



## STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY ODISHA, BHUBANESWAR

(Constituted under the EP Act, 1986 and EIA Notification, 2006 by the MoEF & CC, Govt. of India)  
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**SEIAA File No. 61542/564-MINB1/02-2022**

Project: Application of M/s. Sree Metaliks Ltd. of Sri Rewati Raman Sharma, Director for EC for Enhancement in Production Capacity of Iron ore from 0.702 MTPA to 1.50MTPA from Khandbandh Iron Ore Mines with crushing & screening plants over ML area of 35.774 Ha in village- Khandbandh, Tahasil- Barbil, District-Keonjhar -Environmental Clearance reg.

Ref: Your online application dated 08.03.2022 for issue of EC vide File No: SIA/OR/ MIN/61542/2007.

Sir,

This has reference to your online application seeking environmental clearance of the project proposal for Enhancement in Production of Iron ore from 0.702 MTPA to 1.50MTPA from Khandbandh Iron Ore Mines over ML area of 35.774 Ha with crushing & screening plants in village- Khandbandh, Tahasil- Barbil, District-Keonjhar. The proposal falls in the category 1(a)- 'Mining of minerals' in the schedule of EIA Notification, 2006 as amended from time to time. The proposal has been appraised on the basis of the documents enclosed with the application, such as form-2, form-1, prefeasibility report, approved mining plan, final EIA / EMP, public hearing proceedings, certified compliance report and clarifications furnished to SEAC in response to their observations.

### **The Project Proposal in a nutshell:**

1. The proposal is for Environmental Clearance of M/s. Sree Metaliks Ltd. for enhancement in production of Iron ore from 0.702 MTPA to 1.50MTPA from Khandbandh Iron Ore Mines over a ML area of 35.774 Ha with crushing & screening plants located in Baitarani Reserve Forest under Keonjhar Forest Division near village- Khandbandh, Tahasil- Barbil, District-Keonjhar filed by Sri Rewati Raman Sharma, Director.
2. The mining lease area was granted in favor of M/s Sree Metaliks Ltd. for a period of 50 years vide letter no III(A)SM-36/2002/407/SM dated 11.01.2017 under Rule



8(2) of MCR 2016. Subsequently, the ML was executed on 11.01.2017 for a period of 50 years from the date of execution i.e. w.e.f. 11.01.2017 to 10.01.2067 in favor of M/s Sree Metaliks Ltd. After the execution of the lease deed, the mining operation was started on 21.03.2018. Environmental Clearance for the production capacity of 702048 TPA has already been granted by SEIAA vide letter No-SEIAA/362 dated 06.09.2010. Further, extension of validity of time period up to 30 years has been granted by SEIAA vide letter no. 3486/SEIAA dated 30.08.2017. The project has obtained Surface Right over 30.980 ha vide letter No 746 dated 08.06.2017. The Consent to Operate from SPCB, Odisha for the production capacity of 702048TPA has been obtained vide the letter No 13359/IND-I-CON-6573 dated 10.12.2019 which is valid up to 31.03.2023. The Mining Plan of the proposal has been approved by IBM vide its letter no. MRMP/A/47- ORI/BHU/2020-21 dated 23.02.2021. The project proponent has submitted that Stage-II Forest clearance over 30.980 Ha has been obtained vide letter no. 5-ORC097/2010-BHU dated 16.12.2016. The certified compliance report on earlier EC granted has been submitted by Integrated RO, Bhubaneswar, Dist-Khordha vide letter dated 24.02.2022.

3. The Terms of Reference (ToR) has been granted by SEIAA, Odisha vide letter No.1798/SEIAA dated 26.07.2021 for undertaking detailed EIA study for the project.
4. Baseline Data for undertaking detailed EIA study for the project was collected from October 2020 to December 2020(post-monsoon).
5. The Public hearing was held on 06.12.2021 at 11.00 am at Baitarani Reserve Forest which is 03 kms from village Khandbandha and about 20 meters from Dalpahad Basti under Baitarani Reserve Forest area. During the social impact assessment process, locals raised the question on more job opportunities, developmental work in local villages, Welfare activities, environmental pollution control, health, education, sports, etc. The project proponent assured that the proposed facility would generate jobs for the women laborers during construction phase and operation phase. This project will increase the socio-economic activities in the peripheral areas, creating avenues for direct/indirect employment in the post project period. The project proponent has estimated Rs 2.63 Crores towards fulfillment of demands raised during public hearing.
6. The project proponent has submitted that the mine has planned to produce 1.50MTPA of ROM with maximum production being 1500105 T during the year 2024-25. The ROM constitutes saleable ore and Mineral Rejects. However, the required grade of ore will be met by blending the mineral reject with high grade ore.
7. The infrastructure facilities such as site office, weigh bridge, rest shed, first-aid centre, blasting shed, security house etc are already made available within the ML area.



8. **Location and Connectivity**-The mining lease area is part of Survey of India Topo sheet bearing No.73G/5 and is bounded by the latitudes from 22° 06' 16.72057" to 22° 07' 41.65495"N & 85° 25' 32.28303" to 85° 26' 40.67115"E. The ML area is approachable from Joda via Bichhakundi. It is 8 km away from Joda. Banspani and Jururi Railway station are the nearest railway station from the lease area and Banspani Railway station is at 10km and Jururi Railway station is at 12km away from the lease area. Bhubaneswar airport (320 km away) is the nearest airport from the area. There is an airstrip/ helipad near Bhadrasai, Barbil which is around 21km from the lease area.
9. **Method of Mining**-The project proponent has submitted that Open cast fully mechanized method of mining with drilling & blasting on three shift basis is proposed to excavate the iron ore and gradually achieve the production target. Drilling and blasting will be adopted for loosening of hard rock mass by rock drilling. The mining will be carried out with the deployment of DTH drill, excavators, dumpers/tippers & crushing & screening plant.
10. During plan period, two quarries i.e. 1 & 2 will be developed and further it will merge to single Quarry. Fully Mechanized open cast mining method with crushing & screening units will be established. The geological reserves is 17.71 Million Tonnes and mineable reserves is 10.973 Million Tonnes. During mining operation, the average bench height & width will be 6m & 9m respectively. The final slope angle of the pit will be 45° at the end of the life of the mine and the cut-off grade considered is +58% Fe. Mineral reject will be +45 to -58% Fe. 70% of the mineral reject produced will be blended with +58% ore and consumed, and the life of mine is estimated to be 8 years including the present plan period (5 years of Review of Mining Plan period + 3 years of conceptual period). The total generation of waste during the plan period will be 1969469 Cum and during the conceptual plan period it will be 1047192 cum. Out of total waste generated, 30% will be utilized for road maintenance and the remaining 70% waste will be backfilled in the earmarked site. The total generation of mineral rejects during plan period is 2710383 T and during the conceptual period mineral reject generated will be 655187 Cum. out of total mineral reject, 70% will be blended and used and the remaining 30% will be stacked temporarily in 2 nos of subgrade dump for future re-handling. The mode of transportation of mineral will be through 25t to 30t dumper/Volvo.
11. **Water Requirement** – The total quantity of water requirement for the project is estimated to be 159.80 KLD out of which 150 KLD will be met from Sona River and the balance 9.80 KLD will be met from ground water. For withdrawal of water from both the sources (surface & ground), NOC has already been obtained for the project.
12. **Employment Potential** - The expansion mining activity shall generate direct employment opportunity for 166 nos. and the locals will get priority for employment.



13. **Greenbelt Development-** The project proponent has submitted that green belt has been undertaken in an area of total of 4.696 Ha till date around the safety zone area and within the lease area. A total 11740 no's of plantation are existing at strategic locations like safety zone, dump slope, haul road side, etc. Further, for the next 10 years, the project proponent has planned plantation of 18000 no's of saplings over an area of 7.04 Ha. A capital cost of Rs 21 lakhs & recurring cost of Rs 9.64 lakhs has been estimated for this purpose.
14. The total Project Cost is estimated to be Rs 32.43 Crores (Rs 29.8 Crore capital cost and Rs 2.63 Crore CER Cost). Capital Cost earmarked for environmental Management Plan is estimated to be 55.00 lakh and recurring cost as 19.lakh/annum.
15. The baseline air quality data indicates that the average PM<sub>10</sub> in the study area ranges from 41.8-80.2µg/m<sup>3</sup>, PM<sub>2.5</sub> ranges from 11.8-45.20µg/m<sup>3</sup>, SO<sub>2</sub> ranges from 4.2-9.22µg/m<sup>3</sup>, NO<sub>x</sub> ranges from 8.2-17.2 2µg/m<sup>3</sup> which is well within the prescribed NAAQS norms of 100, 60, 80 & 80 µg/m<sup>3</sup> respectively. The concentration of particulate matter in the study area shows that the impact of expansion is negligible or not so significant. The AAQ values within the study area are well within the NAAQS standard. Based on the proposed enhancement, the maximum increments in the concentrations of PM<sub>10</sub>, PM<sub>2.5</sub> & NO<sub>x</sub> are 5 µg/m<sup>3</sup>, 0.1 µg/m<sup>3</sup>, 0.1 µg/m<sup>3</sup> respectively and the resultant concentrations are also well within the NAQMS standards.
16. The pH of the surface water samples collected in the study area ranges from 6.5 to 7.8, TDS ranges from 63 to 105mg/l, Sulphate ranges from 9 to 23mg/l, Nitrate ranges from 2.2 to 3.6mg/l, Chloride ranges from 12.4 to 16.2mg/l, Fluoride ranges from 0.26 to 0.54mg/l and are well within the prescribed limits of Surface water standard IS2296-Class-C.
17. The pH of the ground water samples collected in the study area ranges from 6.2 to 6.99 and are within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found to be in the range of 38.4-182.2 mg/l. Total Hardness ranged from 34 to 104mg/l, Chloride in water ranged from 13.6-28.17mg/l and sulphates in water ranged from 1.57-5.71mg/l, Iron ranged from <0.07mg/l and are well within the prescribed limits of drinking water standard IS:10500:2012.
18. The project proponent has submitted that there is no National Park, Wildlife Sanctuary, Elephant Reserve, Biosphere Reserve, Ramsar site or Tiger Reserve within 10 Km radius of the project area. The Site Specific Conservation Plan prepared has been approved by PCCF (wild Life) and Chief Wild Life Warden, Odisha vide memo No 4400/1WL(C) SSP-311/2011 dated 02.07.2011. The project has estimated a budget of Rs 82 lakhs for both buffer & core zone. Out of the above amount Rs 68.00 lakhs has been deposited under CAMPA.
19. The project proponent has submitted that there is no human settlement in the ML. area. The project does not envisage any leasing or acquisition of private



land. Hence there will not be any land ousters who have to be resettled or rehabilitated.

20. The project has incurred an expenditure towards establishment of infrastructure related to environmental management system is Rs.76 Lakhs. However, the operating cost envisaged for recurring expenditures is Rs.26.14 Lakhs per year.
21. For the socio-economic development of the local villages, M/s Sree Metaliks has been spending nearly 30 lakhs under different CSR activities for the year 2020-21. As per the recommendation of Need base assessment study by AISD, an amount of Rs 755.97 lakhs has been estimated for various socio-economic development in next 5 years. However in lieu of the recent notification of CER spending, the final implementation plan and associated costs on Public Hearing demands is estimated to be Rs 2.63 Crores.
22. The Environment consultant M/s. Ardra Consulting Services Pvt. Ltd., Bhubaneswar along with the proponent has made a presentation on the proposal before the Committee on 28.03.2022.
23. The project proponent furnished additional information / documents on the proposal to SEAC on 07.05.2022.
24. The SEAC have appraised the proposal in its meeting dated 21.05.2022 and have recommended for grant of Environmental Clearance for the project, stipulating various conditions.

The State Environment Impact Assessment Authority (SEIAA) after considering the proposal and recommendations of SEAC, Odisha hereby accords Environmental Clearance in favour of the project under the provisions of EIA Notification 2006 and subsequent amendments thereto subject to strict compliance of all stipulated conditions, as follows. Detailed compliance report of these conditions is mandatorily to be submitted by the project proponent to SEIAA at half yearly intervals by 1<sup>st</sup> June and 1<sup>st</sup> December each year.

**Stipulated Conditions:**

**A. Statutory Compliance:**

1. This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
2. The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2<sup>nd</sup> August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
3. The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid



by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors.

4. This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF & CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.
5. This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the project.
6. Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board.
7. The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
8. The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.
9. The Project Proponent shall follow the mitigation measures provided in MoEF & CC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29<sup>th</sup> October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
10. The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of groundwater for the project.
11. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
12. State Pollution Control Board shall be responsible for display of this EC letter at its Regional Office, District Industries Centre and Collector's Office / Tahasildar's Office for 30 days.
13. The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the



State Pollution Control Board and web site of the Ministry of Environment, Forest and Climate Change ([www.environmentclearance.nic.in](http://www.environmentclearance.nic.in)). A copy of the advertisement may be forwarded to the concerned MoEF & CC Regional Office for compliance and record.

14. The Project Proponent shall inform the MoEF & CC/SEIAA, Odisha for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

**B. Specific Conditions:**

**(I) Air Quality Monitoring and Preservation:**

15. The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, CO and SO<sub>2</sub> etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
16. Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM<sub>10</sub> and PM<sub>2.5</sub> are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from ah sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC / Central Pollution Control Board.

**(II) Water Quality Monitoring and Preservation:**

17. In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.



18. Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
19. Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
20. The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC / SEIAA, Odisha. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, SEIAA, Odisha, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
21. Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS).



The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1 /2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

22. The project proponent shall construct retaining wall and settling pond within the lease area. Further, check dams shall be constructed at strategic locations in which rain water passes in rainy season. Finally, the excess supernanuted after sedimentation shall be allowed to spill away through stone pitch structure to the nearby valley.
  23. De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. A legal affidavit shall be submitted within 6 months from the date of issue of Environmental Clearance to this effect with periodicity of de-silting.
  24. Detail design of the existing retaining wall and the proposed for the expansion from a chartered Civil Engineer shall be submitted within 6 months from the date of issue of Environmental Clearance to ensure that no silt after wash up is escaped from the core / buffer zone of the mines.
  25. Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office, MoEF & CC annually.
  26. Industrial waste water (workshop and waste water from the mine) should be properly collected and treated in an ETP as proposed so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
  27. The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF & CC and State Pollution Control Board.
- (III) **Noise and Vibration Monitoring and Prevention:**
28. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
  29. The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed;



by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

30. The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The worker engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

**(IV) Mining Plan:**

31. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.
32. The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
33. The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF & CC and its concerned Regional Office / SEIAA, Odisha.

**(V) Land Reclamation:**

34. The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations



shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.

35. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
36. The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
37. The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
38. The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF & CC, Govt. of India, Bhubaneswar as well as SEIAA, Odisha.
39. Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and topsoil / OB / waste dumps to prevent runoff of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
40. Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
41. The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by



DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.

42. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

**(VI) Transportation:**

43. No Transportation of the minerals shall be allowed in case of roads passing through transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.
44. The Main haulage road within the mine lease should be provided with a permanent water arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
45. Traffic management shall be done as per recommendation of Traffic Management Study Report.
46. The Project Proponent shall provide parking plaza for the heavy vehicles within the lease area as recommendation of NEERI.

**(VII) Green Belt:**

47. The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the



EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

48. The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
49. The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
50. The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt. and implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

**(VIII) Public hearing and human health issues:**

51. The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF & CC Regional Office and DGMS on half-yearly basis.
52. A commitment in form of an undertaking for periodical occupational health check up of the employee and the local people shall be done through an occupational health expert as per the detailed action plan submitted with the proposal within 6 months from the date of issue of Environmental Clearance.



53. The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.
54. The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).
55. The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1),Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have



suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.

56. The Project Proponent shall ensure that 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.
57. Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
58. The project proponent shall arrest the flow of surface run off and washings from mining lease area to protect the cultivated land nearby. As committed in the public hearing, the PP shall form committee with the villagers to discuss the issues and fulfil their demands through the committee.
59. The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame as proposed. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.
60. The project proponent shall comply in true spirit all the issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the project proponent as per OM F. No. 22-65/2017-IA.III, dated 30.09.2020 of MoEF&CC, Govt. of India.

**(IX) Corporate Environment Responsibility (CER):**

61. As per the MoEF & CC, Govt. of India Office Memorandum dated 30.09.2020, the project proponent is required to prepare and implement Corporate Environment Responsibility (CER) Plan. The activities proposed under CER shall be restricted to the affected area around the project. The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration. The activities proposed for CER shall be implemented and to be completed within three years and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF & CC annually along with audited statement and to the District Collector. It should be posted on the website of the project proponent.



62. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Regional Office of MoEF & CC, Bhubaneswar, SPCB, Odisha along with the Six Monthly Compliance Report.

**(X) Miscellaneous:**

63. The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF & CC.
64. The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
65. The project proponent shall establish a solar power plant with 30KVA capacity within the lease area as proposed.
66. It shall be mandatory for the project management to submit six (06) monthly compliance reports on post environmental monitoring in respect of the stipulated terms and conditions in this Environmental Clearance to the State Environment Impact Assessment Authority (SEIAA), Odisha, SPCB & Regional Office of the Ministry of Environment & Forest, Odisha in hard and soft copies on 1<sup>st</sup> June and 1<sup>st</sup> December of each calendar year. The proponent shall also upload the compliance report including results of monitored data, as applicable in the website of the Ministry for monitoring of EC Conditions.
67. 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 Odisha 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 EC conditions and shall also be sent to the respective to the MoEF & CC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
68. The proponent shall submit/upload six monthly reports -on the status of compliance of the stipulated 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 MoEF & CC, Govt. of India, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.



69. The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF & CC & its concerned Regional Office, SEIAA, Odisha, Central Pollution Control Board and State Pollution Control Board.
70. A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF & CC, Govt. of India.
71. The proponent shall comply all the specific conditions as recommended by CSIR-NEERI on carrying capacity study (as applicable) in time bound manner as proposed.
72. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
73. The project proponent shall augment infrastructure on drinking water, health care and education in nearby villages as per time bound action plan submitted.
74. The project proponent shall obtain permission from DGMS under 106(2b) to carry out blasting operation within the lease area.
75. The concerned Regional Office of the MoEF & CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF & CC officer(s) by furnishing the requisite data / information / monitoring reports.
76. 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 and any other Court of Law relating to the subject matter.



77. This Environmental Clearance (EC) is subject to orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
78. 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,

  
Member Secretary

**Copy to:**

1. **Joint Secretary (Environment)**, Ministry of Environment, Forests and Climate Change Govt. of India, Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj, New Delhi-110003 for information.
2. **Additional Chief Secretary**, Forests & Environment Dept., Government of Odisha for information.
3. **Member Secretary**, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
4. **Additional Principal Conservator** of Forests, Regional Office (EZ), Ministry of Environment & Forests, A-31, Chandrasekharpur, Bhubaneswar for information.
5. **Member Secretary**, CGWA, 18/11, Jamnagar House, ManSingh Road, New Delhi-110011 for information.
6. **Collector, District Magistrate**, Keonjhar, for kind information and necessary action.
7. **Secretary**, SEAC, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar for kind information.
8. Guard file for record/Website/Parivesh Portal.

DAI

  
Member Secretary