissolved solids in streams due to erosional activity of overburden dump and loosened soil by blasting activity. The following measures will be taken up by Kirari lime stone project authorities to reduce this load.

1. Dense plantation.
2. Construction of siltation ponds/tanks.
3. Construction of Garland drains.
4. Construction of Gabbion wall.
5. Construction of check dams.

The impact due to mining on the water quality is expected to be insignificant because of there being no use of chemical or hazardous substance during mining process. There is one minor / sub canal passing across the mining lease. 10 m safe distance is followed/maintained. This sub canal will be diverted. It is proposed to construct a surface drain of size 3.0 m wide and 1.5 m depth at the periphery of mine and around dumps so that any surface runoff water will flow out through these drains outside lease area there by avoiding any contamination of water.

Rainwater may cause some problem due to accumulation in the pit. Such water will be collected in sump in the mining pit and will be allowed to settle down and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any.

Impact of mining on ground water & their management

The ground water is for below the ground up to 30 m and mining will not intersect the ground water table. There will be no water seepage as the limestone is massive and absence of secondary porosity fissures etc. and will not allowed the seepage.

As mineral or topsoil does not contain any harmful ingredients which may percolate to the ground water table thus polluting it. Moreover, limestone constitutes of fairly inert and chemically non-reactive ingredients.

Also water table in the village is beyond 30 m. So ground water will not get affected due to mining. As such, no ground water problem, only accumulated rainwater during rainy season in pits is to be managed. it is pumped and discharge through drains only. Clear water is pumped after proper setting of solid and minimum turbidity.

Check dams are constructed to such drains for collecting any solids. There no processing plant to cause any chemical affluent down to water table and also from any seepage. The drinking water to workers is provided from Bore well whose quality has already been tested and found potable



4.4 Impact on Land Use

The potential adverse impact of opencast limestone mining will be in the form of change in land use pattern. So reclamation of mined out land will be given due importance as a step for sound land resource management in the form of reclaimed land and water body.

At the end of approved Mining scheme, the mined out area will be 12.780 ha which would be converted into a water body at the end of the mine life. The temporary land use for Soil and waste dumps will also be converted into total plantation area of 60.838 ha.

Present and Proposed Land Use Pattern of ML area:

Land use	Present land Use (Ha)	At the end of 5 year scheme period (Ha.)	At the end of life of mine (Ha)
Area mined out	8.438	12.780	0.0
Area under water body	7.73	7.73	105.71
Area under dumping of soil in non-mineralized area	2.850	6.950	0.0
Area under dumps of waste/rejects	1.625	5.375	0.0
Roads & inner approach road/workshop	0.300	0.300	0.30
Area under office workshop and other facility center	0.200	0.200	0.20

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Plantation	1.700	1.790	60.838
Undisturbed Area	144.205	131.923	0.00
Total	167.048	167.048	167.048

No adverse impact is anticipated on land use of buffer zone associated due to the proposed expansion of Kirari limestone mine, as all the activities will be confined within the project site only. Mined out Limestone will be transported to the Aresmeta cement plant of the mine operator i.e. LIPL in covered vehicles through the existing road network for a distance of 22.7 Km without affecting the existing land use.

4.5 Impact Prediction & Mitigation Measures – Biological Environment

Impact on terrestrial Flora

- Dust deposition on leaf lamina observed on nearby local plant species which may results in decline the rate of photosynthesis and retards the plant growth.

Measures for Minimizing Impact on Flora

- Dust issues are mainly raised in the area due to *kuchha* road, cumulative fugitive dust emissions by various crushers and minor mineral activities. To mitigate the impact regular water sprinkling will be carried out within the mine lease area as well as approach road.
- Stabilization of dumps by proper vegetation cover shall be done.



Impact on Wildlife

- There is no National Park, Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site. However, a Crocodile Park is located near Kotmisunar village at distance of 12.10 km in NW direction. Natural habitats has confined to very limited area like unclass forest located near Mohamadpur village, which is 9.5 km away from the study area.
- No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, which will not cause any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area already exist to restrict the entry of stray animals
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

Measures for Minimizing Impact on Fauna

Following measures will be adopted to minimize the impact of mining on faunal environment of the area.

- Measures will be taken to curb pollution due to air, water, land & noise environment. Plantation around mine area will help in creating habitats for local faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

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Impact on Aquatic Ecology:

- Mining activities will hardly disturb the existing aquatic ecology as very little mine water mostly having suspended solids will be pumped out and even this pumped out water will be treated before this reaches the surface water body. Hence, there will not be any deterioration of the water quality of water bodies due to mining
- Mining activity may increase sediment load and total dissolved solids in streams due to erosional activity of overburden dump and loosened soil by blasting activity especially during rainy season may affect water quality of natural perennial water body and stream within mine lease area.

GREENBELT DEVELOPMENT & PLANTATION PROGRAMME

In order to facilitate the greenbelt activities, a nursery has been developed in the area and species such as Bamboo, Karanj, Gulmohar etc. have been planted. It is proposed to have plantation at 3 M x 3 M spacing, the rate of survival was aimed at 70 to 80% by regular watering & fencing was proposed to keep plants away from animal grazing. Local species have been/will be planted in consultation with local horticulturist. LIPL has already developed greenbelt in a scientific manner around the mines in an area of 1.984 hectare upto 2010-11 i.e. before the start of current mining scheme period (2011-12 to 2015-16). LIPL has further developed green belt in an area of 6.350 ha till 2013-14 and ultimately will develop 15.199 ha under greenbelt in future till at the end of current mining scheme period (2015-16).

Further, the breakup of the proposed afforestation programme with reclamation in progressive manner for entire life of mine is given in EIA/EMP report.

4.6 IMPACT ON SOCIO - ECONOMIC ASPECTS



The development of the project and associated activities will strengthen the economic development, civic amenities, and educational facilities in the project sites. This project will have a positive impact on the population growth, as it will provide some direct and indirect employment to the people in and around the villages.

The proposed expansion mining activities will provide additional employment to persons of different skills and trades. The local population will have preference to get an employment. The employment potential will improve economic conditions of these families directly and provide employment to many other families indirectly who are involved in business and service oriented activities. This will in-turn improve the quality of life in the region.

The proposed expansion mining will also help development of ancillary industries. These will further boost the economic avenues for the local population.

5. ENVIRONMENTAL MONITORING PROGRAMME

Monitoring of ambient air quality, ambient noise levels, surface and ground water quality, soil quality, plantation and green belt in the mine lease area, etc. is / will be carried out as per the

	<p>Executive Summary of draft EIA/EMP for the Proposed Expansion of Limestone Mine Project (0.36 MTPA to 0.72MTPA in an area of 167.048Ha) located in Village Kirari, Tehsil- Akaltara, District- Janjgir Champa, State-Chhattisgarh</p>	
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applicable guidelines and the reports are / will be submitted to the corresponding regulatory authorities. An Environment Management Cell is formed for implementation of the monitoring programme and the environmental management plan.

6 ADDITIONAL STUDIES

6.1 OCCUPATIONAL HEALTH

Occupational health needs attention both during construction and operation phases. However, the problem varies both in magnitude and variety in the above phases.

The problems concerning occupational health in the operation and maintenance phase are primarily due to dust and noise, which could affect the workers from respiratory and hearing problems. The necessary personal protective equipment will be given to all the workers. The working personnel will be given the appropriate personnel protective equipment (List is given in given in EIA/EMP report).

Full-fledged hospital facilities are already available at Arasmeta Cement Plant round the clock for attending emergency arising out of accidents, if any. All working personnel will be medically examined at least once in every year and at the end of his term of employment. This is in addition to the pre-employment medical examination.

7. PROJECT BENEFITS

7.1 IMPROVEMENTS IN THE PHYSICAL INFRASTRUCTURE

Due to the increase in production from 0.36 to 0.72 MTPA, additional 1200te road transport of the limestone every day will be taken care of by widening and strengthening of road wherever required.

With improved transportation facilities including widening & strengthening, the communication facilities will improve after the commencement of expansion activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the mining area and township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area.

LIPL will initiate developing 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.

Full-fledged round-the-clock hospital facilities are already available at the Arasmeta Cement Plant for attending to all sorts of emergencies arising out of accidents, if any. These medical facilities will also be available to local people in the surrounding in case of emergencies and in the form of regular medical health camps.

7.2 SOCIO-ECONOMIC BENEFITS ARISING OUT OF MINING

The activities involved in expansion mining and subsequent preparation of limestone at Arasmeta plant will generate and enhance the employment potential both directly (38 nos) and indirectly. Local people will have employment opportunities as skilled, semi-skilled and unskilled laborers in mining, transportation and allied activities. Thus there will be an overall improvement in the socio-economic status of the people of the surrounding areas

8. BUDGETS FOR IMPLEMENTATION OF EMP

It is proposed to invest an amount of Rs. 10.25 Lakh and Rs. 8.25 Lakhs per annum towards environmental action plan and the details of the same are given below:-

Cost of environmental monitoring programme

S. No.	Description of item	Capital Cost (Rs. in lakh)	Recurring cost (Rs. in lakh)
1	Air Pollution Control - Water sprinkling on haul road, Crusher & in plantation area	5.0	2.0
2	Water Pollution Control (siltation tank) (Garland Drains, Check Dams etc)	Existing 1.0	0.5
3	Environmental Monitoring	-----	5.0
4	Green belt Development (16000 Plants for next two years i.e. 2014-15 & 2015-16, at the end of approved mining scheme period)	3.25	0.75
5	Rain Water Harvesting	1.0	---
Total		10.25	8.25

9. CONCLUSION

The expansion (0.36MTPA to 0.72MTPA) of ongoing lime stone open cast project will have positive impact on the local environment. With the effective implementation of the environment management measures as suggested in the EIA/EMP report and as recommended by MoEF, CPCB and State Pollution Control Board, the negative impacts will be minimized to a great extent. However, development of this expansion project will have overall beneficial impact/effect in terms of growth in regional economy, transform the region's economy from predominantly agricultural to significantly industrial, increase Government earnings and revenues and accelerate the pace of industrial development in the region.

Thus, in view of considerable benefits from the project, the proposed expansion of project is most suitable to meet the limestone requirement of the Arasmeta cement plant and is advantageous to the region as well as to the nation.