

**Speed Post**

**F. No. J-11015/410/2008-IA.II (M)**  
**Government of India**  
**Ministry of Environment, Forest & Climate Change**  
**Impact Assessment Division**

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**Dated: 31<sup>st</sup> July, 2015**

To,

**M/s The Odisha Mining Corporation Limited**  
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**Sub.: Bangur Chromite Mining Project of M/s The Odisha Mining Corporation Limited located at village(s) Bangur, Dhanurjayspur and Kusatikri, Tehsil Hatadihi, District Keonjhar, Odisha. (139.94ha)- Environmental Clearance regarding.**

Sir,

This has reference to your letter no. 12689/OMC/F&E/07 dated 13.06.2007 and subsequent letters dated 03.11.2008, 20.10.2009, 09.11.2009, 13.04.2015 and 19.05.2015 for the above mentioned proposal for mining of Bangur leasehold area of OMCL measures 139.94 ha. The nearest water source is the Salandi river flowing west of the mines at a distance of about 2.5 km. The deposit is covered under Survey of India toposheet No. 73 K/7 and bounded by Latitudes 21°15'38" and 21°16'55" N and Longitudes 86°19'14" to 86° 20' 10" E.

2. The proposal of TORs was considered by the EAC in its 21st Meeting held on November 19-21, 2008 to determine the Terms of Reference (TOR) for undertaking detailed EIA study. The TORs were issued by EAC vide letter no. J-11015/410/2008-IA.II (M) dated 22<sup>nd</sup> December, 2008. The proposal was considered by EAC in its meeting held during November 2009 and 17-19 March 2010 wherein EAC recommended the proposal for grant of EC. The matter was examined in the Ministry and it was observed that the Hadgarh Wildlife Sanctuary was reported to be located at a distance of 5km from the mine lease for which the Ministry had while prescribing addition TOR to the project on 22.12.2008 prescribed specific TOR No. (xiv). Whereas the proponent during the presentation for environmental clearance before the EAC(M) on 17<sup>th</sup> -19<sup>th</sup> March, 2010 had categorically mentioned that no National Park/Sanctuary is reported within 10Km of the mine lease. The PP was requested to clarify the matter in the first instance, based on the same further decision on the consideration of the proposal was to be taken. In the meantime, PP was advised to obtain the requisite NOC from the Chief Wildlife Warden in view of the location of mine within 5 km of the Hadgarh Wildlife Sanctuary. On submission of information proposal was considered in the EAC meeting held during May 28-30, 2014 meeting wherein the Committee recommended the proposal for Environmental Clearance.

3. The lease area is located between altitudes 85 mRL and 45 mRL. At about 1.5 km northwest of the lease area, there is a narrow valley through which Salandi Nadi is flowing southwards. About 3 km northwest of the lease area, the valley has been dammed to create a large reservoir i.e. Hadagarh Reservoir which extends for more than 7.5 km towards the northwest.
4. The mining lease area over 145.85 ha for Chromite was executed on 02.09.1975 for a period of 20 years and the tenure of lease expired on 02.09.1995. Subsequently, the PP submitted application on 22<sup>nd</sup> November 2004 to the Directorate of Mines, Govt. of Odisha for renewal of 139.94 ha non-forest land excluding the no ore bearing forest area of 5.91 ha. The Scheme of Mining along with Progressive Mine Closure Plan over an area of 139.94 ha is approved by IBM vide letter No. MS/OTF-MECH/ 48-ORI/BHU/2009-10 dated 19.02.2010. IBM has approved the final mine closure plan over surrendered area of 5.91 ha vide letter No. FMCP/OTF-MECH/06-ORI / 2007-08 dt 21.02.2008. State Government in the Department of Steel and Mines has allowed extension of lease period up to 31.03.2020 vide letter No.III (CR) SM-02/2010 1790/SM dt 21.02.2015 with an advice to OMC to execute the supplementary lease deed over 139.94 ha.
5. It is reported by the PP that the southern part of the Bangur chromite deposit had been exploited by opencast method of mining up to its economic limit. As part of the area could not be exploited by opencast method due to non-availability of surface rights over the un-mined mineralized area in the leasehold hence mining by underground method shall be followed for this mineralized zone. Exploitation of mineral deposit below the opencast pit will be taken up. Underground mine will be working for 300 days a year with three nos. of eight hour shifts daily. Rated production shall be of 0.6 Mt/y. Life of underground mine will be 28 years.
6. It was reported by the PP, that based on the development and stoping schedule during the scheme period the generation of waste will be 11576 m<sup>3</sup> and 10588 m<sup>3</sup> from development and stoping respectively and the same shall be dumped over an area of 0.25 ha on non- mineralized zone at 10 m height outside the ultimate pit limit.
7. About 600 m<sup>3</sup>/day water will be pumped out from the underground. The mine discharge water will be first treated to remove hexavalent chromium from the water. The 65 m<sup>3</sup>/d water shall be drawn from borewell. 105 m<sup>3</sup>/d water (135 m<sup>3</sup>/d in peak season) shall be taken from the treated mine discharge water. Total 80 m<sup>3</sup>/d water (90 m<sup>3</sup>/d in peak season) of water shall be recycled back. In the expansion phase direct manpower strength shall increase by 50 persons.
9. It was reported by the PP that the Project site is located within 0 km from the Hadgarh Wildlife Sanctuary. The 10km radius around the mining lease also includes Boula Reserved Forest, Hadagarh Reservoir and Salandi River. Schedule - I faunal species like Indian Elephant (*Elephas maximus*), Sloth Bear (*Melursus ursinus*), Wolf (*Canis lupus*), Pea Fowl (*Pavo cristatus*) are existing within 10 km radial area around mining lease.
10. The proposal was considered in the 31<sup>st</sup> Meeting of Standing Committee of NBWL wherein proposed site is recorded as 1 to 1.6 km from the Hadgarh Wildlife

Sanctuary. The NBWL recommended the proposal stipulating two conditions as given under:

- (i) Odisha Mining Corporation will limit transportation of minerals to maximum 600 trucks per month during day time.
- (ii) The project proponent shall maintain all the mining parameters prescribed by IBM and other regulatory authorities.

11. In addition to the above conditions Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Odisha considering the Hon'ble Supreme Court order dated 04.08.2006 in IA. 1000 regarding Jumua Ramgarh Sanctuary vide letter No.517/1WL (C)-SSP-254/2012 dt 21.01.2015 imposed the following conditions:

- (i) Odisha Mining Corporation will limit transportation of minerals to maximum 600 trucks per month during day time.
- (ii) The project proponent shall maintain all the mining parameters prescribed by IBM and other regulatory authorities.
- (iii) The recommendations of the State Board of Wildlife i.e. appropriate fencing should be raised on the boundary of the lease by the lessee.
- (iv) The recommendation of the Standing Committee of NBWL are subject to the directions of Hon'ble Supreme Court of India and provisions of Forest Conservation Act, 1980.

12. The baseline data was monitored during Post monsoon (2005) and Winter (2005-06) seasons. Also the baseline studies were carried out during summer 2009. All the parameters for water and air quality were within permissible limits. The Public Hearing for the Proposed Project was conducted at Bangur G.P. on 31.08.2009. The PH was presided over by Shri B.K. Bilung, Additional District Magistrate, Keonjhar. The issues raised during public hearing were also considered and discussed during the meeting, which inter-alia, included that there should be more employment of local workers who are technically suitable for underground mining, additional installation of tube wells in prioritized location, contribution of funds for road repairing work to the appropriate authority, health care, air pollution control measures to be adopted, raising of plantation, supply of mine drained water to the farmers for agriculture purposes etc. As per the villager's requirements, it was informed by the PP that they give preference to locals for employment; health issues, contribute funds for the said repairing work, plantation, supply of mine drained water through settling tank to the farmers etc. These have been incorporated in the Project Plan with budgetary provisions.

13. The estimated cost of the project is Rs. 12.00 Crore. It was reported by the PP that there is no court case/litigation pending against the project and no violation has been committed.

14. The Ministry of Environment, Forests & Climate Change has examined the proposal in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto and hereby accords the environmental clearance under the provisions thereof to the above mentioned proposal of **Bangur Chromite Mining Project of M/s The Odisha Mining Corporation Limited for enhancement of production capacity from 36,732 MT to 60,000 MT located at village(s) Bangur, Dhanurjajpur and Kusatikri, Tehsil Hatadihi, District Keonjhar, Odisha over the mine lease area of 139.94 ha** subject to compliance of the followings terms and conditions and environmental safeguards mentioned below:-

**A. Specific conditions**

- (i) No mining activity shall be carried out in radius of 1 km from the Hadgarh Wildlife Sanctuary.
- (ii) Mining shall not commence without necessary permissions for drawl of water and intersection of ground water table.
- (iii) Mitigation measures such as well-designed ventilation network within underground mine, provision of Personal Protective Equipment should be ensured and necessary training and awareness programs for mine workers should be undertaken.
- (iv) Continuous monitoring of Mine water should be done and reports furnished.
- (v) Continuous monitoring of all drinking water sources for Cr(VI) of Mine water should be done and reports furnished.
- (vi) Morbidity pattern which is a sensitive indicator of ill health with regard to Cr related diseases need to be done.
- (vii) Mine water discharge and/or any waste water shall be properly treated in an ETP/s for the removal of hexavalent chromium and to meet the prescribed standards before reuse/discharge. The runoff from OB dumps and other surface run off shall be analyzed for hexavalent chrome and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.
- (viii) The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.
- (ix) Traffic density on the route of mineral transportation shall be regularly monitored and report shall be submitted along with compliance report.
- (x) As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.
- (xi) Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- (xii) Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xiii) The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xiv) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezo meters during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is

observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.

- (xv) The project proponent shall regularly monitor the flow rate of the natural water streams flowing adjacent to the mine lease and maintain the records.
- (xvi) The reclaimed and rehabilitated area shall be afforested. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.
- (xvii) Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.
- (xviii) Plantation shall be raised in an area of 36.156 Ha. including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of excavated void to be converted in to water body, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per Ha.
- (xix) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xx) Process water discharge and/or any waste water shall be properly treated to meet the prescribed standards before reuse/discharge. The runoff from temporary OB dumps and other surface run off shall be analyzed for iron and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.
- (xxi) The decanted water from the beneficiation plant and slime/tailing pond shall be re-circulated within the mine and there shall be zero discharge from the mine.
- (xxii) Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained.
- (xxiii) Regular monitoring of water quality, upstream and downstream of natural water bodies shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
- (xxiv) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.
- (xxv) Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.
- (xxvi) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.
- (xxvii) Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use

- pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.
- (xxviii) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.
  - (xxix) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.
  - (xxx) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.
  - (xxxi) The project proponent shall undertake all the commitments made during the public hearing and effectively address the concerns raised by the locals in the public hearing as well as during consideration of the project, while implementing the project.

## **B. General Conditions**

- (i) No change in Chromite Ore Processing/Beneficiation 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 Processing/Beneficiation of mineral iron ore and waste should be made.
- (iii) At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM<sub>10</sub>) and NO<sub>x</sub> 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. The data so recorded should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (iv) 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.
- (v) There will be zero waste water discharge from the plant.
- (vi) 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.
- (vii) 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.

- (viii) 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.
- (ix) 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 Bhubaneswar.
- (x) The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xi) The Regional Office of this Ministry located at Bhubaneswar 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.
- (xii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.
- (xiii) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
- (xiv) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.
- (xv) The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.
- (xvi) The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and 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 at Bhubaneswar.

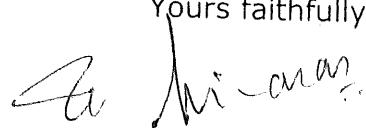
15. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

16. Concealing factual data or submission of false/fabricated data and 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.

17. 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 made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Odisha and any other Court of Law relating to the subject matter.

18. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Yours faithfully,



**(Dr. U. Sridharan)**  
**Director (S)**

**Copy to:**

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Secretary, Department of Environment, Government of Odisha, Secretariat, Bhubaneswar.
3. The Secretary, Department of Mines and Geology, Government of Odisha, Secretariat, Bhubaneswar.
4. The Secretary, Department of Forests, Government of Odisha, Secretariat, Bhubaneswar.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
6. The Additional Principal Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharpur, Bhubaneswar-751023.
7. The Chairman, Odisha State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
8. The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
9. The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
10. The District Collector, Keonjhar District, State of Odisha.
11. Guard File.
12. MoEFCC website

**(Dr. U. Sridharan)**  
**Director (S)**