

No.J-11015/28/2006-IA.II (M)
Government of India
Ministry of Environment & Forests

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New Delhi - 110 003

Dated the July 6, 2007

To

M/s Sesa Goa Limited
Sesa Ghor, 20 EDC Complex,
Patto, Panjim,
Goa-403 001

Subject: Expansion of Sanquelim Group of Iron Ore Mining Project of M/s Sesa Goa Limited located in Village Maulinguem, Tehsil Bicholim, District North Goa, Goa - Environmental Clearance Regarding.

Sir,

This has reference to your letter No. 'Nil' dated October, 2006 received in the Ministry on 30.02.2006 and subsequent letter dated 21.02.2006 and 9.1. 2007 on the subject mentioned above.

2. The Ministry of Environment and Forests has examined the application. It has been noted that the proposal is for production of 0.2 million TPA of iron ore and also the mine was not in operation since 1991-92 to 1998-99. The total mine lease area of the project is 203.5091 ha spreading over in three leases namely; Macarxendo (92.5385 ha), Chireachi Ambeacodil Dongurli (78.9306 ha) and Cancagalle Tolop (32.04 ha). No forestland is involved. Area proposed for mining is 59.293 ha, an area of 56.6075 ha is kept for OB dumps, 4.152 ha for mineral storage, 6.3129 ha for infrastructure, 8.5994 ha for roads and 68.5443 ha is others. No ecologically sensitive area such as national park/ wildlife sanctuary / biosphere reserves etc. is located in the core and buffer zone of the mine lease. There is no population in the core zone, therefore, displacement of population and R&R is not involved. The annual targeted production capacity of the mine is 0.20 million tonnes of iron ore. Life of mine is 11 years. Working will be open cast by mechanized method without involving blasting. Topography of the area is undulated and hilly at an elevation ranging from 14 m to 80 m above MSL. Present working depth and ultimate working depth of mine is 16 m below MSL. The water table is at 21 m above msl. The working will intersect groundwater table. The peak requirement of the project is 125 m³/day out of which 5m³/day will be met from groundwater and remaining 120 m³/day from mine water. About 16,000 m³/month of waste will be generated, which will be disposed in Torino pit. There will be no new external OB dump created. Plantation will be raised in an area of 132.058 ha. An

area of 8.2515 ha will be left as water body at the post mining stage. Consent to Establish (NOC) from the Goa State Pollution Control Board obtained on 06.05.2005 for enhancement of production from 0.15 million tonnes per annum to 0.2 million tonnes per annum of iron ore. Public hearing of the project held on 06.05.2005. Indian Bureau of Mines has approved mining scheme of the project on 21.10.2004 for lease area of 203.5094 ha consisting of three leases viz. TC Nos.09 of 1949, 10 of 1949 and 03 of 1954. Capital cost of the project is Rs.180 Lakhs.

3. The Ministry of Environment and Forests hereby accords environmental clearance to the above mentioned Sanquelim Group of Iron Ore Mining Project of M/s Sesa Goa Limited for production capacity of 2,00,000 tonnes per annum (0.2 million tonnes per annum) of iron ore by opencast mechanized method involving total lease area of 203.5094 ha under the provisions of the EIA Notification 1994 and its subsequent amendments issued under Environment (Protection) Act, 1986 subject to implementation of the following conditions and environmental safeguards.

A. Specific conditions

- (i) All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.
- (ii) Topsoil, if any, shall be stacked properly with proper slope with adequate safeguards and should be used for reclamation and rehabilitation of mined out areas.
- (iii) There shall be no new external OB dump created.
- (iv) The existing over burden dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.
- (v) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

- (vi) Drilling and blasting shall not be undertaken.
- (vii) Plantation shall be raised in an area of 132.058 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2000 plants per ha.
- (viii) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (ix) Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.
- (x) Prior permission from the competent authority should be obtained for drawal of ground water, if any, required for the project.
- (xi) Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.
- (xii) Consent to operate should be obtained from SPCB before starting production from the mine.
- (xiii) Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.
- (xiv) The voids created at the end of mining shall be converted into water body with shallow depths not exceeding 30 m. The higher benches of the excavated void/mine pit shall be terraced and plantation done to stabilize the slopes. Peripheral fencing shall be done along the excavated area.
- (xv) A Final Mine Closure Plan, along with details of Corpus Fund, should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

B. General conditions

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (ii) No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.
- (iii) Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.
- (iv) Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- (v) Data on ambient air quality (RPM, SPM, SO₂, NO_x) should be regularly submitted to the Ministry including its Regional office located at Bangalore and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (vi) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- (vii) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.
- (viii) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
- (ix) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

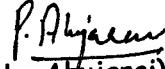
Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

- (x) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- (xi) The project authorities should inform to the Regional Office located at Bangalore regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xii) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bangalore.
- (xiii) The Regional Office of this Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- (xiv) A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation was received while processing the proposal.
- (xv) State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.
- (xvi) The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bangalore.

5. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.


6. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

7. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Dr. P.L. Ahujarai)
Director

Copy to:

1. Secretary, Ministry of Mines, Government of India Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment, Government of Goa, Panji.
3. Secretary, Department of Mines and Geology, Government of, Goa, Panji.
4. Chief Conservator of Forests, Regional Office (SZ), Kendriya Sadan, 4th Floor E&F, Wings 17th Main Road, 1 Block, Koranmangala, Bangalore-560 034.
5. Chairman, Central Pollution Control Board, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. Chairman, Goa State Pollution Control Board, House no. 243, Patto, Panaji, Goa - 403001.
7. Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
8. Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
9. District Collector North Goa District, Goa.
10. EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
11. Monitoring File.
12. Guard File.
13. Record File.


(Dr. P.L. Ahujarai)
Director