PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE, ODISHA HELD ON 18TH MAY 2024

The SEAC met on 18th May 2024 at 10:30 AM in the Conference Hall of Odisha State Pollution Control Board, Bhubaneswar under Chairmanship of Sri Shashi Paul. The following members were present in the meeting.

1.	Sri Shashi Paul	-	Chairman (through VC)
2.	Dr. K. Murugesan	-	Member Secretary
3.	Dr. Rabi Narayan Patra	-	Member (through VC)
4.	Dr. Chittaranjan Panda	-	Member
5.	Prof. (Dr.) H.B. Sahu	-	Member (through VC)
6.	Prof. (Dr.) Abanti Sahoo	-	Member (through VC)
7.	Er. Fakir Mohan Panigrahi	-	Member (through VC)
8.	Prof. (Dr.) B.K. Satpathy	-	Member
9.	Er. Kumuda Ranjan Acharya	-	Member
10.	Shri Jayant Kumar Das	-	Member (through VC)
11.	Dr. Ashok Kumar Sahu	-	Member (through VC)
12.	Dr. K. C. S Panigrahi	-	Member (through VC)

Draft proceedings of the meeting was finalized by the members through e-mail and final proceedings of the meeting was confirmed by the members through e-mail. The agenda-wise proceedings and recommendations of the committee are detailed below.

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF DALPAHAR IRON AND MANGANESE ORE MINES FOR ENHANCEMENT IN PRODUCTION OF IRON ORE FROM 0.31 MTPA TO 2.99 MTPA AND FOR MANGANESE THE SAME EXISTING 0.094 MTPA HAVING MINING LEASE AREA OF 89.961 HA. IN DALPAHAR VILLAGE, BARBIL TEHSIL, KEONJHAR DISTRICT OF SRI D.C. JAIN (POWER OF ATTORNEY - SRI AVIN JAIN) - TOR

1. The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of EIA Notification, 2006 and amendment thereafter.
2. This proposal is for Terms of Reference of M/s Dalpahar Iron and Manganese Ore Mines for enhancement in production of Iron Ore from 0.31 MTPA to 2.99 MTPA and for Manganese the same existing 0.094 MTPA having lease area of 89.961 Ha. in Village - Dalpahar, Tahasil – Barbil, District - Keonjhar of Sri D.C. Jain (Power of Attorney - Sri Avin Jain).
3. **Category:** As per the EIA Notification 2006 and amendments thereafter, the existing project comes under Category - B1 in Schedule 1(a) – Mining of Minerals.
4. **Project details:** Earlier, production capacity of 0.31 MTPA of Iron Ore and 0.094 MTPA Manganese ore was planned based on limited exploration of 7 boreholes over 10.594Ha. of diverted forest land only which indicated less reserves. Recent explorations as on 25.02.2024 of additional 53 bore wells over part of the lease area shows the availability of 14.888 Million Tons of Iron Ore Reserves. Further, exploration in the balance unexplored

area of about 41 ha. is underway and the mineable reserves quantity are expected to substantially increase for both Iron and Manganese ore. Considering the present techno-economic viability, availability of reserves, availability of technology and feasibility of implementation, this project involves the proposal of expansion in production capacity from 0.31 MTPA to 2.99 MTPA of Iron ore and 0.094 MTPA of Manganese in Dalpahar Iron and Manganese Ore Mines of Sri D.C. Jain (Power of Attorney - Sri Avin Jain) over an area of 89.961Ha. in Baitarani R.F, Barbil Tehsil, Keonjhar District, Odisha.

5. **Location and connectivity**: The Proposed Project is located at Baitarani R.F, under Barbil Tehsil of Keonjhar District, Odisha bounded by Latitude: 21° 58' 43.04" N – 21° 58'04.70" N and Longitude: 85° 23' 59.17" E – 85° 23' 26.72" E bearing Topo sheet No: F45N5 (73G/5). Nearest highway is NH 215 - 6.9kms; Nearest Railway station is Jaroli railway station - 2.7 Km (SE) and Banspani - 3.5KM (NE); Nearest Airport is Barbil -Tonto air Strip – 7.2 km(NW), Nearest major water bodies Baitarani River - 4.6 Km (E), Kunduru Nala - 2.5(W), Kakarpani Nala - 5.3(SW), Kundra or Suna Nadi – 0.8km (NW); Topadihi Nala - 9.2(W), Dalka Nala-3.0(NE).

6. **Mining chronology**: The original mining lease of Dalpahar area i.e. 101.171 Ha. comprises of 5 blocks i.e. Block No. A (89.961Ha.), B1 (0.607 Ha.), B2 (7.689 Ha.), B3 (1.012 Ha.) & C (1.902 Ha.). All the blocks were originally granted separately in 05.06.1984 and executed on 09.06.1986 for a period of 20 years. The mining operation started in 01.04.1993 with all the statutory clearances at that time. Subsequently, Manganese Ore as 2nd mineral was included in the existing mining lease for coterminous period by execution of supplementary lease deed on 25.05.2000. As the lease got expired on 08.06.2006, the renewal application was made within time i.e. on dated 01.06.2005 under Rule 24A (1) of MCR, 1960 and therefore, the lease was deemed to be extended as per above provision. The mine was not in operation since 1995 for want of statutory clearances. In the meantime, State Govt. vide proceeding No. 3882 dated 01.05.2015 declared the mining lease (all the blocks – A, B1, B2, B3, C) as lapsed u/s 4A of the MMDR Act, 1957. Whereas, as per the direction of Hon'ble High Court of Orissa and further hearing at Steel & Mines dept., Govt. of Odisha passed the order vide no.6610/ IV (AB) SM-11/2015/S&M, Bhubaneswar dated 06.09.2019 "pleased to decided not to declare and record the Iron & Mn mining lease of Late D C Jain (power of attorney - Sri Avin Jain) over an area of 89.961 Ha. (Block-A) of Keonjhar district as lapsed" without prejudice to any other proceedings pending against the lessee before any court of law or authorities. Subsequently, the mining lease over an area of 89.961 Ha. is extended up to 08.06.2036 vide State Government order No.SM-MCI-MRL-0012-2021/3957/SM, Bhubaneswar dated 28.04.2022 as per Section 8A(3) of MMDR Act, 1957 and further amendments. Supplementary Lease Deed was executed on 27.04.2023.

Year	Date	Activity	Remarks
1984	05.06.1984	Mining Lease Granted-101.171 Ha. (5 Blocks)	Executed on 09.06.1986 for a period of 20 years.
1993	01.04.1993	Mining Operations Commenced	--
1995		Mining Operations Stopped	For want of statutory clearances

2005	14.11.2005	Forest Clearance Granted	Over 16.464Ha. area
2015	27.02.2015	Forest Clearance Applied for Balance area	Over 84.707 Ha. area
2019	Steel & Mines Dept. was declared lapsed all 5 Blocks vide letter no.3882/SM. III(A)SM-07/2012, Bhubaneswar dated. 01.05.2015. Thereafter as per direction of Hon'ble High Court of Orissa & further hearing at Steel & Mines dept., Govt. of Odisha passed the order vide no.6610/ IV (AB) SM-11/2015/S&M, Bhubaneswar dated 06.09.2019 mining lease was confined to an area of 89.961 Ha (Block No. A only)		
2020	06.11.2020	Review of Mining Plan Approved	For the period 2021-22 to 2025-26
2021	19.08.2021	Environmental Clearance Granted	Production quantity of 0.31 Mill.TPA Iron Ore and 0.094MTPA of Manganese Ore.
2022	28.04.2022	Mining Lease Renewed vide State Govt. Order	Extended upto 08.06.2036
2023	27.04.2023	Supplementary Lease Deed Executed	27th April 2023
Due to delay in getting tree filling permission from Forest department, mining activities recommenced only on 08.03.2024 over 10.594 Ha.			
2024	08.03.2024	Mining Production Commenced	March 2024 - ROM Production: 9.998 T (Iron Ore) April 2024 - ROM Production: 11,999 T (Iron Ore)
	27.03.2024	CTO Renewed	Valid upto 31.03.2025
2024	22.03.2024	Modification of Mining Plan	Applied for the period 2024-25 to 2025-26 with enhanced production quantity

7. **Earlier EC details**: Environmental Clearance for this project was granted by SEIAA, Odisha vide Lr.No.2260/SEIAA dated 19.08.2021 for the production quantity of 0.31 MTPA Iron Ore and 0.094MTPA of Manganese Ore. Due to delay in getting tree felling permission from Forest department, mining activities recommenced only on 08.03.2024. So far only small scale mining is carried out (i.e., from March 2024 - ROM Production: 9.998 T, April 2024 - ROM Production: 11,999 T).

8. **List of Statutory Clearances Obtained earlier:**

SN	Name	Authority	Status	Letter Number	Date of issue
Mining Project					
1	Forest Clearance (10.594 Ha.)	MoEF	Granted	8(21)40/2004-FCE	03.05.2007
2	Surface Rights (1.5 Ha.)	Collector	Obtained	Order No.293/Mines	28.01.1988
3	Surface Rights (9.745 Ha.)	Collector	Obtained	Order No.1313/Mines	18.07.2023
4	Environmental Clearance (0.31 MTPA –	SEIAA	Granted	Letter No: 2260/SEIAA	19.08.2021

	Iron, 0.094 MTPA – Mn.)				
5	Consent to Operate (0.31 MTPA – Iron, 0.094 MTPA – Mn.)	SPCB	Granted	4296/IND-I-CON-4882	27.03.2024

9. **Forest clearance details**: The original mining lease of Dalpahar area i.e. 101.171 Ha. comprises of 5 blocks. Subsequently, the mining lease was confined to an area of 89.961 Ha. (Block No. A only) as per the direction of Hon'ble High Court of Orissa and further hearing at Steel & Mines dept., Govt. of Odisha passed the order vide no.6610/ IV (AB) SM- 11/2015/S&M, Bhubaneswar on dated 06.09.2019.Out of the total 101.171 Ha of the 5 Blocks, Forest Clearance was obtained 16.464Ha. from MoEF vide letter F. No. 8- 103/2003-FC dated 14.11.2005. This includes 10.594 Ha. of diverted land within Block - A(89.961 Ha. of lease area). FC for the balance area of 84.707 Ha. (i.e., 101.171ha. – 16.464 ha.) was progressing which is now reduced to 79.367 Ha. (i.e., 89.961 Ha. - 10.594 ha.) including 3.113 Ha. of Safety Zone under section 2 (ii) of Forest Act, 1980 which was applied on 27.02.2015.

10. The User agency has deposited Rs. 491.46 Lakhs (Four Crores Ninety-One Lakhs Forty Six Thousand) towards the Site Specific Wildlife Conservation plan.

11. **Comparative table for Previous EC and proposed enhanced production:**

S.No	Description	Existing EC	Proposed expansion
1	Lease Area	89.861 Ha.	89.961 Ha.
2	Lease Validity	08.06.2036	08.06.2036
3	Nature of Use	Non - Captive	Non - Captive
4	Exploration Drill Holes	7 Nos	7 Nos + 53 Nos
5	Resources/Reserves (as on 25.02.2024)	Further exploration underway	
A	Iron Ore (@100% Recovery)		
	Total Resource	3,803,440 MT	20,205,165.00 MT
	Mineable Reserve	1,492,840 MT	14,287,777.50 MT
B	Manganese Ore (@35% Recovery)		
	Total Resource	420,873.75 MT	832,292.00 MT
	Mineable Reserve	396,271.25 MT	362,128.00 MT
6	Peak production Capacity		
7	Iron Ore, Mn. Ore	0.31 MTPA, 0.094 MTPA	2.99 MTPA, 0.094 MTPA

8	Method of mining	Opencast mechanized method with DTH drills, dumpers, excavators for development, production, sorting, etc.	
9	Screen Plant	1 x 200 TPH	4 x 300 TPH
10	Crusher Plant	1 x 100 TPH	1 X 300 TPH, 1X 150 TPH
11	Power Requirement	300 kV	1000 kV
12	Water Requirement & source	95KLD, borewells	188 KLD, borewells
13	Manpower requirement	82	265
14	SOTM	Category - 4	Category - 3

12. **Product details:**

Existing	Additional	After Expansion
Iron Ore - 0.31 MTPA Manganese Ore – 0.094 MTPA	Iron Ore – 2.68 MTPA Manganese Ore – Nil	Iron Ore – 2.99 MTPA Manganese Ore – 0.094 MTPA

13. **Mining plan details:** Modification of Mining Plan under Rule 17(3) of MCR, 2016 has been submitted for approval for the period 2024-25 to 2025-26 with enhanced production quantity of 2.99MTPA Iron Ore & 0.094 MTPA Manganese Ore.

14. **Mining method:** Mechanized Opencast method of mining will be continued on three shift basis with the deployment of DTH drills, Excavators for ROM/OB Handling in combination with Trucksdumpers for transportation, sizing through crushers/ screens, blending, despatch. TheManganese Ore raised from the mines will be subjected to sizing through crushers/ mobile screens, dressing, sorting/screening, blending, etc. Blasting will be done by adopting Controlled blasting along with shock tube initiation system / NONEL system with proper burden/ spacing, optimum charge per delay will be for getting optimum blast results and minimization of blast induced vibration effects. For Crushing & Screening, 4 Nos. of 300 TPH Mobile screen will be used and 1 Nos. of 300 TPH Stationary Jaw & Cone & 1 Nos. of 150 TPH Mobile Jaw & Screen will be used for sizing & sorting of material.

15. **Land use as per mining plan at the end of plan period and at conceptual stage:**

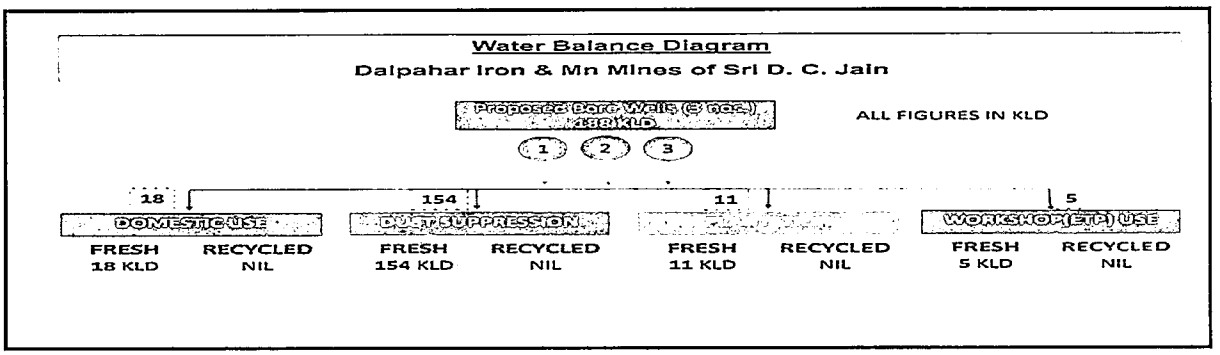
DESCRIPTION	Existing (Ha.)	At the end of plan period (Ha.)	End of conceptual period (Ha.)
Area Under Mining	3.06	18.53	53.551
Overburden/Waste Dumping	1.93	4.80	33.30
Mineral Storage	Nil	9.62	Nil
Infrastructure/Utility	Nil	2.18	Nil
Township / housing	Nil	Nil	Nil

colony			
Roads	2.17	10.34	Nil
Railway line etc., Magazine	Nil	Nil	Nil
Topsoil Stacking	Nil	0.44	Nil
Safety zone /Green belt	3.11	3.11	3.11
Sub-Total	**10.27**	**49.020**	**89.961**
Unutilized	79.691	48.101	0.00
Grand-Total	**89.961**	**40.941**	**89.961**

15. **Waste management details**: About 13,06,005 MT Waste will be generated during this plan period and 70% of the produced OB will be dumped inside the mines in the earmarked area of East ML Boundary & SE corner of Lease area and NE Boundary and the balance 30% will be used for road maintenance. The waste dumps will be properly graded & provided with retaining wall, garland drain arrangements. In active dumps will be reclaimed with coir matting/ vegetation.

16. **Baseline study**: Baseline Monitoring for this expansion proposal is being carried out during March – May 2024 (Summer Season) through reputed NABL Accredited Laboratory which will be submitted in EIA.

17. **Total water requirement and waste water management:** Total water requirement for this expansion proposal will be 188 KLD. The water required will be sourced from proposed three no's of bore wells within the lease area. CGWA NOC has been obtained for 95 KLD, it will be enhanced to 188 KLD.



18. **Power Requirement and Solar Power Details:** The power demand post expansion will be 1000 KV and application for the same is being filed in TPNODL and a Sub-Station will be installed inside the mines to step- down the power. One 750 KV DG will be used as a backup to power & One 125 KVA DG will be user office and lighting purpose. 10% of the total power consumption will be obtained from the proposed solar panels at the new office area.

19. **Rain Water Harvesting details:** Rain water harvesting by way of Rooftop harvesting in the mines office, nearby Government buildings, schools, constructing settling ponds, creation of storage pondswith Ground recharge pits in the catchment areas of the lease area will be carried out.

20. **Green Belt Development:** The Plantation is proposed to be carried out in the Safety Zone as Gap plantation.

21. **Total Employment:** 82 people will be continued to be employed. Additionally, expansion in production will also generate employment for another 265 persons. Besides, the project will also result in indirect employment in allied fields resulting in overall livelihood development in the area.

22. **Project Cost and EMP, CSR Cost**: The estimated capital cost for enhancement in Iron ore production from 0.31 MTPA to 2.99 MTPA with all associated facilities is around 100 Crores.

23. **Environment Consultant**: The Environment consultant **M/s Creative Engineers & Consultants Chennai** along with the proponent made a presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Creative Engineers & Consultants, Chennai**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – A** for conducting detailed EIA study.

i) Details mineralogical & chemical analysis of waste & OB rejects to be submitted.

ii) Copy of Environmental Clearance for the prior exploration by drilling holes.

iii) Layout showing the details of waste dump yard, garland drain, settling pond, terrain of water flow etc.

iv) Permission copy from Department of Water Resources, for the usage of ground water.

v) The project proponent shall explore the possibility of minimizing the tree felling and its further transplantation for their survival. At the time of EC presentation, brief note regarding this to be stated.

vi) Details of parking plaza.

vii) Traffic study report vetted by institute of repute.

viii) Progressive plan for post mining period.

ix) Note on Surface water management methods.

x) Any forest land required outside the lease area for use of transportation route, if so, detailed status of diversion of such forest land is to be submitted.

xi) Details of existing mines and their operational status within 10 kms radius is to be submitted.

xii) The following information to be submitted.

a) Compliance of mining plan, including waste and OB dump management, mine closure plan etc.

b) Compliance to Common cause judgment

c) Status of R&R

d) Compliance of plantation

e) Compliance of public hearing issues

f) Status of complaints/ court cases/legal action

g) Compliances to conditions stipulated in the EC issued by SEIAA, Odisha vide Lr.No.2260/SEIAA dated 19.08.2021 for the production quantity of 0.31 MTPA Iron Ore and 0.094MTPA of Manganese Ore. The document needs to be certified by the designated officer of the Regional Office of the MoEF&CC, Bhubaneswar.

h) The following studies be undertaken by domain experts, viz:

- Blast vibration study if feasible with trial blasts
- Socio economic study of the neighbouring habitation
- Biodiversity study (with special emphasis on RET and endemic species) with audit mechanism.
- Slope stability study for both mines and OB /waste dumps.
- Surface runoff management along with rainwater harvesting and ground water recharge include the design of drainage structures.
- Traffic density study, both inside the mines and at haulage roads, intersecting points of haulage road with public road.
- Hydrology study: The study findings and the mitigation measures thereof to be submitted

xiii) RL of ground water during summer and rainy season along with RL of the ground post mining as per the approved mining plan to be reported.

xiv) Report the contents of chromium, manganese, and other heavy metal elements such as vanadium, mercury etc. in the ground water samples of the study area.

xv) Cost of the CER calculated shall be utilized for the concerns of the people in terms of health, education, and infrastructure and environment protection. Project Proponent also shall include the budget for the betterment of schools nearby and to facilitate the online education system by providing Wi-Fi connectivity and desktops/tablets.

xvi) The project proponent should provide in the EIA Report details of all the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after grant of EC.

xvii) The project proponent should submit the revenue plan for mining lease, revenue plan should be imposed on the satellite imaginary clearly demarcate the Govt. land, private land, agricultural land etc.

xviii) The project proponent should submit the real-time aerial footage & video of the mining lease area and of the transportation route. The project proponent should submit the detailed plan in tabular format (year-wise for life of mine) for afforestation and green belt development in and around the mining lease. The project proponent should submit the number of saplings to be planted, area to be covered under afforestation & green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this the project proponent should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Presently in India there are many agencies which are developing forest in short interval of time. Thus, for the plantation activities

details of the experts/agencies to be engaged needs to be provided with budgetary provisions.

xix) The project proponent should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle needs to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.

xx) The project proponent should clearly bring out the details of the manpower to be engaged for this project with their roles /responsibilities/designations. In addition to this the project proponent should mention the number and designation of person to be engaged for implementation of environmental management plan (EMP). The capital and recurring expenditure to be incurred needs to be submitted.

xxi) The project proponent should submit the year-wise, activity wise and time bound budget earmarked for EMP, occupational health surveillance & Corporate Environmental Responsibility. The capital and recurring expenditure to be incurred needs to be submitted.

xxii) The project proponent should submit the measures/technology to be adopted for prevention of illegal mining and pilferage of mineral. The project proponent should submit the detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory.

xxiii) The project proponent should clearly show the transport route of the mineral and protection and mitigative measure to be adopted while transportation of the mineral. The impact from the center line of the road on either side should be clearly brought out supported with the line source modelling and isopleth. Further, frequency of testing of Poly Achromatic Hydrocarbon needs to be submitted along with budget. Based on the above study the compensation to be paid in the event of damage to the crop and land on the either side of the road needs to be mentioned. The project proponent should provide the source of equations used and complete calculations for computing the emission rate from the various sources.

xxiv) The project proponent should clearly bring out that what is the specific diesel consumption and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.

xxv) The project proponent should bring out the awareness campaign to be carried out on various environmental issues, practical training facility to be provided to the environmental engineer/diploma holders, mining engineer/diploma holders, geologists, and other trades related to mining operations. Target for the same needs to be submitted.

xxvi) The budget to be earmarked for the various activities shall be decided after perusal of the Standard EC conditions. After perusal of Standard EC conditions if agreed the project proponent should also submit an undertaking by the way of affidavit for Compliance of Standard EC conditions already prescribed by the Ministry vide O.M. No and Specific condition if prescribed by the SEAC/SEIAA, Odisha.

xxvii) The project proponent should ensure that only NABET accredited consultant shall be engaged for the preparation of EIA/EMP Reports. The project proponent shall ensure that accreditation of consultant shall be valid during the collection of baseline date, preparation of EIA/EMP report and during the appraisal process. The project proponent and consultant should submit an undertaking the information and data provided in the EIA Report and submitted to the SEIAA, Odisha are factually correct and the project proponent and consultant are fully accountable for the same.

xxviii) The project proponent should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this the project proponent should submit the original test reports and certificates of the labs which will analyze the samples.

xxix) The percentage of iron in the final waste generated and not used as iron ore or its upgradation.

xxx) Compliance to NEERI recommendations.

xxxi) "Zero discharge" management & "Zero Dust Re-suppression" management with SOP be submitted.

xxxii) Internal roads, drain management with network of the drain, retaining walls and settling tanks with ETPs be submitted.

xxxiii) Details of air quality monitoring stations of the area and additional stations at entry and exit of mines and haulage roads, habitation to be considered.

xxxiv) Construction and perennial maintenance of haulage road with details of plantation and the species thereof to be submitted.

xxxv) Parking plaza layout with maximum no. of vehicles and types of vehicles that can be parked with basic amenities and facilities.

xxxvi) Forest Clearance details with copy of all Forest Clearance.

xxxvii) Status of complaints/ court cases/legal action regarding to lease along with a detailed write up indicating case no., purpose of the case etc.

xxxviii) Copy of lease document.

xxxix) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage.

xl) Project Proponent shall consider developing a good nursery in nearby village for production of saplings of 4-6 feet height for planting in safety zone, sides of external haulage roads and distribution among villagers for planting in their private land/ community land. The nursery may be developed by company on their own or in collaboration with forest department. A detailed proposal to this effect shall be submitted. The proponent shall ensure to use organic fertilizer in the nursery.

xli) Comprehensive water management, water balance with water harvesting and its reuse both monsoon and non-monsoon period.

xlii) STP plan with design with location in the layout map for domestic waste water treatment.

xliii) Provision of solar power (percentage wise) with detail plan.

xliv) To submit the network with dimension of concrete cement roads inside the mining lease area and haulage road.

xlv) To submit parking plaza at entry and exit of the mines with basic amenities.

xlvi) Plan and SoP to be submitted for water sprinkling inside the mines and outside in haulage road including regular vacuum cleaning and Zero Dust Resuspension system to completely mitigate and arrest fugitive dust emission.

xlvii) Wagon drill blasting must be avoided- to confirm.

xlviii) Details of grade of Fe to be mined, cutoff grade, management of off grade, quantity of each year wise and the dumping or storage plan of off grade and wastes to be provided.

xlix) Total water management including domestic use w.r.t sourcing from borewell, rain water harvesting and recycling of waste water from ETP/STP, both for monsoon and non-monsoon be submitted.

l) Measures to be taken for arresting and mitigation of occupational health hazard including identification of the same, both for employees and nearby/surrounding habitation.

li) Year wise waste/OB management with reference to generation and utilization in consideration with dynamic movement of inventory indicating dump area and dimension of storage be submitted.

lii) Details of grades to be produced, to be discarded as waste and dumps and the utilisation plan.

liii) Details of Trees falling.

liv) The road to which the approach road of 3.5 kms as stated to be connected?

lv) Permission/ NOC from CGWA as a contingency measure in case of intersection with ground water and the corresponding Disaster Management plan.

lvi) Details of plan and calculation of consumption of solar power including for water sprinkling vis - a - vis the generation and as percentage of total power demand.

lvii) Site specific wild Life management plan including protection and conservation of Endangered, Threatened and Near Threatened living species along with their categories be identified and submitted with due approval of Chief Wildlife Warden.

lviii) Rain water Harvesting Pond (s) details with design.

lix) Provision of suitable size of sump be planned in the second review of Mining Plan period prior to backfilling of Mined out area. The sump will be beneficial for the storage of water for use of Mines and recharge of groundwater Aquifer.

lx) The proposed land is a forest land. The lease area is covered with 35,000 trees. The PP need to submit concrete plan for how many trees can be transplanted in safety zone and how many trees shall be cut.

lxi) Detail water management plan in the EIA/EMP study as there is provision for transportation of final product in slurry form.

lxii) Ore/heavy metal analysis correlated with the elemental content of the baseline study to be submitted.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. ULTRATECH CEMENT LIMITED (UNIT: CUTTACK CEMENT WORKS) FOR EXPANSION OF CEMENT PRODUCTION CAPACITY (3.0 MILLION TPA TO 6.0 MILLION TPA) OF EXISTING CLINKER GRINDING UNIT AT VILLAGES: KHAMARNUAGAM & KOLTHPANGI, TAHASIL: ATHGARH, DISTRICT: CUTTACK OF DR. K.V. REDDY - TOR

1. The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of EIA Notification, 2006 and amendment thereafter.
2. This proposal is for Terms of Reference for environmental clearance of M/s. UltraTech Cement Limited (Unit: Cuttack Cement Works) for expansion of cement production capacity (3.0 Million TPA to 6.0 Million TPA) of existing clinker grinding unit at villages: Khamarnuagam & Kolthpangi, Tehsil: Athgarh, District: Cuttack of Dr. K.V. Reddy.
3. **Category**: As per EIA Notification dated 14th Sept., 2006 & as amended from time to time; this project falls Category - B, under S. No. 3 (Material Production), Project Activity '3 (b)' - Cement Plants.
4. **Location and connectivity**: The proposed project is located at Khasra No.: 64/ 1384 & 167/662, Villages: Khamarnuagam & Kolthpangi, Tahasil: Athgarh, District: Cuttack (Odisha) bounded by Latitude: 20°33'52.15"N to 20°34'11.74"N and Longitude: 85°46'30.29"E to 85°47'12.58"E bearing Toposheet no 73 H/10, 73 H/11, 73 H/14 & 73 H/15, Kisam of land is industrial land. Nearest NH & SH, Railway Station and airport are NH - 42 (~1.6 km in South direction); SH - 65 (~6.0 km in WSW direction); Machapur Railway Station is at 0.5 km in West direction and Cuttack Junction (16.0 km in SE direction) and Biju Patnaik International Airport, Bhubaneswar (~35.0 km in South direction); reserve forest is Sankhaipoi RF (~0.1 km in North direction) and water body is Barkatla Jor (~0.5 km in NW direction).
5. The Plant area is situated about 3.8 kms away from the Eco-Sensitive Zone of Kapilas Wildlife Sanctuary notified *vide* S.O. 1659 dated 17.06.2015 and as reported by the DFO, Dhenkanal *vide* letter no. 591 dated 23.06.2018.
6. Environmental Clearance for the Existing Clinker Grinding Unit with Cement Production Capacity of 3.0 Million TPA and D.G. Set (2 x 6 MW) at Villages: Khamarnuagam & Kolthpangi, Tahasil: Athagarh, District: Cuttack (Odisha) has been obtained from SEIAA, Odisha, dated 16th July, 2018. Amendment in existing EC has been obtained from SEIAA. Odisha *vide,* dated 12th August, 2018.
7. **Land Details**: Total Plant area is 36.4 ha. (90.0 acres) which is industrial land which was allocated by IDCO, Odisha; the proposed expansion will be done within the existing plant premises and no additional land will be required for the same.
8. Baseline was collected during Summer Season (March to May, 2023) which will be submitted in EIA.
9. **Comparative table for previous EC and proposed TOR:**

S. No.	Description	Unit	Existing	Additional	Total After Expansion
1.	Cement Mill (VRM & Ball Mill+ RP)	TPH	400	400	2 x 400

2.	Packing Machines	TPH	240 x 3 and 120 x 1	240 x 1	(3 x 240 and 1 x 120)+(1 x 240)
3.	Truck Loading Machines	No.	6	3	9
4.	Cement Bulk/ Loose Loading System (Truck)	TPH	200	250	450
5.	D.G. Set (For Emergency backup)	KVA	2 x 6	-	2 x 6
6.	Hot Air Generator (HAG)	MKCL	34	-	34

10. **List of statutory clearances**:

S. No.	Statutory clearances	Details
1.	Environmental Clearance for the Clinker Grinding Unit with Cement Production Capacity of 3.0 Million TPA and D.G. Set (2 x 6 MW)	Obtained from SEIAA, Odisha dated 16th July, 2018.
2.	Amendment in existing EC	SEIAA. Odisha vide, dated 12th August, 2018
3.	Consent to Establish for Cement Production Capacity of 3.0 Million TPA and D.G. Set (2 x 6 MW)	Obtained from Odisha Pollution Control Board vide, dated 09th April, 2019.
4.	Consent to Operate for Cement Production Capacity of 3.0 Million TPA	Obtained from Odisha Pollution Control Board vide, dated 30th March, 2024; (which is valid up to 31st March, 2027).
5.	Permission for withdrawal of 300 KLD Ground Water	Obtained from CGWB vide Letter dated 05/09/2021
6.	Permission for withdrawal of 0.12 Cusec water has been from Mahanadi River	Obtained from Department of Water Resources (Govt. of Odisha) vide, dated: 30.06.2023
7.	Permission for power	Obtained from Odisha State Power Corporation Limited *vide,* dated: 10.01.2023

11. **Raw Material & Fuel Requirement :**

S. No.	Raw Material & Fuel	Quantity (Million TPA)			Source	Approx. Distance and Mode of transportation
		Existing	Additional	Total		
1.	Clinker	2.07	2.07	4.14	Rawan Cement Works, Raipur, Chhattisgarh and also from other units of UTCL as Awarpur Cement Works, Andhra Pradesh Cement Works, Hirmi Cement Works	600 - 900 km / Rail

2.	Gypsum (Mineral / Chemical)	0.1725	0.1725	0.345	Paradeep Phosphate Limited, Haldia and Mineral Gypsum from Bhutan	100 - 350 km / Road
3.	Fly ash / Pond ash	0.69	0.69	1.38	Tata Steel, Angul, GMR Dhenkanal, Rungta Power, Angul	100 - 150 km / Road
4.	Slag	1.725	1.725	3.45	JSPL, Angul, Tata Steel, Angul	120 Km / Rail
5.	Coal (Imported / Indigenous) (MTPA)	0.10	0.10	0.20	Open Market	60 Km / Road
6.	Diesel/ HSD (KLD)	45	25	70	Nearby area	50 - 100 km / Road

12. **Details of waste generation:** Total dust generation will be 500 TPD (existing 250 TPD & additional 250 TPD). Total Domestic waste water 10 KLD (Existing 6 KLD & additional 4 KLD) generated from office toilets and canteen .Total Sewage sludge 14 Kg/ month (Existing 7 kg/ month & Proposed 7 kg/ month) will be generated. Used/ Spent Oil and waste (Cat. 5.1) (Existing 15 TPA & Proposed 15 TPA), Waste Residue containing Oil (Cat. 5.2) (Existing 0.5 TPA & Proposed 0.5 TPA), Empty barrels (33.1) (Existing 3 TPA & Proposed 1 TPA) will be generated.
13. **Waste management details:** Total dust collected from various pollution control equipment like Bag house and Bag filters is being/ will be recycled into the process. Total Domestic waste water 10 KLD (Existing 6 KLD & additional 4 KLD) generated from office toilets and canteen is being/ will be treated in existing STP of 10 KLD capacity and treated water 08 KLD will be used for greenbelt development/ plantation. Total Sewage sludge 14 Kg/ month (Existing 7 kg/ month & Proposed 7 kg/ month) will be generated and same will be used as manure. Used/ Spent Oil and waste (Cat. 5.1) (Existing 15 TPA & Proposed 15 TPA), Waste Residue containing Oil (Cat. 5.2) (Existing 0.5 TPA & Proposed 0.5 TPA), Empty barrels (33.1) (Existing 3 TPA & Proposed 1 TPA) will be generated as per Schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016; which will be sold to CPCB authorized recyclers.
14. **Water requirement and waste water management:** The total water requirement for the existing plant is 300 KLD and additional requirement for proposed expansion will be 150 KLD; thus, total water requirement after proposed expansion project will be 450 KLD. The source of Ground Water and Surface Water is Mahanadi River.
15. **Status of Approval supply of water:**
    Permission for withdrawal of 300 KLD water has been obtained from CGWB dated 05/09/2021 which is valid up to 04.09.2024.
    Permission for withdrawal of 0.12 Cusec (293.5 KLD) water has been obtained from Department of Water Resources (Govt. of Odisha) from Mahanadi River dated: 30.06.2023.
16. **Power requirement:** The total power requirement for the existing plant is 18 MW and additional requirement for proposed expansion will be 10 MW; thus, total power

requirement after proposed expansion project will be 28 MW. **Source will be** Odisha State Electricity Board (OSEB)/ Grid and D.G. Set - for emergency backup.

17. **Status of Approval supply of Power:**
    Permission for existing power requirement has been obtained from Odisha State Power Corporation Limited dated: 10.01.2023 and permission for the proposed power requirement will be obtained at the time of the commissioning of the project.
18. **Rainwater harvesting details:** 4000 KL earthen pond under construction for rain water collection and harvesting.
19. **Green belt Development**: Out of the total plant area i.e., 36.43 ha, approx. 12.15 ha i.e. ~ 33% of the total plant area will be developed under greenbelt/ plantation.
20. **Total Employment**: Total 541, Existing - 371 (Regular - 39 and Contractual -332) ; Additional - 170 (Regular - 15 and Contractual - 150) will be employed for the proposed project.
21. **Project cost**: Total Cost of the Proposed Project is Rs. 350 Crores. Cost for Environment Management Plan includes Capital Cost of Rs 28.0 Crores and Recurring Cost of Rs. 1.12 Crore / annum.
22. **Environment Consultant:** The Environment consultant **M/s J.M. EnviroNet Pvt. Ltd., Gurugram** along with the proponent made a presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s J.M. EnviroNet Pvt. Ltd., Gurugram**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – B** for conducting detailed EIA study.

a) Technical details of the installed Bag house along with its efficiency, technicality, particle size, absorbing capacity etc.

b) Chemical analysis report of slag.

c) Traffic study report vetted by reputed institute.

d) Monitoring data of occupational health analysis.

e) Detailed sampling points for Air Quality Monitoring.

f) Video of the project site.

g) Management of solid dust and how to control the lighter particles along with chemical analysis to be furnished.

h) Compliances to the conditions stipulated in the EC issued by SEIAA, Odisha, dated 16th July 2018 along with amendment in the EC dated 12th August 2018. The document needs to be certified by the designated officer of the Regional Office of MoEF&CC, Bhubaneswar.

ITEM NO. 03

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S ANSIKA APEX SERVICES PVT. LTD FOR COMMON BIO-MEDICAL WASTE TREATMENT FACILITY PROJECT LOCATED AT MOUZA - DUKHIGUDA, PS- PAPODAHANDI, TEHSIL – TINTULIKHUNTI, DISTRICT- NABARANGPUR OF SRI CHITA RANJAN DASH - TOR

1. The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of EIA Notification, 2006 and amendment thereafter.

2. This proposal is for Terms of Reference for environmental clearance of M/s Ansika Apex Services Pvt. Ltd for Common Bio-Medical Waste Treatment Facility Project located at Mouza - Dukhiguda, Ps - Papodahandi, Tehsil - Tintulikhunti, District - Nabarangpur of Sri Chita Ranjan Dash.

3. **Category**: As per the EIA notification 2006, and its subsequent amendments, proposed project falls in category B under schedule of Item 7(da) - Bio-Medical Waste Treatment Facilities.

4. **Location and Connectivity** – The proposed project is located Khata no. 224/161, Plot No. 10 & 12, Mouza - Dukhiguda, PS - Papodahandi, Tehsil - Tintulikhunti in District - Nabrangpur, Odisha bounded by Latitude -19°20'6.07"N and Longitude - 82°36'41.26"E. Nearest road is NH- 26 at 7.3 km in NW direction. Nearest Railway Station is Khadapa RS Railway Station at 42 km in SSW direction. Nearest airport is Jeypore Airport at 50 km towards S direction. Nearest Habitation is Sonuguda Village at 1 km in W direction. Nearest Wildlife Sanctuary is – Ambapani Wildlife Sanctuary at approx.. 30 Km in N Direction. Nearest Water Body is Guntat River at 2.9 km in SE direction. Letter Of Intent was granted vide letter no 8722/IV(B)SM-53/2021 dtd 28.10.2021 and name of Lease Holder is M/s Raga Tradecon Pvt. Ltd.

5. **Land use details**:

S. No.	Facilities	Area (sqm)
1	Plant Facilities (Waste storage rooms, autoclave, incinerator, shredder etc.)	1066
2	Administrative and auxiliary facilities	554
3	Rain Water Harvesting Pit	46
4	ETP	464
5	Vehicle Wash	87
6	Green Belt area	1727.95
7	Parking	811
8	Internal roads	2398
9	Miscellaneous	438
10	Open Area	241
11	Staff Quarters	139.35
	Total Area	**7972.30**

6. **Proposed Units & Total Capacity:**

Autoclave – 0.50 m3 (2 No.s, 1 operational & 1 standby)

Shredder – 100 kg/hr (2 Nos, 1 operational and 1 standy)

Rotary Kiln- 200 kg/hr(1 no.)

Incinerator – 200 kg/hr(No.)

ETP – 10 KLD

7. **Waste generation and management**: Waste generation includes Ash of 100-150 kg/day and Residue of 10-20 kg/day. Ash residue from high temperature incineration and other material residues from the process shall be collected into containers / bags and shall be stored at temporary ash storage shed and shall be disposed into the secured landfill periodically after sufficient accumulation. All hazardous waste shall be strictly disposed as per Hazardous & Other Waste (Management& Trans-boundary movement) Rule, 2016.
8. **Baseline study**: Baseline study has been conducted during time period- March'2024-May'2024.
9. **Total water requirement and wastewater management**: Total 10 KLD of water is required for the proposed project and waste water will be treated in ETP of 10 KLD capacity.
10. **Power Requirement and solar power details:** Total power requirement for the project is 40 kVA.
11. **Rainwater Harvesting Details** – Rainwater harvesting pits covering an area of 46 sqm are provided.
12. **Green belt Development:** 1727.95 Ha of land and 100 saplings are provided as green belt cover.
13. **Employment:** 30 (skilled & unskilled) nos of persons are proposed for the employment for the project.
14. **Project cost:** Total cost of the project is 1.7 Crores.
15. **Environment Consultant:** The Environment consultant **M/s Grass Roots Research and Creation India (P) Ltd.** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Grass Roots Research and Creation India (P) Ltd.** along with the project proponent, the SEAC decided to take decision on the proposal after receipt of the following.

a) Details of renewable/ solar energy to be included in EIA report.

b) Precautionary measures for medical waste/ radioactive waste.

c) Traffic study report vetted by reputed institute.

d) Layout for storage facilities of different types of medical wastes along with precautionary measures.

e) Water quality analysis report of final treated water.

f) Detailed arrangement for storm water discharge into the drainage.

g) Note on disaster management system.

h) The proposed site is located within 75 K.M. from another existing CBWTF. As per CPCB guidelines, this proposed CBWTF does not met the siting criteria. The PP has to clarify as to why this proposal shall not be rejected due to non-confirm to the siting criteria. A detailed writeup in this regard shall be submitted.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S JINDAL STAINLESS LIMITED FOR "KALIAPANI CHROMITE MINES" OVER AN THE MINING LEASE AREA OF 89.0 HA. IN VILLAGE- KALIAPANI, TAHASIL - SUKINDA, DISTRICT - JAJPUR OF SRI VANKA SHIVARAMAKRISHNA - EC

1. This proposal is for Environmental Clearance of M/s Jindal Stainless Limited for "Kaliapani Chromite Mines" over an mining lease area of 89.0 Ha. in Village - Kaliapani, Tahasil - Sukinda, District - Jajpur of Sri Vanka Shivaramakrishna.
2. **Category**: This project falls under Category "B" or Schedule 1(a) - Mining of Minerals as per EIA Notification dated 14th Sept, 2006 and its amendments.
3. **Details of Expansion unit or reason**: This project is applied for EC under 7(ii) (a) of EIA notification 2006 as per MoEF&CC, Govt. of India OM dated 11th April 2022 for introduction of underground mining along with opencast without change in the production capacity i.e. 0.215 million tonnes per annum as per EC granted vide letter no SIA/OR/MIN/37642/2000 dated April 4, 2022.

1. **TOR details**: The proposal is applied under 7(ii) (a) of EIA notification 2006 as per MoEF&CC, Govt. of India OM dated 11th April 2022, wherein, EIA has been prepared based on standard ToR.

4. **Location and connectivity**: The mine is located in Village - Kaliapani, Tehsil - Sukinda, District - Jajpur, Odisha, with following geo coordinates: Latitude: 21°01'04.39824"N to 21°02'03.53184"N and Longitude: 85°45'18.17352"E to 85°46'31.69701" E bearing Toposheet no: F45N16. Nearest distance of connecting roads are: approach road - 0.1 km in North direction; NH 53 - 10.60 Km South. Nearest Airport: Bhubaneswar International Airport - 132 Km SSE; Nearest Railway station – Tomka Railway Station – 29.0km. Nearest water body: Damsal Nala - 0.81 km NNW; Reserve Forest: Lease area falls in Mahagiri Protected Forest; Nearest Habitation: Bhimtangar Colony - 0.75 km SW.
5. Forest clearance has already been obtained in 2 phases. 1st phase forest clearance was obtained for 22.80 ha. vide letter no 8-68/2000-FC/2327 (f) on dated 05.07.2001 and Phase II forest clearance was obtained for 66.20 ha. vide letter no 8-68/2000-FC (pt) dated 20.04.2023.
6. The mining lease was executed in favor of M/s Jindal Strips Ltd. on 04.01.2002. The supplementary lease deed was executed on 08.06.2023, for the period 04.01.2022 to 03.01.2052
7. The project site is not located within the Eco-Sensitive Zone (ESZ) or Eco-Sensitive Area (ESA) notified by the MoEF&CC and CRZ area.
8. The mine is captive to Stainless Steel Plant Kalinganagar in Odisha.

9. Earlier, EC was granted vide letter no SIA/OR/MIN/ 37642/2000 dated .04.04.2022.

10. **List of Statutory clearances obtained earlier**

S.no.	Approval Name	Approval and Validity Date
1	1st Phase Forest Clearance for 22.80 ha.	05.07.2001
2	2nd Phase Forest Clearance for 66.80 ha.	20.04.2023

3	Certified Compliance Report vide file no. 101-664/24/EPE	24.04.2024
	Action Taken Report on CCR Submitted to IRO vide letter no. JSL/Mines/2023-24/38	03.05.2024
4	Wildlife Conservation Plan vide letter no 570/CWLW-FDWC-FD-0142-2021	13.01.2023
5	Past production certified by Deputy Director Mine, Jajpur road circle, Jaipur vide memo no 1358/Mines	18.07.2017
6	NOC from CGWA was obtained for the extraction of 48 KLD of groundwater. vide letter no. CGWA/NOC/MIN/REN/1/2023/7562	Obtained date 28.03.2023 valid up to 22.02.2025.
7	The Modified mining plan IBM vide letter no. BBS/JJP/CR/2174/MPM/2022-23/450 dated.	Approved Date 17.08.2022 for the period 2022-23 to 2025-26.
8	CTO vide letter no. 4414/IND-I-CON-2562	Obtained Date 289.03.2024 valid up to 31.03.2025.
9	Six Monthly Compliance reports have been submitted from October 2022 to March 2024	30.05.2023

11. Product generation:

Summary of products generated by the project

Units	Products and by-products	Existing	Additional	After Expansion
MTPA	Product	0.215	00	0.215

12. **Method of Mining & Mining Plan Details:** Mining plan approved vide letter No. BBS/JJP/CR/2174/MPM/2022-23/450 dated 17.08.2022, for the period 2022-23 to 2025-26. Proposed method of mining is Opencast as well as underground. Dumper, Crusher, Backfilling Plant, Excavator, Loader Dozer, LPDT, LHD, Development drill rigs/ Drill Jumbo, Jack Hammer, Long hole Drilling Machine, Pneumatic DTH, etc. will be used and transportation will be by road. The height and width of the benches will be kept at 8.0 m. The maximum depth to water level in the core zone is 5.26 mbgl during pre-monsoon and 4.85 mbgl during post-monsoon. Deep hole drilling & blasting for open cast and Blast hole open stoping with post filling for underground.

13. **Dump details:**

Sl.	Description	Area in Ha	Maximum height in m	Remarks
1	External dump	0.00	0.00	0.00
2	Internal dump	12.54	60.0	Active Dump
3	Internal dump	15.54	41.2	Dead Dump
4	Topsoil dump/ storage	0.1	5	

14. **OB generation details**: The OB generation from Band-I (Quarry-1) includes Pit Optimization, Common Boundary Mining with M/s TSML & M/s BAL and Band-VI (Quarry-2). Pit Optimization development for the period 2022-2023 to 2025-2026 is estimated to be 42.47 lakh Cum (approx). Total OB shall be accommodated in the existing Dump-1, Dump-2, Quarry-2 backfilling, Land filling & Common Dumping with M/s Balasore Alloys Limited. It is proposed to increase the height of Dump -1 from existing 60 m to 80m so that the OB & Waste can be accommodated in Dump-1. CIMFR, Dhanbad has already carried out the study and the final report recommending 80 m height of the dump is expected shortly.
15. **Backfilling Plan:** The unit have engaged an agency to find out the feasibility of developing an underground mine to exploit the chrome ore (Band-I)in Quarry -I below the ultimate pit limit. Once the feasibility study is completed and decision to develop an underground mine is taken, further decision will be taken whether to fill the void or leave it as a water reservoir. However, the unit has decided to develop underground in the Band-VI (Lumpy Band) in Quarry-II. The unit has proposed to fill the stoped out voids with suitable material to ensure optimum exploitation of mineral and safety of the Underground workings. Also, the mined out open pit is proposed to be filled with waste material up to (+/-) 160 mRL.
16. **Details of crushers:** A crusher has been proposed of capacity 120-150 TPH within the lease area. A backfilling plant having 100-150 cum/hr capacity is proposed within the lease area.
17. **Water Requirement:** The total fresh water requirement for the project is 450 KLD. About 48 KLD of ground water will be abstracted from the existing borewell which will be used for drinking and domestic purposes. The maximum water requirement for mine will be approx. 815 KLD, it will be mainly consumed for sprinkling, plantation, workshop, beneficiation plant, and domestic. Out of a total of 815 KLD, 48 KLD will be extracted from the borewell and the remaining 767 KLD will be sourced from the mining pit and underground seepage.
18. **Plantation Details:**

Table : Existing plantation

Sl No.	Description	Area in ha.	No of Saplings	Name of species
1	Quarry area backfilled	3	5000	Neem, Karanja, Krishnachura, Akassia
2	Mined out Benches	1.2	3000	Neem, Karanja, Krishnachura, Radhachura, Sishoo, Akassia
3	Dump	15.54	37000	Neem, Karanja, Krishnachura, Radhachura, Sishoo, Vertiver, Lemon grass, Bamboo
4	7.5 Boundary Green belt	5.04	7100	Chakunda, Neam, Karanja, Sunari, Arjuna, Ashoka
Total		**24.78**	**52100**	

Table : Proposed Plantation up to the conceptual period

S. No.	Description	2025-26	No. of saplings	2026-27	No. of saplings	2027-28	No. of saplings	2028-29	No. of saplings	2029-30	No. of saplings	2031-52	No. of saplings	Total
1	Quarry area backfilled	0.5	1250	0.5	1250	0.5	1250	0.5	1250	1	2500	4.64	11600	7.64
2	Mined out Benches	1	2500	1	2500	1	2500	1	2500	1	2500	25.968	64920	30.968
3	Dump	1	2500	1	2500	1	2500	1	2500	1	2500	14.753	36883	19.753
4	Utility service area	0	0	0	0	0	0	0	0	0	0	5.859	14725	5.859
Total		2.5	6250	2.5	6250	2.5	6250	2.50	6250	3	7500	51.22	128128	64.22

19. **Waste generation and management:** The generation of waste till the conceptual period is estimated to be around 53 lakh Cum (42.47 lakh cum from opencast & 10.40 Lakh cum from underground mining. Part of the waste will be used for backfilling. The mining operation will utilize underground methods exclusively after 5-7 years, resulting in a significant reduction in waste generation compared to open-cast methods.

20. **Baseline study details: The** baseline study has already been collected in the post-monsoon season (October to December 2023).

a) **Air Quality Results:** The ambient air quality results are summarized in the above tables.

Core zone: The mean value of PM10 ranges from (69.40 - 73.56 µg/m3) & PM2.5 ranges from (22.61 - 23.96 µg/m3), SO2 ranges from (7.04 - 7.46 µg/m3), NO2 ranges from (19.51 - 20.69 µg/m3) & CO ranges from (0.34 - 0.36 mg/m3).

Buffer zone: The mean value of PM10 ranges from (65.93 - 79.81 µg/m3), PM2.5 ranges from (21.48 - 26.00 µg/m3), SO2 ranges from (6.69 - 8.10 µg/m3), NO2 ranges from (18.54 - 22.44 µg/m3) & CO ranges from (0.32 - 0.39 mg/m3) which are within the limits of National Ambient Air Quality Standards (NAAQS).

b) **Ground water quality-**The samples were collected from 13 locations (8 samples of groundwater and 5 samples of surface water):

- The **Total Dissolved Solids (TDS)** of the sampling locations W1, W2, W3, W4, W5, W6, W7, W8 ranges from 38 mg/l to 680 mg/l. The total dissolved solids of sampling location W6 are found higher than the desirable drinking water standard (IS:10500) i.e. 500 mg/l.
- The **Total Hardness** of the sampling locations ranges from 16 mg/l to 480 mg/l. Total Hardness of sampling locations W4, W5, W6, and W7 are found higher than the drinking water standards (IS:10500). The hardness contributed due to seepage and runoff from soil. Hardness is normally considered an aesthetic water quality factor because of the unpleasant taste that a high concentration of calcium and other ions gives to water. It reduces the ability of soap to produce lather and causes scale formation in pipes and plumbing fixtures.
- The **Alkalinity** of the sampling locations ranges from 9.49 mg/l to 414.77 mg/l. The alkalinity of all sampling locations except for W4, W5, W6 and W7 are within the drinking water standards (IS:10500) i.e. 200 mg/l. High levels of

alkalinity lead to objectionable taste or precipitation of scale in pipes and containers. The chronic effect being necrosis of cells.

- The **Fluoride** content in the sampling locations ranges from <0.1 mg/l to 0.36 mg/l. which are within the drinking water standard (IS:10500) i.e. 1.0 mg/l.
- The **Calcium** Concentration of sampling locations ranges from 3 mg/l to 102 mg/l. Calcium levels of all sampling locations except W6 are within the drinking water standards (IS:10500) i.e. 75 mg/l.
- The **Magnesium** Concentration of sampling locations ranges from 1.94 mg/l to 54.43 mg/l. Magnesium levels of sampling locations are within the drinking water standards (IS:10500) i.e. 30 mg/l.
- The **Chloride** Concentration of all the sampling locations ranges from 6 mg/l to 138 mg/l. Chloride levels of all the sampling locations are within the drinking water standards (IS:10500) i.e 250 mg/l.

c) **Surface water quality-** Analysis results revealed that pH values amongst all samples varied in the range of 7.40 to 7.82, Total Hardness concentration varied in the range of 26 mg/l to 80 mg/l &, TDS concentration varied in the range of 40 to 116 mg/l. Electrical Conductivity was found to be ranging in between 68 to 192 mS/cm.

d) **Soil Quality Result:** The samples collected from the core zone sites show that the soil texture in the core zone is Sandy Clay, Colour is 5/6 Dull Reddish Brown, 4/8 Reddish Brown, pH is between 6.06 - 6.52. The amount of primary nutrients like Organic matter is 0.72 - 1.04 %, the available nitrogen 72.4 - 78.2 mg/kg is low and available Potassium 16.6 - 36.1 mg/kg is low while the available Phosphorus 5.6 - 8.1 mg/kg is in the medium range. Thus it can be concluded that soil is average fertile in the Core Zone. The samples collected from the buffer zone sites show that the soil texture in the buffer zone is Silty Clay, Color is 5/4 Dull Reddish Brown, 5/6 Dull Reddish Brown, 6/6 Bright Yellow Brown, 4/8 Reddish Brown, 6/6 Bright Yellow Brown, pH ranges from 6.04 - 6.78. The amount of primary nutrients like Organic matter 0.52 - 1.42 %, the Available Nitrogen 76.2 mg/kg to 92.4 mg/kg is lower in range, the Available Phosphorus 15.4 mg/kg – 44.2 mg/kg is low in range, Available Potassium 6.2 mg/kg to 11.3 mg/kg is medium in range, Primary nutrient profile shows that soil is average fertile due to the availability of low amount of nitrogen, available potassium.

e) **Noise Quality results:** Core zone indicated that the ambient noise level during day time, at the project site varies from 54.6 dB (A) to 54.9 dB (A) which was within the standard limit of Industrial area ~ 75 dB (A). During the night, the noise level at the project site ranges from 43.9 dB (A) to 44.4 dB (A) which was within the standard limit of Industrial area 70.0 dB (A).Buffer Zone indicated that The ambient noise level in residential areas ranges from 53.8 dB (A) to 57.5 dB (A) during day daytime and from 43.1 dB (A) to 47.1 dB (A) during nighttime. The slightly higher noise level compared to the standard limit may be regarded to the residential and other local activities occurring within the village. The ambient noise level in commercial areas i.e. Approach Road is 68.2 dB (A) during daytime and 62.4 dB (A) during nighttime, which was slightly higher than the standard limits. The slightly higher noise level compared to standard limit may be due to the vehicle movement and other local activities within the village.

21. **Total water requirement and wastewater management:** The average water requirement is 450 KLD. The maximum water requirement for mine will be approx. 815 KLD and the same will be mainly consumed for sprinkling, plantation, workshop, beneficiation plant, and domestic. Wastewater will be treated in ETP/STP and reused.
22. **Power Requirement and Solar power details:** The total electricity requirement is 1.5 MW, which will be sourced from TPCODL Odisha.
23. **Rainwater Harvesting Details -** Roof water harvesting and rainwater harvesting structures are provided for the conservation of rainwater.
24. **Green belt Development: Plantation in** 5.04 Ha is proposed for the project.
25. **Total Employment:** 583 (Existing 142 + Proposed 441) manpower is proposed for the project.
26. **Project cost and EMP, CSR Cost:** Estimated cost of the project is 191.89 crore INR (Existing cost 41.09 + Proposed cost 150.80 Cr). EMP Capital cost is Rs. 312.45 Lakh (Existing + additional) and proposed annual recurring cost is 69.20 lakhs (Existing + additional). CSR Cost incurs a Capital cost Rs. 150.9 lakhs and Recurring cost Rs. 57.2 lakhs
27. **Environment Consultant**: The Environment consultant **M/s. Perfact Enviro Solutions Pvt Ltd., Delhi** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Perfact Enviro Solutions Pvt Ltd., Delhi** along with the project proponent, the SEAC decided to take decision on the proposal after receipt of the following from the proponent:

a) Justification as to why this case will be considered **under 7(ii) (a) of EIA notification 2006 as per MoEF&CC, Govt. of India OM dated 11th April 2022** and whether this case comes under expansion or modification.

b) Point wise compliance to conditions of MoEF&CC, Govt. of India OM dated 11th April 2022.

c) The project proponent shall not disturb the nearby Damsala Nallah and mitigation measures shall be adopted for safety of the Nallah.

d) The project proponent shall not reduce the greenbelt during any proposed activity in the site. However, if any greenbelt needs to be cleared out, then the PP shall compensate the same.

e) The PP shall ensure proper ventilation unit during underground mining for the safety of the workers.

f) Calculation sheet of the Pollution load as additional 750 KVA DG set is proposed for the project.

g) Detailed quantity of domestic sewerage and solid waste that will be generated during the project.

h) Submission of Satisfactory certified compliance report along with the summary of all the non-compliances like details of renewable energy and rain water harvesting system proposed.

i) Explore the recent technologies for underground mining and nanotechnology for treatment of hexavalent chromium.

j) Note on additional safety measures for the development of underground mining.

k) Chemical analysis of OB with regard to Ni, Co and other Critical Minerals if any. Also, OB management in context of presence of Ni and Co, if found potential.

l) Compliances to the conditions stipulated in the EC issued vide letter no SIA/OR/MIN/37642/2000 dated April 4, 2022. The document needs to be certified by the designated officer of the Regional Office of MoEF&CC, Bhubaneswar.

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR GIRISOLA STONE QUARRY WITH PROPOSED EXCAVATION OF 5600 CUM/YEAR OF STONE OF TAHASILDAR CHIKITI HAVING AN AREA OF 20.510 HA. LOCATED AT KHATA NO: 897, PLOT NO: 1, 2, 3, 4, AT- GIRISOLA, TAHASIL - CHIKITI, DISTRICT- GANJAM OF TAHASILDAR, CHIKITI – EC

1. The SEAC in its meeting held on 20-11-2023 observed that mining lease area is covered with forest growth as seen in KML file. The SEAC decided to consider this proposal for EC after joint verification from forest officials regarding the forest growth and mining activity in proposed lease area.

2. The project proponent has submitted joint verification report which states that:

   (i) There is no forest growth in the proposed lease area.
   (ii) There is no valuable tree growth in the proposed lease area.
   (iii) There are no mining activities in the proposed lease area.

3. The SEAC in its meeting held on 29-01-2024 decided to call for a detailed presentation for the proposal. The PP gave detailed presentation on dated 18-05-2024.

4. This proposal is for Environmental Clearance of Girisola Stone Quarry with proposed excavation of 5600 CUM/year of stone of Tahasildar Chikiti having an area of 20.510 Ha. Located at Khata No: 897, Plot No: 1, 2, 3, 4, At- Girisola, Tahasil - Chikiti, District- Ganjam of Tahasildar, Chikiti.

5. **Category**: This project falls under Category "B" or Schedule 1(a): Mining of Mineral as per EIA Notification dated 14th Sept, 2006 and its amendments.

6. The Mining Lease has been granted by Tahasildar, Chikiti & successful bidder is Tahasildar Chikiti, Ganjam.

7. Mining Plan was approved by Joint Directorate of Geology South Zone, Berhampur, letter No. 814/SZ, Dtd. 25.08.2021.

8. This is a new mine. Mining lease is an identified sairat source in the DSR page No.- 102, Para Serial No.- 234, Map location page No.- 156

9. **ToR details**: The ToR was issued by SEIAA, Odisha vide proposal letter No. 3673/SEIAA, Dtd. 27.12.2021.

10. **Public hearing details:** Public hearing was held on Dtd. 15.03.2023 over Govt. land having plot No.- 660 & 796 in Mouza Jagannathpur under Chikiti Tahasil, Ganjam District. Issues raised during the public hearing are environmental protection, air pollution, control blasting, local employment, plantation and

availability of raw materials at cheaper price. A total of Rs. 3,50,000 is allotted for the action plan of public hearing.

11. **Location and connectivity** The mine lease area is located in Khata No- 897, Plot No- 1,2, 3 & 4, At- Girisola, under Chikiti Tahasil of Ganjam District with geographical coordinates bearing Latitude: 19° 10' 30.7"N To 19° 10' 46.6"N Longitude: 84° 42' 26.0" E To 84° 42' 49.9" E with Toposheet No: 74A/12, 74/A/16, Kisam- Parabat, From the proposed site, nearest SH29 is 7.8 km, NH16 is 1.7 km, Airport Bhubaneswar is 187 km, Water Body is Ghodahad Dam- 48.8 km, RF- Mahulia Reserve Forest- 134 km, Biju Patanaik Setu, Jagapur road - 3.1 km, River Embankment- 9.2 km, Electric Transmission Pole- 1 km, Nearest village Girisola- 1.0 km.
12. The lease area doesn't come under DLC land and there are no other quarries within 500 metres of the site.
13. **Total reserves:** The total Geological Reserve is 83,05,258 cum and Mineable Reserve is 78,83,996 cum.
14. **Mining Method:** The proposed method is Opencast Semi Mechanised, Production capacity per annum is 5600 cum, Total production in 5 years is 28000 cum. Maximum mineable depth is 8.00 mRL as per the approved mining plan. Transportation will be through Dumper, Tipper & Tractor.
15. **Baseline study conducted:** Baseline Study conducted during 1st Dec 2021 to 28th Feb 2022
16. **Water requirement:** Total quantity of water requirement for the project is 20 KLD.
17. **Greenbelt Development:** A total of 250 saplings over an area 0.11 Ha. are proposed to be planted for the Proposed Site.
18. **Total Employment:** Total employment proposed is13 nos. of manpower for the project.
19. **Project Cost:** The estimated cost is ₹18 Lacs and Proposed EMP cost is 2 lakhs.
20. **Environment Consultant:** The Environment consultant **M/s Green Circle, INC, Vadodara, Gujrat.** with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Green Circle, INC, Vadodara, Gujrat.** along with the project proponent, the SEAC decided to take decision on the proposal after receipt of the following from the proponent:

a) Submit the satisfactory compliance report of the Specific ToR.
b) Detailed note on Magazine management, hiring agency, blasting frequency, and management of flying rocks.
c) Layout of Garland drain, retaining wall, settling pit etc. and drainage map of that area.
d) Distance certificate of nearest habitation and water bodies/ Nallah.
e) Traffic study report vetted by reputed institute.

ITEM NO. 06

PROPOSAL OF ENVIRONMENTAL CLEARANCE FOR PATPALI STONE QUARRY PROJECT OVER AN AREA OF 5.06 HA FOR PRODUCTION OF 4655 CUM/YEAR OF STONE AT VILLAGE- PATPALI, TEHSIL- MANESWAR, DISTRICT- SAMBALPUR OF SRI RAJKISHORE AGRAWAL – EC

The PP was absent for the meeting. Hence, the SEAC decided to defer the proposal to next meeting.

ITEM NO. 07

PROPOSAL OF ENVIRONMENTAL CLEARANCE FOR TUMKELA SAND BED OVER AN AREA OF 16.00 ACRES OR 6.475 HECTARES IN VILLAGE TUMKELA, TAHASIL ROURKLEA, DISTRICT SUNDARGARH OF SMT. RAJASHREE BEHERA – EC

1. The Project Proponent of the proposed quarry M/s Tumkela Sand Bed Smt. Rajashree Behera was absent during presentation. The SEAC in its meeting held on dated 02-12-2023 decided to defer the proposal and consider the proposal for presentation in presence of Project Proponent or Authorized person on behalf of Project Proponent.
2. The PP gave detailed presentation on dated 18-05-2024.
3. This proposal is for obtaining Environmental Clearance for Proposal of Environmental Clearance for Tumkela Sand Bed over an area of 16.00 acres or 6.475 hectares in village Tumkela, Tahasil Rourklea, District Sundargarh of Smt. Rajashree Behera.
4. **Category:** As per EIA Notification 2006 and subsequent amendments, the proposed project falls under Category B in Schedule item 1(a)-Mining of Minerals.
5. **Category**: This project falls under Category "B" or Schedule 1(a): Mining of Mineral as per EIA Notification dated 14th Sept, 2006 and its amendments.
6. The Mining Lease has been granted vide letter no 3190 dated 27.10.2020.
7. The Mining Plan of Tumkela Sand Bed Mining Project has been approved by Deputy Director of Geology, Office of Joint Director Geology, Zonal Survey, Sambalpur, Odisha vide Vide Memo Number 05 (2) / ZS/01.01.2022.
8. Mining lease is an identified sairat source in the DSR Report Page no. 92 Para. No. 04.
9. **ToR details**: The TOR letter was issued by SEIAA, Odisha vide letter No.4571/SEIAA Dated 19.05.2022.
10. **Public hearing details:** Public Hearing was conducted on 14.11.2022 at 11.00 A.M at Sector 16, PH Colony Ground under Rourkela of Sundargarh District, Odisha. Issues raised during public hearing are air pollution, water pollution, noise pollution , land environment and employment.
11. **Location and connectivity** The mine lease area is located in village- Tumkela under Tahsil-Rourkela, District Sundergarh, is on Khata No.2, Plot No. 312/339/P of Kisam 'Nadi' covered in the Survey of IndiaTopoSheet No – F45G15. Area bounded by Lattitude-22°16'28.20"N to 22°16'33.70"N, Longitude-84°50'36.10"E to 84°50'52.10"E. The Nearest distance of approach road is 0.9 Km. Nearest National Highway is at NH-143 at a distance of 6.0KM in SW. Nearest state highway is at SH-65 at a distance of 8.70 KM in SW. The Nearest Airport is Birsa Munda Airport Ranchi 125 Km in N. Nearest river is, Sankha River at a distance of 6.4 KM in SW. Nearest reserve forest is at Mudra Reserve Forest at a distance of 3.0 Km in NW. Nearest river embankment is near Rourkela – Gumma- Ranchi RD Road Bridge,

Sankha River at a distance of 6.4 KM in SW. The Nearest Rail Bridge is Pradhanpalli Bridge at a distance of 4.2 Km in SW. The Nearest River Embankment is near Rourkela – Gumma- Ranchi RD Road Bridge, Sankha River at a distance of 6.4 KM in SW. The Nearest Electric Transmission Line has crossed across the river with pole inside sand bed is near about 0.25km.

12. **Total reserves:** The total Mineable Reserves is 34283.7 cum and the Proposed Production for the Proposed Project is 8142cum /year.

13. **Replenishment study details:** The replenishment study was carried out in month of June, 2022 & October, 2022 for pre & post monsoon respectively by Field survey method. The quantity of sand replenishment within the source suring the year 2022-23 as per surface area method is 10800 cum.

14. **Mining Method:** The proposed method of mining is manual. The Proposed depth of mining is 0.5 Meters as per approved mining plan. The sand will be excavated by open cast manual method of mining spread over the river course devoid of water. Transportation would be undertaken through deployment of Dumper & Tractor. Since the depth of sand deposit is 0.5m, excavator, handpicks, spade, hand shovel will be used by laborers for extracting & loading of sand.

Table: Production details

Year	Year Vol. of stone in (m^3)
1st	8142
2nd	8142
3rd	8142
4th	8142
5th	8142
TOTAL	40710

15. **Baseline study conducted:** Baseline Study conducted during March 2022 to May 2022

16. **Water requirement**: Total quantity of water requirement for the project is 3.0 KLD.

17. **Greenbelt Development:** A total of 100 plants are proposed to be planted for the Proposed Site.

18. **Total Employment**: Total employment proposed is 9 nos of manpower for the project.

19. **Project Cost**: The estimated cost is ₹1.6 Crore and Proposed EMP cost is 6.635 lakhs(Capital) and 3.705 lakhs(recurring).

Table: Proposed CER budget

Sl. No.	Activity	Capital Cost (in Rs.) /annum
1.	Distribution of PPE Such as hand sanitizer, hand gloves and nose mask and training to villagers for precautions needed in pandemic ***@ Rs. 200/kit (200 kits)***	40,000
2	Distribution of educational kits, books & sports kits to the students of village Tumkela	80,000
3	Contribution to the Village development in Tumkela Village	2,00,000
TOTAL		**3,20,000**

Table: Proposed EMP budget

S.No	Particulars	Amount per Annum (Lakh)	
		Capital	Recurring
1	Dust suppression	1.5	0.5
2	Plantation and its protection (@ Rs. 400/sapling- including fencing)	1.0	1.27 (for Maintenance @ Rs 350/- per dayX350 Days)
3	Personal Protective Equipment (9 Nos) (@ Rs. 1500/PPE kit)	0.135	0.135
4	Environmental Monitoring (Air, water, soil, noise)	2.0	1.2 (0.5 lakh, 0.4 lakh, 0.20 lakh, 0.10 lakh)
5	Haul road construction/ maintenance	2.0 (@ Rs 2.0 Lakh/km)	0.6 (@ Rs. 250*240 days* 1 labor)
6	Tarpaulin sheet	0.2	
	Total	**6.635**	**3.705**

20. **Environment Consultant**: The Environment consultant **M/s Cognizance Research India Pvt. Ltd. Noida** with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Cognizance Research India Pvt. Ltd., Noida** along with the project proponent, the SEAC decided to take decision on the proposal after receipt of the following from the proponent:

a) Clarification of the specific ToR whether there was a violation by previous lessee in the Mining lease area. Submit the details.

b) Copy of Environmental Clearance which has been obtained earlier.

c) The PP shall provide safety working zone as the nearest habitation is 30 metres away from the mining lease.

d) Revised calculation of the Replenishment study report along with the benchmark details. Geo coordinates of the sections to be provided.

e) Clarify if the mining will be carried out manually/excavators.

MEMBER SECRETARY, SEAC

ANNEXURE – A

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR M/S DALPAHAR IRON AND MANGANESE ORE MINES FOR ENHANCEMENT IN PRODUCTION OF IRON ORE FROM 0.31 MTPA TO 2.99 MTPA AND FOR MANGANESE THE SAME EXISTING 0.094 MTPA HAVING MINING LEASE AREA OF 89.961 HA. IN DALPAHAR VILLAGE, BARBIL TEHSIL, KEONJHAR DISTRICT OF SRI D.C. JAIN (POWER OF ATTORNEY - SRI AVIN JAIN) - TOR

A. STANDARD TOR FOR MINING PROJECT

1. The Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
2. Department of Mining & Geology, State Government shall ensure that mining operation shall not commence till the entire compensation levied, 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 the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
3. Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
4. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
5. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
6. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
7. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
8. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
9. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The

Jnayak
Environmental Scientist, SEAC

hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.

10. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

11. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

12. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

13. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

14. Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

15. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

16. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

17. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

18. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

19. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area,

Jnayak
Environmental Scientist, SEAC

the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

20. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

21. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects failing under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

22. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine (ease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

23. One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season) ; December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM_{10}, particularly for free silica, should be given.

24. Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

25. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

26. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

JNayak
Environmental Scientist, SEAC

27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided,

28. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

29. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater, Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter- alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

30. Details of any stream, seasonal or otherwise, passing through the tease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.

31. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.

32. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

33. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

34. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

35. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

Environmental Scientist, SEAC

37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

38. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

39. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

40. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

41. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

42. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

43. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

44. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

45. The activities and budget earmarked for Corporate Environmental Responsibility (CER) shall be as per MoEF&CC, Govt. of India O.M No 22-65/2017-IA. II (M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted at the time of appraisal of the project included in the EIA/EMP Report.

46. The Action Plan on the compliance of the recommendations of the CAG as per MoEF&CC, Govt. of India Circular No. J-11013/71/2016-IA.I (M), dated 25,10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

47. Compliance of the MoEF&CC, Govt. of India Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgement of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.

B. Specific TOR: Recommendation of CSIR-NEERI Report on "Carrying Capacity Study for Environmentally Sustainable Iron and Manganese Ore Mining Activity in Keonjhar, Sundargarh and Mayurbhanj districts of Odisha State"

1. Department of Steel & Mines, Govt, of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira.') in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.

2. The expansion or opening of new manganese ore mines may be considered only when the actual production of about 80% is achieved. Further, the mines that have not produced Mn ore for last two years and have no commitment in the current year as well: EC capacity in such cases may be reviewed. The Department of Steel & Mines. Govt, of Odisha shall

JNayak
Environmental Scientist, SEAC

submit the Annual Report on this issue to the MoEF&CC for further necessary action.

3. Analysis of baseline environmental quality data for the year 2014 and 2016 indicates that existing mining activities appear to have little / no potential impact on environmental quality, except on air environment, which was mainly due to re-suspension of road dust. Therefore, all the working mines can continue to operate with strict compliance to monitoring of environmental quality parameters as per EC and CTE/CTO conditions of the respective mine, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable acts.

4. Considering the existing environmental quality, EC capacity, production rate, iron ore resources availability and transport infrastructure availability, the share of Joda and Koira sector works out to be 70% and 30% respectively for the existing scenario for the year 2015-16. However, for additional EC capacity, it can be 50:50 subject to commensurate infrastructure improvement (viz. SOTM. pollution free road transport, enhancement of rail network etc.) in the respective regions.

5. Continuous monitoring of different environmental quality parameters as per EC and CTE/CTO conditions with respect to air, noise, water (surface and ground water) and soil quality in each region shall be done. The environmental quality parameters should not indicate any adverse impact on the environment. Monitoring within the mines should be done by individual mine lease holders, whereas outside the mine lease area, monitoring should be done by the Govt, of Odisha through various concerned departments/ authorized agencies. Various monitoring/ studies should be conducted through national reputed institutes, NABET/ MoEF&CC accredited laboratories/organizations. The reports submitted by individual mine lease holders and study reports prepared by other concerned departments/agency for each of the regions should be evaluated and examined by SPCB/ MoEF&CC.

6. Construction of cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road minimum 300 m inside the mine should be done. This should be done within one year for existing mines and new mine should have since beginning. The concerned departments should extend full support; wherever the land does not belong to the respective mine lease holders. The Department of Steel & Mines, Govt, of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested above.

7. In view of high dust pollution and noise generation due to road transport, it is proposed to regulate/guide the movement of iron and manganese ore material based on the EC capacity of the mines. Accordingly, ore transport mode has been suggested, as given below in Table.

Table : EC Capacity based Suggested Ore Transport Mode (SQTM)

Code	EC	Suggested Ore Transport Mode
SOTM 1	> 5 MTPA	100% by private railway siding or conveyor belt up to public

Environmental Scientist, SEAC

Code	EC	Suggested Ore Transport Mode
		railway siding or pipeline for captive mines and 70% for non-captive mines
SOTM 2	Between 3 and <5 MTPA	Minimum 70% by public railway siding, through conveyor belt and maximum 30% by road - direct to destination or other public railway siding or above option
SOTM 3	Between 1 and < 3 MTPA	Minimum 70% by public railway siding and maximum 30% by road - direct to destination or by other public railway siding or above options
SOTM 4	<1 MTPA	100 % by 10/17 Ton Trucks or above options

It is mentioned by State Govt, of Odisha that currently about 45% of the iron ore is despatched using rail network and progressively it will be increased to about 60% by rail/slurry over a period of 5 years, taking into account time required to set up more railway sidings.

In view of present ore transport practices and practical limitations, all the existing mines should ensure adoption of SQTM within next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself, and should have system in place within next 5 years. However, the State Govt, of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, regular maintenance should also be ensured by the Govt. of Odisha.

Transportation of iron & manganese ore through river (jetty) to nearest Sea port (Sea cargo option) may be explored or connecting Sea ports witn Railway network from the mines to be improved further so that burden on existing road and rail network and also pollution thereof can be minimized.

Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/ pipelines etc. shall be submitted periodically to MoEF&CC and SEIAA, Odisha. Responsibility: Department of Steel & Mines, Govt. of Odisha; Time Period: 5 Years for developing railway/ conveyor belt facilities

8. Development of parking plazas for trucks with proper basic amenities/ facilities should be done inside mine. This should be done within one year for existing mines and new mines should have since beginning. Small capacity mines (in terms of lease area or production) not having enough space within the mine lease areas should develop parking plaza at a common place within the region with requisite facilities. Responsibility: Individual Mine Lease Holders; Time Period: 1 Year

9. Construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side plantation to be carried out. Responsibility: Department of Steel & Mines with PWD / NHAI Time Period: 2 Years.

10. Regular vacuum cleaning of all mineral carrying roads aiming at "Zero Dust Resuspension" may be considered. Responsibility: PWD / NHAI/ Mine Lease Holders; Time Period: 3

Jnayak
Environmental Scientist, SEAC

months for existing roads.

11. Expansion of existing mines and new mines should be considered after conducting recent EIA Study fas per the provisions of EIA Notification 2QQ6, as amended time to time1) with proper justification on demand scenario for iron ore requirement and availability of pollution free transport network in the region. Responsibility: IBM, Department of Steel & Mines and MoEF&CC, New Delhi.

12. **Mine-wise Allocation of Annual Production:** In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept, of Steel & Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine-wise annual production scenario as suggested in Table, so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.

Table: Allocation of Production to Different Mines for 5 Years (as per approved Mining Plan)

Mine Lease	EC Capacity (MTPA)	Suggested Annual Production (MT)				
		2016-17	2017- 18	2018-19	2019-20	2020-21
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Mine 1	XI					
Mine 2	X2					
Mine 3	X3					
Mine n	Xn					
Total	160 +	105	129	153	177	201
Next year allocation = Average of EC Capacity and Last year production						

13. Expansion of Existing Mines having Validity up to 2020: In view of implementation of MMDR Act 2015, wherein many non-captive mines are expected to be closed by March 2020, total iron ore production scenario has been. It is expected that the non-captive mines having validity till 2020 shall try to maximize their production (limited to EC capacity) in the remaining period. Further, depending upon availability of iron ore resources, these mines may also seek expansion of EC capacity. It may be noted here that total EC capacity of existing 25 working mines having validity upto 2020 is about 85 MTPA, whereas actual production from these mines has been only 44.677 MT (52.6%) during 2015-16 and 57.07 MT (67.1%) during 2016-17. Also, it is expected that these mines would not even be able to achieve ore production as per existing EC capacity till March 2020. Therefore, these existing mines should go for production to the fullest extent to meet the requisite demand from the State. However, where EC limit is exhausted, application for expansion may be considered. Further, the EC process (i.e. Grant of TOR, Baseline data collection, Mining plan/ scheme approval, Public hearing, preparation of EIA/EMP Report. Appraisal by the EAC and grant of EC) takes about one year time. Under such circumstances, it is suggested that further applications for grant of TOR or grant of EC for expansion of production capacity of the mine should be considered for those existing mines, which have exhausted their capacity subject to consideration of all environmental aspects. Responsibility: Department of Steel & Mines and MoEF&CC,

Environmental Scientist, SEAC

New Delhi.

14. **Sustained Iron Ore Production beyond 2020:** Considering the implementation of MMDR Act 2015, total production of iron ore in Odisha State is anticipated to be about 111 MT during 2016-17 (actual production was - 102.663 MT), 136 MT during 2017-18, 146 MT during 2018-19 and 146 MT during 2019-20. Then there will be substantial drop in total production (to the tune of 73 MT during 2020-21 onwards) due to closure of mines, which are valid up to 2020. Therefore, in order to maintain operation/sustained growth of downstream industries, iron ore mining in the region needs to be continued at a sustainable rate. The State Govt. through Department of Steel and Mines should initiate appropriate action to ensure continued availability of iron ore from the region, as per suggested sustainable annual production

15. **Reserves Estimation**-Mining Plan and Exploration; Appropriate actions (geo- technical investigation for qualitative and quantitative resource estimation & other preparations for auction of mines), may be initiated taken into account the existing working mines, and the mines which were operational at some point of time (but closed presently due to various reasons). The total iron ore reserves/ resources available within the total lease area of each mine should be estimated by State Govt./NMET/ GSI (or any other approved agency) with respect to: (i) Total lease area of mine (surface), (ii) Maximum depth to which resources could be available, (iii) Resources below the ground water table (if intersected), (iv) Reserves are to be estimated as per UNFC code with respect to quantity and quality (% Fe content), (v) Maximum mining rate and area for auction (after 2020) will be calculated based on total resources available and proposed life of mine leading to closure of mine in a stipulated time period. Responsibility: Department of Steel & Mines, IBM and GSI; Time frame: 1 year for the mines to be auctioned for next 2 years. The above mentioned organizations shall ensure the compliance with respect to timelines for implementations.

16. Depending upon availability of extractable iron ore resources within a mine, mining below the ground water table may be permitted after conducting necessary geological and hydro-geological study by GSI and requisite approval from the CGWB/CGWA (Central Ground Water Board/Authority). This can be explored at least in few mines on trial/pilot basis. Further, within a mine, it will be desirable to operate one pit at a time, and next pit should be opened after extracting maximum possible resources from the first pit, so that the exhausted pit can be used for back filling/ storing of low grade iron ore. However, depending upon the quantity and/or quality of iron/ manganese ore, other mine pits in the same mine lease may also be opened for sustainable scientific mining, as per approved mining plan/scheme of mining by IBM. The Department of Steel & Mines, Govt. of Odisha should initiate the pilot project so that minerals are fully utilized.

17. **Commercial Utilization of Low Grade Ore:** R&D studies towards utilization of low-grade iron ore should be conducted through research/academic institutes like IMMT, Bhubaneswar, NML, Jamshedpur, and concerned metallurgical departments in IITs, NITs etc., targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept, of Steel & Mines, Individual

Jnayak
Environmental Scientist, SEAC

Mine Lease Holders.

18. The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system/ rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. Similarly, in Koira region, total length of rail network/ conveyor system for 8 mines (under SOTM 1 & 2) is estimated to be around 95 km. Further, it is suggested to develop a rail network connecting Banspani (Joda region) and Roxy railway sidings in Koira region. Responsibility: Dept, of Steel & Mines, Govt, of Odisha and Concerned Mines along with Indian Railways. Time Period: Maximum 7 years (by 2025). The Department of Steel & Mines. Govt, of Odisha should follow-up with the concerned Departments and railways so that proposed proper rail network is in place by 2025.

19. State Govt, of Odisha shall make all efforts to ensure exhausting all the iron & manganese ore resources in the existing working mines and from disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept, of Steel & Mines, Govt, of Odisha.

20. Large and medium mine leases contribute to better implementation of reclamation and rehabilitation plans to sustain the ecology for scientific and sustainable mining. The small leases do not possess scientific capability of environmentally sustainable mining. Therefore, new mine leases having more than 50 ha area should be encouraged, as far as possible. This will ensure inter-generational resource availability to some extent. Responsibility: Dept, of Steel & Mines, Govt, of Odisha.

21. **Mining Operations/Process Related:** (i) Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste, e.g. drills should either be operated with dust extractors or equipped with water injection system, (ii) After commencement of mining operation, a study should be conducted to assess and Quantify emission load generation (in terms of air pollution, noise, waste water and solid wasted from each of the mining activity (Including transportation) on annual basis. Efforts should be made to further eliminate/ minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders, (iii) Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power consumption, and their fuel/power consumption should be recorded on monthly basis. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles should be followed as per manufacturer's instructions/ recommended time schedule and record should be maintained by the respective mine lease holders, (iv) Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. Further, the extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre, Bhubaneswar) or an

Environmental Scientist, SEAC

agency of national repute or if done by a private agency, the report shall be vetted/ authenticated by ORSAC, Bhubaneswar. Expenses towards the same shall be borne by the respective mine lease holders. Responsibility: Individual Mine Lease Holders.

22. **Air Environment Related:** (i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the GPCB in this regard, (ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM10. PM2.5, SQ2, NCb^ and CO monitoring. Location of air quality monitoring 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 (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of four stations, one should be online monitoring station in the mines having more than 3 MTPA EC Capacity, (iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PMiO, PM2.5, S02, NOx and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. Further, 11 continuous air quality monitoring systems may be installed in Joida and Koira regions and one in Baripada/ Rairangpur region, (iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral, (v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of 3 using closed container trucks should be explored for direct to destination movement of iron ore. Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically, near truck entry and exit gate).Responsibility: Individual Mine Lease Holders and SPCB.

23. **Noise and Vibration Related:** (i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented, (ii) Appropriate measures (detailed in Section 5.4) 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, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) (iv) Similarly, vibration at various sensitive locations should be monitored atleast once in month, and mapped for any significant changes due to successive mining operations. Responsibility: Individual Mine Lease Holders.

Jnyak
Environmental Scientist, SEAC

24. **Water/Wastewater Related** : (i) In general, the mining operations should be restricted to above ground water table and it should not intersect groundwater table. However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro- geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability/ water aquifer system shall happen. The details/ outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately, (ii) Natural watercourse and/or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis, (iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis, (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region, (vi) Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/ NABET approved water testing laboratory. However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable, (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable, (ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization, (x) Erosion from dumps site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls.(xi) Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis, (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.

Jnayak
Environmental Scientist, SEAC

25. **Land/ Soil/ Overburden Related** : (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately, (ii) Fodder plots should be developed in the non-mineralised area in lieu of use of grazing land, if any. (iii) Over burden/ low grade ore should be stacked at earmarked dump site(s) only and should not be kept active for longperiod. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc, (iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for mine pit, soil. OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals, (v) Backfilling should be done as per approved mining plan/scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating, (vi) Hazardous waste such as, waste oil, lubricants, resin, and coal tar etc. should be disposed off as per provisions of Hazardous Waste Management Rules, 2016, as amended from time to time. Responsibility: Individual Mine Lease Holders.

26. **Ecology/Biodiversity (Flora-Fauna) Related:** (i) As per the Red List of IUCN (International Union for Conservation of Nature), six floral species and 21 faunal species have been reported to be under threatened, vulnerable & endangered category. Protection of these floral and faunal species should be taken by the State Forest & Wildlife Department on priority, particularly in the mining zones, if any, (ii) The mines falling within 5-10 km of the Karo- Karampada Elephant corridor buffer need to take precautionary measures during mining activities. The forest and existing elephant corridor routes are to be protected and conserved. Improvement of habitat by providing food, water and space for the elephants is required to be ensured to avoid Man- Elephant conflicts. Though as per the records of State Forest Department, movement of elephants in the Karo-Karampada elephant corridor within 10 km distance from the mines in Joda and Koira is not observed, the Forest Department shall further record and ensure that elephant's movement is not affected due to mining activities, (iii) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same

should be maintained by State Forest Department, (iv) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner, (v) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species /grass species/scrubs etc., distance between the plants and survival rate should be recorded, (vi) Green belt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation, (vii) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value, (viii) Details of compensatory afforestation done should be recorded and documented by respective forest divisions, and State Forest Department should present mine-wise annual status, along with expenditure details, (ix) Similarly, Wildlife Department is also required to record and document annual status of wildlife in the region and should identify the need for wildlife management on regional level, (x) Maintenance of the ecology of the region is prime responsibility of the State Forest and Wildlife Department. They need to periodically review the status and identify the need for further improvement in the region. The required expenditure may be met from the funds already collected in the form of compensatory afforestation and wildlife management. Further, additional fund, if required can be sought from DMF. Responsibility: Individual Mine Lease Holders and State Forest & Wildlife Department.

27. **Socio-Economic Related:** (i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region, (ii) Land outees and land losers/affected people, if any, should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation, (iii) The socioeconomic development in the region should be focused and aligned with the guidelines/initiatives of Govt, of India/ NITI Aayog / Hon'ble Prime Minister's Vision centring around prosperity, equality, justice, cleanliness, transparency, employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for *"Samagra Vikas"* of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY), notified by Ministry of Mines, Govt, of India, vide letter no. 16/7/2017-M.VI (Part), dated September 16, 2015. Responsibility: District Administration and Individual Mine Lease Holders.

Jayak
Environmental Scientist, SEAC

28. **Road Transport Related:** (i) All the mine lease holders should follow thesuggested ore transport mode (SOTM\ based on its EC capacity within next 5 years, (ii) The mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the miner as suggested in Chapter 10. Further, maintenance of all the roads should be carried out as per the requirement to ensure dust free road transport, (iii) Transportation of ore should be done bv covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore/dust takes place. Further, air quality in terms of dust, PMin should be monitored near the roads towards entry & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Flolders and Dept, of Steel & Mines.

29. **Occupational Health Related:** (i) 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 periodically, (ii) Occupational health surveillance program for all the employees/workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed, (iii) Occupational health and safety measures related awareness programs including identification of work related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust etc., should be carried out for all the workers on regular basis. A full time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted, and record should be maintained including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health centre should be established near mine site itself. Responsibility: Individual Mine Lease Holders and District Administration (District Medical Officer),

30. **Reporting of Environmental Sustainability Achievement:** All the mines should prepare annual environmental sustainability report (ESR), highlighting the efforts made towards environmental protection with respect to different environmental components vis-a-vis production performance of the mine on monthly basis. The data collected as per EC and CTE/CTO conditions should be utilized to prepare the annual sustainability report. The mines performing high with effective environmental safeguards may be suitably recognized/rewarded. "Star Rating Format" formulated by the Ministry of Mines along with environmental sustainability report may be used,

31. **Environmental Monitoring Requirements at Regional Level:** Apart from strict compliance and monitoring by individual mine lease holder, there is a need for simultaneous monitoring in each of the regions by competent expert agencies under the guidance/ supervision of concerned regulatory agency. Details of the studies required to be done on regular basis (continuously for 5 years) through responsible agency (organization of national/state repute) and time frame are suggested in Table.

Table: Suggested Environmental Monitoring Requirements and Action Plans at

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)

Environmental Scientist, SEAC

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
1.	Environmental Quality Monitoring with respect to Air, Water, Noise and Soil Quality in each region (Joda, Koira and Baripada/Rairangpur) as per specified frequency shall be done by a third party (preferably Govt.) and/or laboratory approved/ recognized by NABET/ CPCB/ SPCB/ MoEF&CC. All the water bodies (rivers, nalias, ponds etc.) shall be monitored. National/State level research/ academic institutes may be involved initially for couple of years to streamline the activity. The report shall be brought out annually by June each year. The study shall be conducted in consultation with MoEF&CC-RO.	SPCB	Continuous Annually
	Installation of online ambient air quality monitor for PM1 0. PMP.S, SOx and NOx within the mine havina more than 3 MTPA EC Caoacitv	Respective Mine Lease Holders	Continuous Annually
	Installation of online ambient air quality monitor for PM_{10}, $PM_{2.5}$, SOx and NOx in the Joda and Koira Region (total 11 locations.	SPCB	Continuous Annually
2.	Status of flora and fauna in each of the regions shall be assessed on annual basis. Changes, if any, taking place in the region shall be brought out clearly. The study shall be conducted in consultation with State Forest and Wildlife Department.	State Forest & Wildlife Dept.	Annually in mining zone and once in 3 years in the region
3.	Socio-economic study incorporating developments taking place in each of the region, CSR initiatives made by the mining companies shall be conducted on annual basis. Further, micro level developmental needs shall be clearly brought out in the report for each region. The study shall be conducted in consultation with district administration.	Respective District Administration	Annually

Jnayak
Environmental Scientist, SEAC

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
4.	A detailed hydro-geological study in each of the regions shall be conducted in an integrated manner in consultation with Regional Director, Central Ground Water Board. Accordingly, all project proponents shall implement suitable conservation measures to augment ground water resources in the area.	SPCB	Once in 2 years
5.	The State Govt. shall ensure construction and maintenance of dust free common roads/ appropriate rail network for transport of ore from mines to the consumer end.	Dept. of Steel & Mines	12 months for road network and 5-7 years for rail network
6.	Construction and maintenance of dust free roads from respective mine to the main road	Respective Mine Lease Holders	Continuous 6 months
7.	Traffic/road inspection study addressing the condition of traffic/roads leading to different mines and connecting to different railway sidings shall be undertaken on annual basis. Further, detailed traffic study shall be undertaken on every 5 yearly basis to ensure adequacy of road/rail infrastructure in each of the regions. The study can be undertaken through national/ state level research/ academic institute (such as CSIR-CRRI, New Delhi).	Dept. of Steel & Mines	Continuous 6 months
8.	Assessment of land use/ land cover changes in each of the regions, with particular focus on mining areas, afforestation activities, variation in flow path of various water bodies etc. using remote sensing data	ORSAC	Annually
9.	R&.D Studies for utilization of low-grade iron ore	Dept. of Steel & Mines through R&D / Academic Institutes	Upto 45% by 2020 and upto 40% by 2025

The data so generated for the region should be made available on the website of Department of Steel & Mines and also at MoEF&CC website, so that it can be effectively utilized by Individual Mine Lease Holders for preparing EIA/ EMP reports. This will meet the requirement for separate one season baseline environmental quality data collection by the

JNayak
Environmental Scientist, SEAC

individual proponents, if the mine proposed is in the same study region. Further. MoEF&CC fthrouah EAC1 can also utilize the data base available in evaluating the proposals for expansion of existing mines or new mines while granting ToR or EC to the mine, taking an holistic view of the region. State Govt, of Odisha should bring out an integrated environmental sustainability report for each of the regions (mainly for Joda and Koia region) incorporating ESR of individual mines and data collected in the region through various agencies, once in 5 years, to plan level of scientific and sustainable mining for the next 5 years.

32. Institutional Mechanism for Implementation of Environmentally Sustainable Mining: The present study is not a one-time study, but a process to ensure environmentally sustainable mining activities in the region on long term basis. Looking into the large-scale mining activities and long term perspective for mining vis-a-vis environmentally sustainable mining and upiiftment of people of the region, there is a need to create an agency, who will integrate all the aspects relating to sustainable mining in the region on long term basis. It could be a SPV of Govt, of Odisha or a cell within the overall control and supervision of Dept, of Steel & Mines, with members from

    IBM, GSI, OSPCB, MoEF&CC-RO and other concerned Departments and Mine Owners (EZMA), District Administration. It is found that the strong database available for the region needs to be taken into account to map and establish environmental quality of the region on daily, monthly, seasonal and annual basis. Further, the efforts and initiatives of the mines towards environmental protection as well as upliftment of the people of the region are required to be integrated, and a systematic plan at the block/regional level needs to be framed for the overall benefit of the local society, region, district, state and the country as a whole. It will be desirable to have proper environmental quality data management and analysis by NEERI or any other agency for next 5 years (six monthly compliance reports followed by field verification) ensuring sustainable mining practices in the region leading to an overall development of the region. District Mineral Funds should be utilized appropriately for various developmental activities/needs of the region. Further, an environmental sustainability report incorporating environmental status of region coupled with social upliftment may be brought out by SPCB or any other authorized agency on annual basis. This report can be used for supporting the regional EIA study, and also need for environmental quality monitoring by individual mine seeking environmental clearance for new mine/ expansion of mine, including public hearing. Since, outcome of the above study reports shall be in the overall interest of all the stakeholders (including local population) of the region, further planning for the region shall warrant cooperation and assistance of all the stakeholders (mine operators, industries, transporters, State & Central Government Offices, MoEF&CC, CPCB, SPCB, Dept, of Steel & Mines, IBM, IMD, NGOs and local people) in sharing the relevant data/information/ reports/documents etc. to continuously improve upon the environmentally sustainable development plan for economic growth in mining sector as well as for improvement in quality of life of the people of the region.

C. Besides the above, the below mentioned genera! points are also to be followed:-

a) All documents to be properly referenced with index and continuous page numbering.

b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

Jnayak
Environmental Scientist, SEAC

c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

d) Where the documents provided are in a language other than English, an English translation should be provided.

e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006- IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) Sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

D. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report.

JNayak
Environmental Scientist, SEAC

ANNEXURE -B

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR CEMENT GRINDING UNIT PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

A. STANDARD TERMS OF REFERENCE (ToR)

1. Executive Summary
2. Introduction
   - i. Details of the EIA Consultant including NABET accreditation
   - ii. Information about the project proponent
   - iii. Importance and benefits of the project
3. Project Description
   - i. Cost of project and time of completion.
   - ii. Products with capacities for the proposed project.
   - iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
   - iv. List of raw materials required and their source along with mode of transportation.
   - v. Other chemicals and materials required with quantities and storage capacities
   - vi. Details of Emission, effluents, hazardous waste generation and their management.
   - vii. Requirement of water, power, with source of supply, status of approval (energy balance with provision of renewable energy), material balance, water balance diagram for different purposes with water harvesting, man-power requirement (regular and contract)
   - viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
   - ix. Hazard identification and details of proposed safety systems.
4. Expansion/modernization proposals:
   - x. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing lexisting operation of the

JNayak
Environmental Scientist, SEAC

project from SPCB shall be attached with the EIA-EMP report.

In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

5. Site Details

i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.

ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet, (including all eco-sensitive areas and environmentally sensitive places).

iii. Co-ordinates (lat-long) of all four corners of the site.

iv. Google map-Earth downloaded of the project site.

v. Map showing sample collection location.

vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.

vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.

viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included, (not required for industrial area). Land schedule to be furnished.

ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area

x. Geological features and Geo-hydrological status of the study area shall be included.

xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided, (mega green field projects)

xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.

Jnayak
Environmental Scientist, SEAC

xiii. R&R details in respect of land in line with state Government policy

6. Forest and wildlife related issues (if applicable):

i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department, (if applicable)

ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland *(in case of projects involving forest land more than 40 ha)*

iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.

iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-a-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon.

v. Certificate from the concerned DFO that the location is not within the notified Eco-sensitive Zone of Kapilash Wildlife Sanctuary and exact distance of the project location from the boundary of Kapilash Wildlife Sanctuary.

vi. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area

vii. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife

7. Environmental Status

i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.

ii. AAQ data (except monsoon) at 8 locations for PM 10, PM2.5, S02, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.

iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min.,

Jnayak
Environmental Scientist, SEAC

max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.

iv. Surface water quality of nearby River (60m upstream and downstream) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.

v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC.

vi. Ground water monitoring at minimum at 8 locations shall be included.

vii. Noise levels monitoring at 8 locations within the study area.

viii. Soil Characteristic as per CPCB guidelines.

ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.

x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.

xi. Socio-economic status of the study area.

8. Impact Assessment and Environment Management Plan

i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the model used and the input data used for modeling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

ii. Water Quality modelling - in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.

iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large

Environmental Scientist, SEAC

quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.

iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.

v. Details of stack emission and action plan for control of emissions to meet standards.

vi. Measures for fugitive emission control

vii. Details of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste in cement plants shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.

ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.

x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.

xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.

xii. Action plan for post-project environmental monitoring shall be submitted.

xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

JNayak
Environmental Scientist, SEAC

9. Occupational health

i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analyzed data of abovementioned parameters as per age, sex, duration of exposure and department wise.

iii. Annual report of heath status of workers with special reference to Occupational Health and Safety.

iv. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.

10. Corporate Environment Policy

i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.

ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.

iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.

iv. Does the company have system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report

11. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

12. Enterprise Social Commitment (ESC)

Environmental Scientist, SEAC

i. Adequate funds (atleast 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Specific Socio- economic development activities need to be elaborated upon including soil development programme.

13. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
14. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
15. A tabular chart with index for point wise compliance of above TORs.

B. SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR CEMENT PLANTS

1. Limestone and coal linkage documents along with the status of environmental clearance of limestone and coal mines along with quantum of production of coal and limestone from coal & limestone mines and the projects they cater to;
2. For large Cement Units, a 3-D view i.e. DEM (Digital Elevation Model) for the area in 10 km radius from the proposal site.
3. Present land use shall be prepared based on satellite imagery. High-resolution satellite image data having lm-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land-cover mapping of the area.
4. If the raw materials used have trace elements, an environment management plan shall also be included.
5. Plan for the implementation of the recommendations made for the cement plants in the CREP guidelines must be prepared.
6. Energy consumption per ton of clinker and cement grinding
7. Conversion of existing land kisam to industrial use.
8. Detailed carbon balance / budget should be prepared.
9. Energy consumption per ton of clinker and cement grinding
10. Provision of waste heat recovery boiler
11. Arrangement for use of hazardous waste.
12. Stations of Air and Water quality baseline study including other environmental

Jnayak
Environmental Scientist, SEAC

parameters should be selected keeping in view the surrounding industries and proposed location such that only the environment parameter can be monitor specifically for the plant during operation period.

C. **THE TORS PRESCRIBED SHALL BE VALID FOR A PERIOD OF FOUR YEARS FOR SUBMISSION OF THE EIA-EMP REPORTS ALONG WITH PUBLIC HEARING PROCEEDINGS (WHEREVER STIPULATED) AS PER MOEF&CC, GOVT. OF INDIA S.O. 751 (E), DATED 17.02.2020.**

Jnayak
Environmental Scientist, SEAC