

**EXECUTIVE SUMMARY**  
**OF**  
**Expansion of Lumshnong Limestone Mine (ML Area: 70Ha)**

Enhancement of Production of Limestone from  
9 lacs TPA to 25 lacs TPA

Earlier EC granted vide letter no. J-11015/04/2011-IA.II (M) dated  
01.04.2016 for production capacity of 9 lacs TPA

AT  
Village Lumshnong, Tehsil Khliehriat,  
District: East Jaintia Hills, Meghalaya.

**Project Proponent**  
**STAR CEMENT LIMITED**  
(Formerly Cement Manufacturing Company Limited)  
281, Deepali, Pitampura, Delhi

**Environmental Consultant**  
**M/s Perfect Enviro Solutions Pvt. Ltd** (NABET  
Registered vide list of accredited consultants organizations) List 1,  
Rev 73/8<sup>th</sup> FEBRUARY, 2019 at S.No. 117  
An ISO 9001:2015, ISO 14001:2015 & OSHAS 18001:2007 Certified Organization  
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## **EXECUTIVE SUMMARY**

**Introduction:** The present proposal is for Expansion of Lumshnong limestone mine from production level of 9 lacs TPA to 25 lacs TPA. Mine lease area encompasses of 70 ha. located at Village Lumshnong, Tehsil Kheliehriat, District East Jaintia Hills, Meghalaya. Mining of mineral will be done by opencast mechanized method with drilling and blasting. The said project had already got Environmental clearance vide letter No: J-11015/04/2011-IA.II(M) dated 01.04.2016 for production capacity 9 lacs TPA. At the time of grant of EC the company name was Cement Manufacturing Company Limited (CMCL). However, the company name was later changed to Star Cement Limited (SCL) and the letter for change in the name of the company from CMCL to SCL vide letters date 9.8.2016 and 3.3.2017 is given with EIA report. The applicant of the project is Star Cement Limited (SCL), formerly Cement Manufacturing Company Limited (CMCL) an ISO 9001:2008, ISO 14001 & OSHAS 18001 certified company and is largest manufacturer of cement in Northeast India. SCL installed a 900 TPD clinkerization plant near village Lumshnong in East Jaintia Hills of Meghalaya in 2004. The clinkerization capacity was expanded to 1,800 TPD in Phase- I and further to 2,400 TPD clinkerization in Phase- II. In January 2013, 5300 tons per day clinkerization capacity plant of Star Cement Meghalaya Cement Ltd. (SCML), subsidiary of SCL has also started its commercial production. As a result, total clinkerization capacity of SCL and its subsidiary SCML is now at 7700 ton per day level which requires higher capacity of limestone. Thus in order to meet the requirement of limestone for existing cement plant of SCL and SCML (subsidiary of SCL), expansion of project to 25 lacs TPA has been proposed.

Earlier, the mine plan has been approved for maximum production of 9 lacs TPA vide letter no. 314(3)/2010-MCCM(CZ)/MP-37 dated 10.06.2011. In view of requirement of limestone for existing cement plant of Star Cement Limited (SCL) and Star Cement Meghalaya Limited (SCML), subsidiary of SCL, the modification in mine plan for expansion in production to 25 lacs TPA has been done and approved by Regional Controller of Mines, IBM Guwahati vide letter no. letter no. IBM/GHY/MEG/EJNH/LST/MP-83 dated 19.06.2017 in which the first year should be 2016-17 which has been lapsed. Hence, the modified mining plan has been prepared for the balance four years i.e. 2017-18 to 2020-21.

Mining lease deed for the proposed project has been executed on 10.01.2017 and registered on 13.01.2017 for 50 years i.e. lease is valid till 12.01.2067. Narpuh wildlife sanctuary is 4.1 km S.E. from the project boundary. The ESZ around the Narpuh Wildlife Sanctuary has been notified wide Gazette

Notification No. S.O. 2942 (E) dated 6.09.2017 and nearest point of ESZ from the project is 2.81 km SE, which is outside the boundary of the eco sensitive zone hence, NBWL is not required.

The project comes under Schedule no. 1 (a) and category 'A' as per EIA notification 2006 and subsequent amendments as the mine area is more than 50 ha. and also the general condition applies as the Narpuh Wildlife Sanctuary is within 5 km from the lease area.

**Location Details:** The latitude and longitude of the project area are 25°09'56.134"N to 25°10'34.288"N and 92°21'47.340"E to 92°22'26.153"E with maximum contour of 634 mRL and minimum contour of 495 mRL. The area falls in the Survey of India Topo-sheet no. 83C/8 (restricted). Lease area comprises of 70 ha. out of which 4.82 ha is a forest land for which forest diversion has been obtained from MoEF&CC vide letter no. 3-MG- B024/2014-SHI/4483-84 dated 11.01.2017.

**Reserves & Life of Mine:** The Geological reserves come out to be 61.01 million T or 6,10,10,000 T. Mineable reserve is 32.13 million T or 3,21,30,000 T. Considering the use of @ 25 lacs ton per annum (approximately) and with a total limestone reserve of 32.13 million ton, presently the life of the mine works out to 12.85 years (Say 13 years). The life of the mine shall further increase with detailed exploration in the G3 level exploration area and also proving the thickness of lower limestone (Lakadong Limestone) band within ML during the plan period to convert resources into the reserves.

### **Mining Method**

- ❖ It is an open cast mechanized mining utilizing Heavy Earth Moving Machinery (HEMM) in conjunction with drilling and blasting.
- ❖ The mine will be operated in 2 shifts of 8 hours.
- ❖ Mining is proposed to be carried out in a single pit with a maximum bench height of 9 m and working bench will be about 25-30m for safe operation of mining machineries during operation.
- ❖ Individual benches are proposed to be sloped at 80° from horizontal and benches are proposed to be accessed by construction of access ramps.
- ❖ DTH drills of 105-115mm diameter are proposed for drilling of blast holes by wagon drill.
- ❖ The blast holes are proposed to be drilled in square/ staggered pattern with 4 to 4.5 m spacing and 3.0 – 3.5 m burden for 9 m bench height and drilling parameters shall vary depending on variable bench height.
- ❖ Conventional blasting using ANFO/SMS and high explosives with use of milli second delay/ NONEL will be done to prevent fly rocks, noise and will also reduce ground vibrations.

- ❖ The material after blasting will be loaded by hydraulic excavators of about 2.6m<sup>3</sup> bucket capacity into tippers of 20 ton carrying capacity.
- ❖ Sandy soil and waste including sandstone will be transported to their respective dumps while the limestone will be transported to the crusher already installed in the plant premises.
- ❖ An access road with gradient of about 1:20 is proposed for construction from mine pit to the main haulage road. The main haul road is proposed to be constructed with 1:16 gradient which will be connected to the existing road of adjoining ML of SCL, that leads to the crusher located in the plant premises.
- ❖ The ultimate bench height will be 9m and width will be 5m
- ❖ Ultimate slope of the pit will be 56°.
- ❖ Ultimate pit depth will be 594 mRL- 486mRL i.e. 108 m.

#### **Requirements for Mining:**

<b>Inputs</b>	<b>Approx Quantity required per day</b>
Diesel	800 Liters (at peak production)
Water for Drinking	8KLD
Water for Sprinkling	25 KLD
Water for green belt development	12 KLD
<b>Explosives Consumption</b>	
ANFO	1622 kg
Booster	16 kg

**Description of the Environment:** The baseline data has been collected with due permission from MoEF & CC from March-May, 2017 & Revalidated Baseline data (October 2017). The details are given below:

#### **Micro- meteorological data (March to May 2017 and October 2017)**

**i) Temperature:** Temperature of the area varied minimum range from 12.5°C to 13.4°C and maximum range from 33.7°C to 40.2°C.

**ii) Relative Humidity:** Humidity of the area varied minimum range from 25.1 % to 33.3 % and maximum range from 97.6 % to 98.1 %.

**iii) Wind Speed:** Wind speed was in the range of 0.1 Km/hr to 54.3 Km/hr as per both baseline study periods

**Ambient Air Quality Results:** Samples were collected from 8 sampling locations during Baseline season from March-May 2017. The results are given below:

**Core Zone:** The PM<sub>2.5</sub> is ranging from 25.4-26.4 µg/m<sup>3</sup> against standard limit of 60 µg/m<sup>3</sup>.

- The mean value of PM<sub>10</sub> is ranging from 62.4-65.0 µg/m<sup>3</sup> against standard limit of 100 µg/m<sup>3</sup>.
- The mean value of CO value is ranging from 0.31-0.56 mg/m<sup>3</sup> hence; it is within standard limits of 4 mg/m<sup>3</sup>.
- The mean value of SO<sub>2</sub> ranges from 7.2-7.5 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup> & NO<sub>x</sub> ranges from 12.9-13.4 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup>.

**Buffer Zone:** The PM<sub>2.5</sub> is ranging from 20.6-36.5 µg/m<sup>3</sup> against standard limit of 60 µg/m<sup>3</sup>.

PM<sub>10</sub> is ranging from 50.7-89.7 µg/m<sup>3</sup> against standard limit of 100 µg/m<sup>3</sup>. CO value is ranging from 0.24 to 0.42 mg/m<sup>3</sup> hence, it is within standard limits of 4 mg/m<sup>3</sup>. The SO<sub>2</sub> ranges from 5.8 – 10.3 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup> & NO<sub>x</sub> ranges from 10.5-18.5 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup>.

**Ambient Air Quality Results:** Revalidated Baseline data (October 2017) collected from Samples from 8 sampling locations:

**Core Zone:** The mean value of PM<sub>2.5</sub> is ranging from 25.6-26.7 µg/m<sup>3</sup> against standard limit of 60 µg/m<sup>3</sup>.

- The mean value of PM<sub>10</sub> is ranging from 61.7-64.3 µg/m<sup>3</sup> against standard limit of 100 µg/m<sup>3</sup>.
- The mean value of CO value is ranging from 0.29-0.30 mg/m<sup>3</sup> hence, it is within standard limits of 4 mg/m<sup>3</sup>.
- The mean value of SO<sub>2</sub> ranges from 6.4-6.7 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup> & NO<sub>x</sub> ranges from 12.6-16.2 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup>.

**Buffer Zone:** The results of the Buffer Zone. The mean value of PM<sub>2.5</sub> in nearby villages is ranging from 20.8-36.3 µg/m<sup>3</sup>. The mean value of PM<sub>10</sub> is ranging from 50.1-87.4 µg/m<sup>3</sup> against standard limit of 100 µg/m<sup>3</sup>. CO value is ranging from 0.23-0.42 mg/m<sup>3</sup> hence it is within standard limits of 4 mg/m<sup>3</sup>. The SO<sub>2</sub> ranges from 5.2-9.1 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup> & NO<sub>x</sub> ranges from 10.1-17.7 µg/m<sup>3</sup> against standard limit of 80 µg/m<sup>3</sup>. The values of both the parameters are well within prescribed limits.

**Noise Quality results:** Samples were collected from 8 locations.

**Core Zone: N1 & N2:** The ambient noise level during day time at the proposed project site is about 57.4 dB (A) and 57.5 dB (A) which are within the standard limit of Industrial area ~75 dB (A). During night the noise level at the project site ranges from 47.6 dB (A) to 48.3 dB (A) which are also within the night-time noise standard limit of 70 dB (A).

**Core Zone: N1 & N2:** The ambient noise level during **Revalidated October- 2017** show that in day time Noise quality at the proposed project site is about 57.6 dB (A) & 57.8 dB (A) which are within the standard limit of Industrial area ~75 dB (A). During night the noise level at the project site ranges from 47.5 dB (A) to 48.5 dB (A) which are also within the night-time noise standard limit of 70 dB (A).

□ **Buffer Zone:** The results at **Buffer zone** during Baseline season March- May 2017 and Revalidated data of October 2017 at day time and night time are all within the permissible limits.

**Water Quality Results:** The 7 water samples were collected:

**Core Zone (W1 Onsite, Spring water):** Data collected during **Baseline season March- May 2017 and Revalidated data of October 2017** result shows pH is 7.8 & 7.6 which shows the sample is slightly alkaline. Other parameters Total Hardness 124 mg/l & 96.0 mg/l, Total Dissolved solids 204 mg/l & 186 mg/l, Sulphate 42.1 mg/l & 34.5mg/l, Chloride 24 mg/l & 19mg/l, Calcium 38.4 mg/l & 27.2mg/l and Magnesium 6.8 mg/l (for both the seasons) are within the standard of IS: 10500 of drinking water.

**Buffer zone water results:** Total 6 buffer zone water samples were collected.

Data collected during **Baseline season March- May 2017 and Revalidated data of October 2017** result shows that **pH** is from 6.1 in samples of W3 (Limestone Mine, Tongseng Spring Water to 7.9 in W7 (Seshymor river). **Total Dissolved Solids** from 32.1mg/l as per samples of W3 (Limestone Mine, Tongseng Spring Water) to 241mg/l W2 in samples of (Khub lime stone, bore well). **Total Hardness** is 8.0mg/l as per samples of W3 (Limestone Mine, Tongseng Spring Water) to 152 mg/l as per samples of W2 (Khub lime stone, bore well). **Chloride** is from 7.2mg/l as per samples of W3 (Limestone Mine, Tongseng Spring Water) to 21.9mg/l in samples of W4 (Umlunar Nala). **Calcium** is 1.1mg/l as per samples of W3 (Limestone Mine, Tongseng Spring Water) to 30.4mg/l in W2 (Khub lime stone, bore well). **Magnesium** is 1.2mg/l as per samples of W3 (Limestone Mine, Tongseng Spring Water) to 11.6mg/l in samples of W2 (Khub lime stone, bore well). **Sulphate** is 1mg/l as per samples of W3 (Limestone Mine, Tongseng Spring Water) to 18.7mg/l in samples W5 (Lubha river). It was notices that all the values are within the permissible limit of drinking water standards (IS:10500). All other parameters are also within the range.

**Soil Quality Results:** The samples were collected from 5 locations:

**Core Zone:** Data collected during **Baseline season March- May 2017 and October 2017** result shows that Color of the soil in core zone is reddish Brown, pH is 7.4. Amount of primary nutrients like Organic matter 0.57 % & 0.51% , the available nitrogen 61.6 mg/kg & 59.2mg/kg is lower in range, the available Potassium 55.5 mg/kg & 51.2mg/kg is Lower in range while available Phosphorous 30.4 mg/kg & 28.4mg/kg is Higher in range, respectively. Primary nutrient profile shows that soil is low in fertility due to the availability of low amount of nitrogen, phosphorous and potassium.

**Buffer Zone:** Data collected during **Baseline season March- May 2017 and October 2017** result shows that Colour varies from Light brown to Dark Brown, pH ranges from 7.3 in Lumshnong Village (S3) to 8.1 as per sample of Umbadoh Village (S5). Amount of primary nutrients like Organic matter 0.54% in Khub Mine (S2) to 0.65% in Lumshnong Village (S3), the available nitrogen 57.7 mg/kg is Lumshnong Village (S3) to 67.2 mg/kg as per sample of Khub Mine (S2), the available phosphorus 22.3 mg/kg as per sample of Khub Mine (S2) to 31.6 mg/kg in Umbadoh Village (S5) which is higher in range while Available Potassium 34.5 mg/kg as per sample of Khub Mine (S2) to 63 mg/kg in Lumshnong Village (S3), which is lower in range, Primary nutrient profile shows that soil is low in fertility due to the availability of low amount of nitrogen and available potassium.

### **Ecology and Biodiversity Results:**

#### **Flora:**

**Core Zone:** In 70 Hectare core zone (Lease area) there are private deemed forest of 4.82 Ha. (14 patches scattered in 70 Hac. of land. It comes under Jaintia Hills (Territorial) Division Jowai. Maximum density value shows in Mimosa himalayana followed by Bidens biternata and Saurauia sp. The IVI value recorded the highest in Mimosa himalayana (46.45) and least in case of Clerodendrum viscosum (5.94).

**Buffer Zone:** Forest in buffer zone is Narpuh Reserve Forest (10 Km, SE). The forests within 10 km radius have three distinct strata, viz., (i) Upper canopy layer with dominance of emergent trees, (ii) Sub-canopy layer with dominance of small trees and pole size trees, and (iii) Undercanopy layer with dominance of shrubs, herbs and juvenile trees. There are trees such as *Albizia lucida*, *Bauhinia purpurea* etc, shrubs: *Bidens pilosa*, *Fagopteris auriculata*, Climbers: *Raphidophora decursiva*, *Mikania macrantha* & *Asplenium nidus* etc.

**Agriculture crops:** The principal crop of the area is paddy. At some areas maize, rabi and other pulses are cultivated. Some of the agricultural crops are as follows: *Brassica nigra*, *Capsicum frutescens*, *Cucumis sativus*, *Oryza sativa*, *Phaseolus vulgaris*, *Raphanus sativus*, *Zea mays*

**Commercial Crops :** The commercial crops in the area are: *Citrus aurantium*, *Haevea brasiliensis*, *Thysanolaena maxima*.

### **Endangered Species**

*Arundina graminifolia*, *Cyathea spinulosa*, *Dendrobium sp*, *Gnotum scandens*, *Nepenthes khasiana*

(Source: Field survey done by Ecology & Biodiversity team and data of forest Department)

### **Fauna**

**Core Zone:** There are no Sc-I Fauna in the core zone. There are few **mammals** such as *Cannomys badius*, *badius*(Bamboo Rat,), *Herpestes edwardsi*(Indian Grey Mongoose) etc., **Birds** such as: *Acridotheres tristis*, *tristis*(Indian Myna), *Scolopax rusticola rusticola*(Wood Cock), **Reptiles:** *Chameleon sp.*, *Calotes versicolor*(Garden Lizard)etc.

**Buffer Zone:** Including Fauna species mentioned in Core zone there are **Mammals:** *Arctonyx collaris*(Hog Badger), *Lutra lutra monticola*(Otter),**Birds:** *Bubo flavipes*(Tawny Fish Owl), *Milvus migrans lineatus*(Large Indian Kite) & **Reptiles:** *Varanus bengalensis*(Indian Monitor), *Chrysopelea ornata* (Flying Snake)etc. In **Amphibians:** *Bufoides meghalayana*(Toad), *Rhacophorus maximus* etc. & in **Fishes** *Brachydanio rerio* (Shalynnai), *Labeo dera*(Kha bah) etc are found.

### **Schedule I species recorded in the buffer zone are:**

1. *Arctonyx collaris* (Hog Badger)
2. *Felis bengalensis bengalensis* (Leopard Cat )and,
3. *Bambusicola fytchii hokinsoni*(Assam Bamboo Partridge)

Necessary Conservation plan along with budgetary provisions for their conservation has been prepared and approved.

**Socio Economic Study Results:** According to 2011 census, study area has a total population of 7013, of which males constitute 50.58% and females constitute 49.42% of the population. The child population below the age of 6 years account for about 24.87% of the total population. There are 1282 households in the study area with average family size is 5.47 persons per household as per 2011 census. Total study area covers under 314.28 sq. km. The population density works out in study area is 14.87 & 22.31 in 2001 and 2011 Census respectively.

**Traffic Study Results:** Carrying capacity of NH-44 road =10800 PCU/hr.

Existing traffic density at NH-44 road =315 PCU /hr.

Proposed peak traffic from site= 102 PCU/hr.

Total Traffic density at NH-44 road = existing traffic + proposed traffic at site =315+102 = 417 PCU /hr.



Total after proposed LOS = 0.039

Hence it is concluded that since carrying capacity of NH-44 road is much higher than proposed traffic volume. Therefore, the traffic movement of proposed “**Expansion of Lumshnong Limestone mine**” will not create any traffic congestion

#### **Anticipated Impact and Mitigation Measures:**

➤ **Land Environment:** Mining causes change in land use resulting in mining pit which alters land use. At Conceptual Stage, about 66.60 ha. will be mined out area out of which 20.60 ha. area will be reclaimed by backfilling and 46.0 ha. area will be developed into water reservoir which will help in recharging the ground water. Overburden sandy soil will be stacked in separate dump and will be used in plantation. Proper care will be taken to prevent runoff, hence there will be minimal degradation of soil quality.

➤ **Water Environment:** Total water requirement in the proposed mining project is 45 KLD. Dust

suppression shall be done by collecting operational pit water collected during rain. Drinking water will be sourced from SCL cement plant. There will be no waste water generation. The pits will be developed into recharge pit by collecting rain water. In order to arrest solid wash off, check dams of 1m height and width are proposed to be constructed over the seasonal stream/nala within the lease area. To prevent runoff from the temporary overburden sandy soil dump and sandstone dump, rubble bund with/without mesh and garland drain with sediment settling arrangements are proposed to be constructed outside the respective dump areas.

➤ **Air Environment:** The air borne particulate matter is the main air pollutant contributed by opencast

mining. Therefore, sprinkling shall be done and workers will be given protective gears such as goggles, dust masks, gloves, and helmets. Optimum blast design parameters will be adopted and wherever required wet drilling will be carried out. To avoid secondary blasting rock breaker will be used. Plantation of local thriving species will be done in the 7.5m statutory boundary, along the dump and haul road for arresting dust. Regular maintenance of vehicles and machinery will be done. Regular water sprinkling will be done at dust generation points. Vehicles/equipment will be periodically subjected for emission tests and will have valid POLLUTION UNDER CONTROL certificates.

➤ **Noise Environment:** Proposed mining operations will be carried out by adopting optimum blasting

parameters. Ear muffs will be provided to the workers. Plantation will provide acoustic buffer

therefore plantation shall be done along the periphery, along the dump slope and in the backfilled area. Regular maintenance of equipments shall be done to reduce noise pollution.

➤ **Biological Environment:** 4.82 ha. Forest land will be diverted for which forest clearance has been

obtained. Trees shall be planted in the lease area as proposed in Conservation Plan. Mined out land reclamation shall be done by turning it into water recharge pit and fencing of pit will be done. Conservation plan along with budgetary provision for Scheduled - I Species in buffer zone has been prepared and approved by PCCF, Govt. of Meghalaya.

➤ **Socio- Economic environment:** The project will enhance direct and indirect employment in the area.

Therefore, overall economic development is much likely after the commencement of the project.

➤ **Mine Waste:** Mine waste will be backfilled in the quarry and rest of the quarry area will be converted into water recharge pit.

➤ **Impacts due to transportation:** The entire mineral will be transported to the client's own cement

plants located at 4.6 km and 7.4 km from the mine site. Transportation shall be done by 42 no. of 20 tonner trucks. The study of traffic suggests that the LOS will be 0.039 and hence there will not be any congestion due to proposed project on NH-44.

**Environmental Monitoring Programme:** Environmental monitoring at various locations, within the mining lease area and in the study area of 10 km radius will be carried out on periodic basis. A comprehensive network for monitoring has been prepared. Sampling locations have been identified by considering the source of pollution due to mining operations, drainage pattern, topography of the area and biological environment.

**Risk Assessment & Disaster Management Plan:** Mining will be carried out by mechanized opencast mining, with mining equipments as hydraulic excavator, dumpers etc involving drilling and blasting. Mining will be done under strict supervision hence the rate of operational risks is minimal.

**Rehabilitation and Resettlement-** The lease is 70Ha and 4.82Ha is deemed forest land. Out of 65.18 ha of private land, only 46.809ha is an agricultural land. The agricultural land is mostly rocky land with some plantation of oranges, Jamun, Almond, Jackfruit, Sal and cotton. The total average annual income of the land owner was Rs 2,50,000/-per annum i.e Rs 5350/ha/annum. The agreed compensation to land owners has been paid and due to sale of the land to M/s SCL (former CMCL), land owner got Rs 4.25lakhs/ha

**Project benefits:** The proposed mining project has a significant positive impact on the socio-economic environment and it will help sustain the overall development of the area. The proposed project

significantly contributes the economic development by providing direct employment to 165 personnel and indirect employment to many more people in the area. By organizing health checkup camps, awareness programs about rural development of the locals in the field of education, personal health care and skill development campaigns to improve standards of living in the area.

**Environmental Management Plan:** Preparation of Environmental Management Plan (EMP) is required for formulation, implementation and monitoring of environmental protection measures during and after commissioning of the proposed mining project. The project cost is Rs. 25.5 Crores and the EMP capital cost Rs. 26.5 Lakhs and recurring cost as Rs 33.72 Lakhs.

**Conservation of Schedule -1 species** found in Buffer Zone will be undertaken as per approved Conservation plan.

#### **Budget towards Corporate Environment Responsibility**

The estimated project cost is Rs 25.5 Cr. As per MoEF&CC notification dated 01.05.2018 the provision of CER based on 2% works out to be Rs 51 Lakhs which will be spent on various activities as detailed in the notification namely infrastructure, drinking water, sanitation health, education, skill developments, roads, electrification including solar power, solid waste management, scientific support and awareness to local farmers, RWH, soil conservation, plantations etc. The proposed activities will be restricted to the affected area around the projects. The issues raised during the public hearing will also be incorporated under CER. A recurring budget is also proposed for Occupational Health is Rs. 3.0 Lakhs and Public health is Rs. 2.5 Lakhs.

**Green belt development** will be initiated by the proponent and full-fledged plantation will be undertaken in 20.60 ha in backfilled area, 0.2 ha. haul road, 1.6 ha. area along 7.5 m statutory boundary and along the dump as per conceptual plan in the 7.5m boundary of the lease area and the top backfilled part of the quarry area. Locally thriving species will be planted.

#### **Among other environmental protection following measures are listed below:**

- Sprinkling of water for dust suppression on mine haul roads.
- Regular Compaction & grading of haul roads and service roads to clear accumulation of loose material.
- Avoid overloading of dumpers and consequent spillage on the roads.
- Good maintenance of vehicles & machinery.
- Water sprinklers of fixed type will be provided at the mine approach roads from mine face / benches to crush hopper to prevent the generation of dust.