THE KERALA MINERALS AND METALS LIMITED

Mining lease-Block-III

Renewal of Mining lease , expansion of existing Mining of Beach sand minerals and Mineral Separation by KMML in lease Block No: III, covering an area of 88.119 Hectares in Kollam District, Kerala [G.O.(MS) No: 175/2010/ID; dated:, Thiruvananthapuram 12/08/2010]

The Kerala Minerals & Metals Ltd., (KMML), A Government of Kerala undertaking, started in 1972 with an objective of mining & mineral separation in its MS Plant (MSP) and manufacturing of value added products in Titanium Pigment Plant, (TP) commissioned in 1984 and Titanium Sponge Plant (TSP), commissioned in 2011, making it the only integrated plant , from mining of Heavy Minerals to Manufacture of Titanium Sponge. Both Titanium Pigment Plant and Titanium Sponge Plant have necessary Environment Clearance.

For the Mineral Separation Plant, the initial mining lease was granted in 1972. In 1985, a mining lease was executed which was valid upto July 2005. For renewing of mining lease, a G.O. was granted by Govt. of Kerala in the year 2010, for this Block-III covering an area of 88.119 hectares. The Raw sand production shall be 7,50,0000 metric tonnes (MT)per annum (tpa) which includes Mechanised inland mining and beach wash collection. Beach wash collection will be limited to the approved quantity as specified in the NCESS report. The total lease area of this block is 88.119 Ha, of this, 85 Ha is in the possession of KMML. This lease area is located in villages of Chavara, Panmana & Vadakumthala of Karunagappally taluk, Kollam District, Kerala State. It is located at 8^{0} 59' 31.76" North. 76^{0} 31' 22.23" East Lat and Long. to 9^{0} 01' 03.53" North , 76^{0} 31' 08.41" East Lat and Long. Kerala Coastal Zone Management Authority (KCZMA) has recommended this block (Letter no 2320 /A3 /2013/ KCZMA/ S&TD) dated 25-01-2014 and the application forwarded to IA-III division of MOEF for CRZ clearance. The area is in Topo sheet No: 58D/9 & 58C/8.

The project proposal is for Environment and CRZ clearance and finalization of TOR for Renewal of mining lease and expansion of existing mining of heavy minerals covering an area of 88.119 hectares

The project includes beach wash mining, expansion of existing inland mining using TOYO pump mounted on pontoons & proposed mechanized dredge mining in this lease block-III. The total mineral reserve in the leasehold area is 12.69 million MT and Mineable reserve is 9.81 million MT. The expected life of Mine is 16 years. The mineral sand production capacity from inland mining is proposed to be enhanced from 2,50,000 MT/annum to 6,50,000 MT/ annum. Beach washing accretions are continuously replenished by the sea and about 1,00,000 MT is proposed to be mined by this method, The total ROM would be increased to 7,50,000 MT per annum.. Mine plan was approved by Indian Bureau of Mines for Sillimanite mineral for inland mining and the modified mine plan including the beach wash collection (as per the recommendation of NCESS) has been submitted to IBM for approval. The same mine plan was submitted to DAE, for mining of atomic minerals and clarification sought by DAE was submitted and approval is awaited.

The typical analysis of mineral sand from this block includes Ilmenite(29.14%),Leucoxene(6.10%),Rutile (2.54%),Zircon(2.56%),Sillimanite(4.63%),Monazite(0.43%), Silica (54.60%). The mineralogical analysis is based on work done by the Atomic Minerals Division of the Department of Atomic energy. In Beach wash collection and inland mining there is no top soil or over burden. The place of worship , burial ground, public works, Canals or other public works will be excluded and also keep 50 meter clearance from the mining area as in the Rule 27(h) of Mineral concession Rules,1960.

No change in water quality is expected because no chemical are added to the water system during dredging. There will be no groundwater withdrawal in the CRZ area.

The tailings from the Mineral Separation plant will be used to reclaim the mined out pit. Tailings additionally generated from Beach mining will be sufficient to reclaim the land to the original topography. The radioactive material, Monazite rich tailings from various mineral separation circuits shall be disposed in trenches and topped with Silica rich sand in accordance with the guidelines prescribed by the AERB

The Mineral Separation plant is located in the Mining Lease hold area. The Separation of minerals is by using the physical properties of minerals like magnetic, conducting, specific gravity etc. Equipments like magnetic separators, electrostatic separators and froth floatation system are used for physical separation of individual minerals. Ilmenite is used for captive consumption for production of titanium dioxide and other minerals like Rutile, Zircon and Sillimanite is sold in domestic market. Electricity is available from State Electricity board and total connected load for Mining and Mineral separation is 1900KW.

After post mining, reclaimed land would be suitable for tourism development, agriculture and afforestation. However the detailed plans for land utilization will be worked out with the consent from State Government.

KMML has appointed CSIR-NIIST, Thiruvananthapuram, to evaluate the environmental aspects and their possible associated impacts that would arise due to the proposed heavy mineral sand mining operations and to work out environmental management plans and environmental monitoring programme to prevent, control, minimize or eliminate the adverse environmental impacts envisaged from the mining activity.

The field studies shall be carried out for the study area (buffer zone) within 10 km radius with the Block-III area (core area) at the centre.

The EIA study shall include identification of environmental impacts on the lease areas due to the proposed mining activity. The study will identify the existing environmental conditions, predict impacts and suggest environmental safeguards and develop post project monitoring programme to ensure environment friendly mining and Mineral Separation.

The significant areas of EIA study of mining will include air emissions due to transportation and Mineral separation, change in Land use, noise generation, hydrology, traffic, sea erosion and social impact assessment including R&R. Other minor aspects include geology indicating seismic zone, water body ecology, flora & fauna, surface drainage pattern, vehicular traffic density, baseline meteorology and occupational safety and health and radiation studies. Based on the data collection, Coastal Regulation Zone map issued from CESS and mining plan, the impacts on air, water, noise, land, socio-economic environment and ecology will be assessed. For mitigation of adverse impacts, an Environmental Management Plan will be prepared. For monitoring of critically affected parameters, monitoring programme will also be designed. Rehabilitation & Resettlement plan as per the approved KMML pattern will be formulated.

OUR EIA CONSULTANT

EIA consultant: National Institute for Interdisciplinary Science and Technology (NIIST), Council of Scientific & Industrial Research (CSIR), Thiruvananthapuram

Accreditation Letter No NABET/EIA/04/12/015 dated 12-04-2012

Surveillance Assessment for continuation of accreditation: NABET/EIA/SA096/243 dated 01-05-2014

Sl. No. in the QCI list: Sl.No.105, as on May 2014.