

**EXECUTIVE SUMMARY OF
ENVIRONMENTAL IMPACT ASSESSMENT /
ENVIRONMENT MANAGEMENT PLAN
(AS PER EIA NOTIFICATION 2006)**

**OF
HIWARDARA LIMESTONE AND DOLOMITE MINE**
Village - Hiwardara, Tahsil – Wani, District – Yavatmal.
Area: 27 Ha ; Production Capacity :@ 0.6 MTPA Limestone & Dolomite

**PROJECT PROPONENT
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about 20 Km from the proposed mine. The nearest Railway station is Wani which is about 27 km.

Landuse- As per the administrative records, this lease area is a Government Land. The lease area is having barren land with rocky exposures & there is no forest land in the lease area.

Geological formations & Ore Reserves: The regional geology of the area is represented by Penganga beds (Vindhyaans), Gondwana formations, Lameta beds (Intratrappeans) and basaltic lava flows (Deccantraps). The total geological reserves of limestone and Dolomite are estimated to be 0.523 MT, 4.730 MT respectively. The mineable reserves are estimated to be 4.053 Million tones. The reserves of limestone and dolomite are estimated to be a depth of 10 m.

Mining Method: Mining will be carried out by semi mechanized method. This includes removal of overburden, drilling by diesel compressors & jackhammer drills, blasting and removal of Limestone & Dolomite to the surface screening and sizing. The development consists of removal of an overburden, which occurs as a capping over Limestone & Dolomite.

Presently there are two working pits in Limestone & one working pit in Dolomite. The mining operations will be continued after obtaining necessary permissions from these already broken areas. The proposed rate of ROM production is about 0.6 MTPA Limestone & Dolomite for next five years and subsequent years of production when the mine is fully developed. The mineable reserves are estimated to be 4.053 Million tones.

With the present mineable reserves, the anticipated life of mine is 7.0 years. Since the reserves are estimated to a depth of 10 m, mining operations are not proposed below 10 m. However, the proposed exploration may increase the life of the mine due to the increase in depth of the ore body.

Blasting- Blasting is required for production of Limestone & Dolomite ore, removal of waste material.

Transport of Mineral- Material will be transported by road from the mine to the consumer industries as it is economical and speedy for short distances.

Waste Generation and Management: The development consists of removal of an overburden, which occurs as a capping over Limestone & Dolomite. Besides removal of OB, material in the form of uneconomic waste material from dolomite and limestone zone will also be generated. It is anticipated that about 18,850 m³ of OB and approximately 19,830 m³ of waste generations from both dolomite & limestone zones will be carried out over a period of five years from dolomite & limestone zone.

The waste and rejects will be dumped in non mineralized zone within the mining lease. Dumps after stabilization will be biologically reclaimed. Part of the generated waste will also be utilized for making a bund all along the worked out pit as a safety measures. There is no proposal for storage of overburden outside the mining lease area.

Topography & Drainage: There is no stream crossing through lease area. The general topography of the area is slightly undulating to flat. The general altitude varies from 213 m to 230 m above Mean Sea Level. A network of small seasonal nalas flowing to the north-east contributes towards the drainage of the area. Vaidarbh River is flowing 3.5 Km away in East direction and joins Penganga River.

Ground water: The proposed excavations are not going to touch the ground water table as it observed to be below 15 m. Thus there will not be any contamination of the underground water because of the proposed mining. The water requirement for the proposed mine will be met from the bore well / dug well. There will be no discharge of waste water from the mine.

Arrangement for Dewatering: It is proposed to create a water sump of 3000 m³ (100 x 10 x 3 m) capacity at the pit bottom within lease. Additional accumulation of rain water, if any will be allowed to remain in this sump until pumped out for its utilization to dust suppression and plantation.

Water requirement for dust suppression, plantation and vehicle washing will be met from rainwater collected in mining pit.

Employment Potential: Around 51 labours will be required for this mine. It is proposed to deploy local manpower meeting the eligibility criteria required for the job under consideration.

The industrial activity like mining will benefit people residing in the nearby villages within the buffer zone by direct and indirect employment opportunities. People will also be beneficiaries for the facilities developed due to mining activity.

BASELINE ENVIRONMENTAL STATUS:

The total project area (27 Ha) of the Hiwardara Limestone & Dolomite Mine is considered as Core Zone while the 10 Km surrounding area of core zone is considered as Buffer Zone. Baseline environmental data was collected for all the components of environment like meteorology, air, water, noise, soil, geology, hydrogeology, flora-fauna, demographic and socio-economics, industries, places of archeological and historical importance etc. Standard guidelines prescribed by Ministry of Environment, Forests & Climate Change and Central Pollution Control Board were used for this study. The EIA report incorporates the baseline data generated through primary surveys for three months during October 2015 to December 2015 representing post monsoon season.

Landuse of the Buffer Zone: As per census the total area estimated within 10 km radius of buffer zone (study area) around proposed Limestone/Dolomite block was 31400 Ha. The maximum area was under cultivation 66.65% (irrigated 2.83% and un-irrigated 63.82%). Followed by area under culturable waste land

was 3.88%, area not available for cultivation was 6.76%. While area under forest was 22.72%. The Geocoded Satellite Imagery for the study area covering 10 Km study area was procured from National Remote Sensing Agency (NRSA), Hyderabad.

Water Quality: Total four surface & four ground water sampling stations were monitored in the study area. The analysis indicates that almost all parameters are within the prescribed limit.

Air Quality: The monitoring was carried out for 13 continuous weeks beginning from 1st October-2015 to 29th December-2015 as per norms stipulated by the Central Pollution Control Board. To assess the baseline ambient quality nine air quality monitoring location were selected on the basis of wind direction and other meteorological parameters in core and buffer zone area.

Air Quality: The PM₁₀ PM_{2.5} SO₂, NO_x values for all 9 stations were below.

- **Particulate Matter₁₀:** The 24 Hourly concentration of PM₁₀ reported during the survey ranged from 42.1 to 54.8 ug/m³. This is lower than the NAAQ permissible level of 100 ug/m³.
- **Particulate Matter_{2.5}:** The 24 Hourly concentration of PM_{2.5} reported during the survey ranged from 21.3 to 31.2 ug/m³. This is lower than than the NAAQ permissible level of 60 ug/m³.
- **SO₂:** The 24 Hourly concentration of SO₂ reported during the survey ranged from 9.9 to 20.5 ug/m³. This is lower than than the NAAQ permissible level of 80 ug/m³.
- **NO_x:** The 24 Hourly concentration of NO_x reported during the survey ranged from 11.9 to 27.2 ug/m³. This is lower than the NAAQ permissible level of 80 ug/m³.

Noise Levels: A noise survey for baseline levels of noise indicates that noise levels are in the range of 35.1- 46.8 dBA at 9 studied stations. These are well within prescribed limit for residential area.

Soil Quality: Soil samples were collected at 4 selected locations in the study area to assess the existing soil conditions around the proposed mine. Overall soils are moderately suitable for cultivation of arable crops and have moderate fertility.

Biological Environment: The buffer zones include the village settlements with their cultivated fields, forest areas as well as vast areas reduced to wasteland. The detailed inventory of floral and faunal assemblage of the core and buffer zone has been prepared. The details of flora and fauna are provided in EIA/EMP. There are no ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the buffer zone.

Human Settlement and Demography: The area selected for the study constitutes 46 inhabited villages. The population is distributed among 9769 households in the study area. The inhabited villages have a population of 43089 comprising of 21977 males and 21072 females. The number of females per 1000 males is 958. The overall literacy in the villages of the study area has 70.85%. Provisional figures of Census 2011 were studied for this area. There is no major change in demographic, vocational profile besides normal changes as observed in other parts of the district.

Proposed Social Responsibility Measures: A systematic approach for the implementation of the peripheral area development in selected villages in the buffer zone starting from the nearest village will be drawn up with the help of local community based organization & in consultation with the villagers. Assistance in the field of health and sanitation, environment conservation, water conservation, literacy, self help groups, development of infrastructure. A budgetary provision of Rs. 5.0 lakhs per annum as annual recurring expenses is proposed on this account.

Risk Assessment & Disaster Management Plan: In any mining project, work safety is taken care of as per provisions in the Mines Act, Rules framed there under. Inundation, fly rocks during blasting operations, risks associated with handling and use of explosives, during operations of equipment and movement of vehicles has been dealt. The risk management plan as per the directives of competent authorities will be Implemented strictly.

ENVIRONMENT MANGEMENT PLAN

Air Pollution Management :

- a) Haulage roads will be frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement have been provided.
- b) Ore will be covered by tarpaulins to prevent spread of dust from it during transportation.
- c) Regular maintenance of vehicles and machineries will be carried out in order to control emissions.
- d) Green belt development will be taken up at various places.
- e) The dust respirators will be provided to all the workers.
- f) Good housekeeping and proper maintenance will be practiced which will help in controlling the pollution.

Water Pollution Management: The mining project will require continuous supply of water for various purposes during mining, plantation etc. apart from drinking water supply. The main source of water pollution in opencast mining is the surface run-off due to rainfall. There will not be any mine discharge during dry weather seasons. There may be accumulation of rain water during monsoon season, which contains fine silt. This will be treated in settling tanks of adequate dimensions. The treated water (overflow) will be used for plantation and dust suppression.

Noise & Vibration Management

- Noise is best abated at source by choosing machinery and equipment suitably, by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable.
- Proper maintenance of vehicles will be done which keeps the noise level within limits.
- At the boundary of mining lease green belt of local trees will be planted which will act as acoustic barriers. Planting of bushy trees of rich canopy in and around the mine area to intercept noise transmission. A 7.5 m wide belt of trees of different heights will be useful to act as noise attenuator in the mining areas.
- Delay detonators millisecond delay interval will be used. For keeping the vibrations minimum.

Land Reclamation Measures: The mining will be by semimechanized opencast method of mining. The ore reserves will lost long even after the ML period expires , the same will be renewed for further period, hence question of back filling /reclamation does not arise at this stage. However it is proposed to carryout plantation in the non mineralized area on regular basis.

Plantation: It is proposed to select the local tree species with the help of forest department having 5 tier arrangements for implementation all along the mining lease in order to control dispersion of fugitive dust from the mining lease. To enhance the environment proposed afforestation programme will be carried out by planting 50 saplings per year.

Proposed Afforestation Programme

Year	Within Lease(A) No.of Saplings	Outside Lease(B) No.of Saplings	Total(A+B) No.of Saplings
1 st	230	770	1000
2 nd	240	810	1050
3 rd	240	810	1050
4 th	380	720	1100
5 th	450	750	1200
Sub Total (1-5 years)	1,540	3,860	5,400
6 th -7 th	-	5,000	5,000
Total -7 Years	Total (Within & outside ML area)		10,400

Occupational health:

- All the mine workers will be sent to nearest Hospital which has the facilities for chest X-ray, pulmonary function test & audiometry, TB, Malaria, HIV etc. once in 5 year. Free Transport will be provided.
- It is proposed to supply treated water for drinking water for the mine workers.
- A safety committee will be constituted to implement the proposed OSHA management plan and environment management programme and take proper mitigative measures as per EIA/EMP.
- Services of Occupational Health Specialist will be arranged regularly.
- The proponent will bear all the expenditure related to health check up and treatment of the mine workers.
- Individual health record of every worker will be maintained till the end of service or the end of mining operations. Records will be maintained and corrective action if required, shall be taken by the management Budget has been allocated under Recurring Annual Cost for Environmental protection

Employment Potential: Around 50 labours will be required for this mine. Managerial staff-2 consisting of Mines Manager, Mining Engineers, Geologist, Mining foreman, mining mate and safety engineer will also be deputed. It is proposed to deploy local manpower meeting the eligibility criteria required for the job under consideration.

Due to industrial activity like mining; people residing in the nearby villages within the buffer zone are to be benefited by direct and indirect employment opportunities created by the mining activities. People are also beneficiaries for the facilities developed due to mining activity. A budgetary provision of Rs 2 lakhs as capital investment and recurring expenditure of Rs 5 lakhs is made in the management plan.

The mitigation measures suggested above shall be implemented so as to reduce the impact on environment due to operations of proposed mining activities. In order to facilitate easy implementation, mitigation measures are phased as per the priority implementation. A separate budgetary allocation of the funds is made for the environmental protection measures. The monitoring of the pollution to know the effectiveness of the applied control measures will be carried out at regular interval. A budgetary provision of Rs. 5 lakhs as annual recurring expenditure is made in the management.

AN EPILOGUE

In compliance with the environmental procedure the environmental clearance application is made. Necessary scientific studies have been undertaken as per the guidelines set by the Ministry of Environment, Forests & Climate Change (MoEF&CC). The suggestions/recommendations of all the experts, competent authorities, and government officials are being sought for the impacts of the proposed project. Views and guidance of the local residents, community based organizations, social organizations are extremely important in order to devise a full proof Environment Management Plan for the proposed mining project and also mitigate the damages caused due to the project. Allocation of necessary funds, manpower and machinery will be made to for the protection and conservation of all the components of environment. It is ensured that all mandatory clearances will be sought from respective competent authorities before operating the proposed **Hivardara Limestone & Dolomite Mine (27 Ha)**. I Prashant Deshmukh took the responsibility & committed to implement the suggestions for the improvement of the environment and assure that every attempt will be made for the conservation and protection of the natural resources to the maximum extent.