

EXECUTIVE SUMMARY

INTRODUCTION : M/s Rare Minerals is a Partnership firm with Mr. M. Selvam, Mr. T. Deva Anbu, Mr. S Krishnaraj and Mr. T Ajith Kumar as Partners, established in December 2002. The firm started for export venture of Ilmenite , Mgnetite and Garnet minerals in the year 2002. Ministry of Mines was granted mining lease under MMDR, 1957 vide letter No. **44/32/2006-M,IV dated 24.12.2008** to **M/s Rare Minerals** at to survey no. 16,17,18, 22 and 14 Village: Dandewadi, Taluk: Rajapur, District: Ratnagiri. The mining lease area covers 14.00 hectares. The mining plan for same is approved by Indian Bureau of Mines vide Letter No. MP/MAN-593(MAH)/GOA/2012-13 Dated 17.12.2012 for Garnet and Magnetite.

Total mining lease area for Ilmenite, Magnetite, Garnet & Other Heavy Minerals mines of M/s rare Minerals is 14.00 Ha. It is proposed to mine an average of 1050 Tons of Magnetite, 105 Tons of Garnet, 789 Tons of Ilmenite every year for the first 5 year by opencast mining.

As per the size and nature of the project, mandatory Environmental Clearance is essential, beside having consent to establish & operate from Maharashtra Pollution Control Board, , Approval for Indian Bureau of Mines etc. The proposed project does not involve acquisition of land hence this aspect is not involved. However, the current status of the project stands as under;

- Mining Lease under MMDR, 1957 was granted by Ministry of Mines vide letter No. 4/32/2006-M,IV dated 24.12.2008
- The Magnetite, Garnet Deposits sanctioned to Rare Minerals by Industrial, Energy & Labor Department Government of Maharashtra, Vide Letter No. MMN-1005/C.P. on dated 19th January 2009. Lease for 20 years.
- Mining Plan and PMCP has been approved by Indian Bureau of Mines vide Letter No. MP/MAN-593(MAH)/GOA/2012-13 Dated 17.12.2012 for Garnet and Magnetite.
- Mining Plan and PMCP has also been approved by Atomic Mineral Division for Ilmenite of Mines vide Letter No. AMD/MRG/RM/MP/14.00.0Ha-Dandewadi/2013 dated 01.11.2013



Location Details & Accessibility : gives the general and specific location of M/s Rare Minerals, Ilmenite, Magnetite, Garnet & Other Heavy minerals mines. The area is approachable from MSH 4 via Rajapur is 20km away from project site. The nearest village Dandewadi is 1.0 km in East direction from project site. The distance from district head quarter Ratnagiri is about 45 km. The nearest Railway station is Ratnagiri which is at about 52 km.

Land Requirement - The mining lease area covers 14.00 hectares lying adjacent to survey no. 16,17,18, 22 and 14 Village: Dandewadi, Taluk: Rajapur, District: Ratnagiri.

Geological formations & Ore Reserves: The occurrence of heavy mineral placers commonly known as ‘black sand’ is present in several localities along the konkan Coast, Maharashtra. The placer sand with varying proportion of ilmenite and magnetite as major constituents have been reported from many area of Ratnagiri district, Konkan Coast Maharashtra. The continuity of these coastal beach deposits is interrupted by drainage features like river mouths, creeks and tidal inlets. These deposits in general, occur as placer which are adjacent to the sea, as a berm along high tide line, as a dune deposit further which inland, as bar in river and creak mouth and also in the low lying interior in the backshore.

Mineable Resource/Reserve are estimated to be 1,12,850 Ton. It is proposed to mine an average of 1050 Tons of Magnetite, 105 Tons of Garnet, 789 Tons of Ilmenite every year for the first 5 year by opencast mining.

Mining Method: Mining will be done by the opencast method. Since the deposit is exposed to the surface and is accessible by the existing roads, no development work is required. There is no over burden in mining operation. The only mining activity will be to scrap the heavy mineral rich sand from the beach sand using hand shawls and bucket through head loads in trucks parked at the nearest point of reach to the mining area for onward transfer. The depth of the working are planned upto 0.9 m only.

Blasting - Mining of the heavy mineral sand is carried out manually hence no drilling blasting is involved

Transport of Mineral- Material will be transported mostly by road from the mine to the Beneficiation plant. The final products will be transported to weighing point and the products will be weighed and again transported to the Ratnagiri Warehouse for special packing and stored for export. According to the customer's instructions the mineral is transported to Margao port for export.

Waste Generation and Management There is no Top soil, no overburden during the first five year period of mining plan. However 46% of waste sand will be encountered in the mining process. The waste sand will be sent back to the mining lease area for reclamation. In addition to back filling, the sea will bring the replenished material in the form of sand every year that in course of time will bring back the natural profile of the mined out area.

Drainage: Since the proposed mining area is away from hamlets, agricultural fields and which is adjacent to sea front, so that there would not be any serious problem of inundation. Sea water collects the heavy minerals to the applied area will recede automatically since the slope is towards the Arabian Sea.

Ground water: The proposed excavations are not going to touch the ground water table. Thus, there will not be any contamination of the ground water because of this mining. The water

requirement for the mine will be met from the bore well / dug well. There will be no discharge of waste water from the mine.

Employment Potential: Around 26 labours will be required for this mine. It is proposed to deploy local manpower meeting the eligibility criteria required for the job under consideration. 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 (14.00 Ha) of the **Dandewadi Rare Minerals Mine** is considered as Core Zone while the 5 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 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 1th March 2016 to 31st June 2016 representing summer season.

Water Quality: Total one surface & three 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 at 7 locations were carried out for 13 continuous weeks beginning from March 2016 to May 2016, as per norms stipulated by the Central Pollution Control Board. To assess the baseline ambient quality eight air quality monitoring location were selected on the basis of wind direction and other meteorological parameters in core and buffer zone area and also as per the conditions prescribed by SEAC, while presenting TOR.

Air Quality: The PM₁₀ PM_{2.5} SO₂, NOX values for all 6 stations were below.

- **Particulate Matter₁₀:** The 24 hourly maximum concentration of PM₁₀ reported during the survey ranged from 39.8 to 44.1 µg/m³. This is lower than the NAAQ permissible level of 100 µg/m³.

- **Particulate Matter_{2.5}**: The 24 hourly maximum concentration of PM_{2.5} reported during the survey ranged from 18.1 to 22.1 $\mu\text{g}/\text{m}^3$. This is lower than the NAAQ permissible level of 60 $\mu\text{g}/\text{m}^3$.
- **SO₂**: The 24 hourly maximum concentration of SO₂ reported during the survey ranged from 8.9 to 10.9 $\mu\text{g}/\text{m}^3$. This is lower than the NAAQ permissible level of 80 $\mu\text{g}/\text{m}^3$.
- **NO_x**: The 24 hourly maximum concentration of NO_x reported during the survey ranged from 10.8 to 12.4 $\mu\text{g}/\text{m}^3$. This is lower than the NAAQ permissible level of 80 $\mu\text{g}/\text{m}^3$.

Noise Levels: A noise survey for baseline levels of noise indicates that noise levels are in the range of 34.6 to 46.0 dB at 7 studied stations. These are well within prescribed limit for residential area.

Soil Quality: Soil samples were collected at 3 selected locations in the study area to assess the existing soil conditions around the mine. Overall soils are moderately suitable for cultivation of arable crops and have moderate fertility.

Biological Environment: The core and 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 16 inhabited villages. The population is distributed among 2386 households in the study area. The inhabited villages have a population of 8748 comprising of 3935 males and 4813 females. The number of females per 1000 males is 1223. The overall literacy in the villages of the study area has 75.75%.

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 7 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 MANAGEMENT PLAN

Air Pollution Management :

- a) Haulage roads are frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement will be provide
- b) During transport ore is be covered by tarpaulins to prevent spread of dust from it during transportation.
- c) Regular maintenance of vehicles and machineries will carry out in order to control emissions.
- d) The dust respirators will provide to all the workers.
- e) Good housekeeping and proper maintenance will practice which will help in controlling the pollution.

Water Pollution Management: There will not be any impact on water regime due to mining.

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.

Land Reclamation Measures: The 'mine out' will be filled up with the waste generated from the mineral separation plant. These waste material to the order of 46% are redumped into the

mining area itself. Therefore , this type of shallow mining and reclamation with back filling will not cause land degradation.

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 and Forests (MoEF). 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 Dandewadi Rare Minerals Mine (14.00 Ha). We at **M/s Rare Minerals** are 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.