EXECUTIVE SUMMARY
OF
ENVIRONMENTAL IMPACT ASSESSMENT REPORT
And
ENVIRONMENTAL MANAGEMENT PLAN

Of

0.50 MTPA LIMESTONE PRODUCTION

From

CAPTIVE LIMESTONE MINE – 115.33 Ha (ML-2)

(Non-Forest Area)

At

Mine Lease in Yadwad village,

Gokak Taluk, Belagavi (Belgaum) district,

Karnataka

OF

Dalmia Cement (Bharat) Limited

EXECUTIVE SUMMARY

1.0 INTRODUCTION

Dalmia Cement (Bharat) Limited (DCBL) has set up a Greenfield Cement plant with Captive Power Plant at Yadwad Village, Gokak Taluk, Belagavi District (earlier known as Belgaum district), Karnataka. It went into operation in 2015. The limestone requirement of the plant was envisaged to be met from the proposed two captive mine leases, viz Yadwad Limestone & Clay Mine of 1228.63 ha (ML-1) near villages Yadwad & Kunnal of Gokak & Ramdurg taluks in Belagavi District and partly from 115.33 ha mine lease (ML-2) near Yadwad Village of Gokak taluk, Belagavi District, Karnataka. Both the said mines are adjacent to each other. Limestone from both the mines shall be judiciously blended for mineral conservation and sustainable mining. Environment Clearance has already been obtained for ML-1 from MoEF&CC. The present proposal is to obtain EC for ML-2.

2.0 PROPOSED PROJECT

DALMIA CEMENT (BHARAT) LTD (DCBL) proposes to mine limestone of 0.5 MTPA from its proposed mining lease area ML-2 spread over an area of 115.33 Ha located at Yadwad Village, Gokak Taluk, Belagavi district, Karnataka.

The total ML area of proposed mine is private patta land, of which present land use is agriculture land in 83.27 ha and 32.06 ha is under canal (water body).

The proposed area which is mainly agricultural land is covered by soil cover and few outcrops of limestone.

LOI for the proposed ML Area were granted by Govt. of Karnataka vide letter No. 14 /AML/2006/7097 dated 21st August 2007. Mining Plan along with Progressive Mine Closure Plan of above area was approved by Indian Bureau of Mines (IBM) vide letter No. MP/BLG/GOA(KNT)/Lst -184-SZ dated 15th July 2009.

The mine will be operated by the conventional open cast method of mining, which includes drilling, blasting, loading and transportation.

The basic infrastructure and mining equipment/machinery is common for both the leases (Ml-1 & ML-2) which is considered in capital cost of ML-1 (1228.63 ha). Hence the capital cost towards mining equipment/machinery is Nil for the subject mine. However a project cost of Rs. 2 crores will incurred on subject mine for various activities. Rs. 8 Lacs will be spent for implementing environmental management plan and the recurring cost is estimated to be about Rs. 10 lacs/annum.

3.0 BASELINE ENVIRONMENT

As part of Environmental Impact Assessment study, baseline environmental monitoring was carried out for Postmonsoon Season – 2014, covering the months of October to December 2014.

METEOROLOGY

The predominant wind directions during the season were from NE-ENE-E-ESE accounting to 38.54 % of the time with calm winds of less than 1.0 kmph for about 16.85% of the time. The average wind speed during this period was generally above 10 kmph.

AIR ENVIRONMENT

The Ambient Air Quality monitored in the study area was found to be well within the limits of NAAQ standards prescribed for Residential, Rural & Other Areas.

Air Quality in the study area *(All the values are in μg/m³)*

Parameter	98th percentile values (ug/m³)
Particulate Matter - PM_{10}	58-65
Particulate Matter - $PM_{2.5}$	34-41
Sulphur dioxide - SO_2	8.9-14.8
Oxides of Nitrogen - NOx	9.8-17.5

NOISE ENVIRONMENT

10 monitoring locations were selected to assess the noise levels in the study area. Noise levels recorded were found to be in the range of 49.6

- 53.7 dB (A) during daytime and in the range of 41.3 – 51.3 dB (A) during night time.

WATER ENVIRONMENT

Ground water and surface water samples analysed were found to be well within the limits.

SOIL ENVIRONMENT

Soil samples collected were analyzed to study the soil quality which showed medium fertility.

BIOLOGICAL ENVIRONMENT

There are no eco sensitive areas like National Parks, Wildlife Sanctuaries, Biosphere Reserves exist within 10 km radius area from the ML boundary. However, Few Reserve forests exists within the study area of 10 km.

From the study it has been observed that there are no are no endangered, endemic or threatened species

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 AIR ENVIRONMENT

The air borne particulate matter is the main air pollutant contributed by opencast mining. Various emission sources are identified from the mining operations for the proposed 0.5 MTPA limestone production.

In addition to the above, the emissions from the cement plant and mine lease area (ML-1) have been considered for estimation of cumulative impact.

Resultant cumulative ground level concentrations for the prevailing meteorological conditions using the mathematical model were estimated.

The Overall Scenario with predicted cumulative ground level concentrations over the baseline is shown below.

PREDICTED GROUND LEVEL CONCENTRATIONS AND OVERALL SCENARIO, μg/m³
(Sources considered : Cement Plant, Power Plant, ML-1 and ML-2).

24-Hourly Concentrations	**Particulate Matter-10 (PM_{10})**	**Particulate Matter-2.5 ($PM_{2.5}$)**	**Sulphur Dioxide (SO_2)**	**Oxides Of Nitrogen (NOx)**
Baseline concentration, max	65	41	14.8	17.50
Predicted Groundlevel Concentration (Max)	13.98	1.99	19.19	20.29
Overall Scenario	78.98	42.99	33.99	37.79
NAAQ standards for Industrial, rural and residential areas	**100**	**60**	**80**	**80**

AIR POLLUTION CONTROL MEASURES

The environmental control measures to control the fugitive dust released are given below:

- Wet drilling to suppress the dust emission from the drill machines at its source by inbuilt water injection system
- Regular water sprinkling on blasted heaps and haul roads with water tankers.
- About 5 m^3/day of water will be used for dust suppression operations at mine.
- Use of sharp drill bits for drilling holes and arrangements for bit regrinding. Charging the holes by using optimum charge and using time delay detonator.
- Avoiding over filling of dumpers and consequent spillage on the roads.
- The vehicles and machinery will be kept in well-maintained condition so that emissions will minimize.
- Afforestation for control of dust. To arrest the amount of airborne dust, extensive plantation will be carried out within the mines and outside the mining lease.

- Operator cabins in all items of major HEMM equipment will be enclosed, to minimise dust exposure of the operators.

4.2 NOISE ENVIRONMENT

The impact of noise on the villages will be negligible as the villages are far located from the mine site. Nearest village is at 1.9 km from the mine. **DCBL** is providing a greenbelt of 7.5 m barrier zone. Hence the impact on the mine vicinity due to noise levels is nil.

NOISE POLLUTION CONTROL MEASURES

- Proper and regular maintenance of vehicles, machinery and other equipment.
- Carrying out blasting only during day time and not on cloudy days
- Limiting time exposure of workers to excessive noise.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and equipment.
- The workers employed will be provided with protection equipment, earmuffs and ear-plugs, as a protection from the high noise level generated at the mine site wherever required.
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
- Proper and timely maintenance of mining machinery
- Speed of trucks entering or leaving the mine will be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

4.3 WATER ENVIRONMENT

Doda Halla nala is located at a distance 1.3 km towards west of the mining lease area.

Effective measures will be adopted to prevent any adverse impact of mining on the surface water regime. Garland drains with sedimentation pits all along the mine pit will be constructed to arrest the carryover of silt from the mine area. Check dam will be constructed at the discharge end of garland drains. Whatever water gets collected in the mine pit either as direct rainfall falling in the pit will be collected in the sumps and pumped back for road spraying, green belt. Balance water, free from suspended particles, will be released for supplying to nearby villages or released in the nearby stream outside the lease area.

A irrigation canal is passing through the mining lease area. DCBL will not divert the canal and mining will be undertaken after leaving safety barrier along the length of canal. It is only in the fifth year of the plan period, the canal is proposed to be diverted after taking prior permission/consent of local authority of State Govt.

The Top soil generated during the Mining period will be utilized for forming bunds along the periphery of lease boundary leaving 7.5m of statutory barrier.

The mine workings will be above the water table throughout the life of the mine.

DCBL will use about 10 m^3/day of water for dust suppression and greenbelt development.

There will be no waste water generation as workshop and other facilities of workers were provisioned in ML-1 as common facility for both the mines.

4.4 LAND ENVIRONMENT

Of the total 115.33 ha, about 105.01 ha will be broken under mining activity. . Out of the excavated area (105.01 ha) 28.11 ha area of benches will be reclaimed and 76.9 ha will be converted into the water reservoir.

4.5 AFFORESTATION

DCBL will develop 10.32 ha of the mine area under afforestation i.e all along the mining lease boundary and non-utilized area. 28.11 ha area of benches will be reclaimed with about 57000 saplings.

4.6 CONTROL OF GROUND VIBRATIONS

Blasting will be performed strictly as per the guidelines specified under blasting technology, with optimum charge per delay using NONEL System; Blasting operations will be carried out only during daytime as per mine safety guidelines.

4.7 SOCIO ECONOMIC ENVIRONMENT

REHABILITATION AND RESETTLEMENT

The project does not involve any displacement of human settlement as entire land is agricultural land and devoid of any human settlements. However, the company has formulated and implementing different community development plans under which benefits is given to land oustees on priority and also extended to other local residents of the surrounding villages.

The cement project is capital intensive with fully mechanized technology and therefore, do not offer much direct job opportunity, particularly to unskilled category. However, there would be a lot of indirect employment opportunities arising due to the proposed project. It is company's policy that preference will be given to the land oustees for direct employment opportunities etc., in various sectors based on their capabilities. Only in the absence of required skills, it will be extended to others.

As direct employment opportunities are limited and are skill based, DCBL will put best effort to indirectly involve affected families and local people in income generating activities. DCBL assures to comply with the Govt. policy of employment to local people as per the Dr. Sarojini Mahishi Committee Report and Industrial policy of the State.

5.0 PROJECT BENEFITS

5.1 EMPLOYMENT

Manpower Requirement of this mine has been considered under ML-1 (1228.63 Ha). Manpower shall be common for both the adjoining mines and is about 69 persons

In addition there will be indirect employment to many more people in the form of contractual jobs, business opportunities, service facilities etc. This will enhance the economic status.

- **Other Tangible Benefits**:-

The land oustees as well as local community have been and shall be benefitted by different community development programs under the following heads:-

A. *Vocational Training for Youths/ Self Employment*
B. *Educational Facilities*
C. *Medical Facilities*
D. *Welfare Scheme for the People of the Local Area*
E. *Infrastructure Facility Development of the Area*
F. *Community Development/ Social welfare Schemes*

5.2 SOCIAL WELFARE MEASURES

All company's social welfare activities are implemented under the aegis of "***DALMIA BHARAT GROUP FOUNDATION" (DBGF).***

DCBL have already started implementing various community development program in villages adjoining the project site as cement plant is under operation. DCBL engaged a highly reputed NGO, Dr. Reddy's Foundation (DRF), to implement a 4 pronged program aiming at livelihood creation & enhancement, Civil &Infrastructural Improvement, providing curative health services and basic education to the locals.

Based on the findings of the need based assessment study and participatory rural appraisals done in the proposed area, it is

proposed to work on the following program in the next 10 years cumulative for both the mines ML-1 & ML-2.

Sr. No.	Program	Tentative activities	Tentative allocation (INR in Lakhs)
1	Livelihood	Skill Development, Agriculture productivity, increasing employability	70
2	Health	Preventive and curative health services	50
3	Education	Improvement in quality education at pre-primary and primary levels	30
4	Infrastructure	Need based development and maintenance of Infrastructure, provision of safe drinking water and water harvesting	80
5	Sports Promotion	Facilitating organization of sports and cultural events	20
6	Miscellaneous	Based on the need assessed from time to time	25
TOTAL:			**275**

The above budget (Rs. 275 lacs for 10 years) allocated by DCBL towards community/social development is exclusively for both the mines. However, for the entire project (Cement plant & both the mines), company has allocated Rs. 4.3 cr. for next 5 years as per following schedule:-

Activity covered under Schedule VII of Co. Act 2013	Program Area	Tentative Budget Allocation (in Lacs)				
	Activity identified	2016-17	2017-18	2018-19	2019-20	2020-21
Activity covered under Schedule VII(iv) : Ensuring environmental sustainability and ecological balance, Protection of Flora	Soil & water conservation	28	29	29	30	31

Activity covered under Schedule VII of Co. Act 2013	Program Area / Activity identified	Tentative Budget Allocation (in Lacs) 2016-17	2017-18	2018-19	2019-20	2020-21
and Fauna, animal welfare agro forestry, conservation of Natural Resources & maintaining quality of soil, air and water	Renewable Energy & climate change mitigation	18	18	19	19	20
Activity covered under Schedule VII(ii) : Promoting Education including special education and employment enhancing vocation skills especially amongst children, women, elderly, and the differently abled and livelihood Enhancement projects (Livelihood Skill Training)	Livelihood Skill Training	2	2	2	2	2

Activity covered under Schedule VII of Co. Act 2013	Program Area / Activity identified	Tentative Budget Allocation (in Lacs)				
		2016-17	2017-18	2018-19	2019-20	2020-21
Activity covered under Schedule VII Item No. (i) : Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation and making available safe drinking water (Social Development) Item No. (x) : 5. Item No X Rural development projects	Social Development	28	28	29	30	31
	Program Execution cost	6	6	6	6	7
Total		**82**	**84**	**86**	**88**	**90**

In last financial year 2015-16, company has incurred about Rs. 1.00 crore for different programs.

9 villages, over 25000 people, concentrated in over 500 households covered under various community development activities undertaken by Dalmia Cement Bharat Limited. 12% of the population belongs to the SC category.
These programmes is implemented through the company foundation, Dalmia Bharat Foundation (DBF).

Impact of DBF programmes in Belgaum:-

- Impact more than 25000 people concentrated in over 5000 households across 9 villages.
- Helped create over 11000 m3 of additional water storage capacity in the district.
- Promoted more than 1000 solar home lighting products and 370 fuel efficient cook stoves
- We have facilitated the formation of 86 SHGs here.
  - Total membership of 1242 people.
  - Savings during 2014-15 exceeded 4 lakhs.
  - Total corpus exceeding 12.25 lakhs.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

DCBL will ensure the implementation of the measures within the mine area and carryout efficient monitoring.

DCBL continue to monitor the environmental parameters as per PCB / IBM / MoEF&CC guidelines.

7.0 BUDGET FOR IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN

The estimated capital coast for implementation of the environmental management plan is about Rs. 8 Lacs and recurring cost is estimated to be about Rs. 10.00 lacs/annum.

CONCLUSION

DCBL strongly believes in the concept of eco friendly industrialization. Various socio economic development activities proposed will bring about overall socio economic development in the area.