PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE, ODISHA HELD ON 17TH JANUARY, 2022

The SEAC met on 17th January, 2022 at 10:30 AM through Video Conferencing in Google Meet under the Chairmanship of Sri B. P. Singh. The following members were present in the meeting.

1.	Sri B. P. Singh	-	Chairman
2.	Dr. K. Murugesan	-	Secretary
3.	Dr. D. Swain	-	Member
4.	Prof. (Dr.) H.B. Sahu	-	Member
5.	Sri J. K. Mahapatra	-	Member
6.	Sri K. R. Acharya	-	Member
7.	Prof. (Dr.) B.K. Satpathy	-	Member
8.	Prof. (Dr.) P.K. Mohanty	-	Member
9.	Dr. K.C.S Panigrahi	-	Member
10.	Dr. Sailabala Padhi	-	Member

Draft proceeding of the meeting was finalized by the members through e-mail and also final proceeding 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 M/S. PENGUIN TRADING & AGENCIES LTD FOR RAIKELA AND TANTRA IRON MINES FOR ENHANCEMENT IN PRODUCTION OF IRON ORE FROM 1.080 MTPA TO 2.160 MTPA OVER ML AREA OF 49.372 HA AT VILLAGE RAIKELA AND TANTRA UNDER KOIRA TAHASIL OF DISTRICT - SUNDARGARH OF SRI RAMAN RASHMI NAYAK – EC

1. The proposal is for Environmental Clearance of M/s. Penguin Trading & Agencies Ltd for Raikela and Tantra Iron Mines for enhancement in production of Iron ore from 1.080 MTPA to 2.160 MTPA over ML area of 49.372 ha at village Raikela and Tantra under Koira Tahasil of District - Sundargarh of Sri Raman Rashmi Nayak.
2. The project falls under category “B” or activity 1 (a) - Mining of minerals under EIA Notification dated 14th September 2006 as amended from time to time.
3. Raikela & Tantra Iron Ore Mines of M/s Penguin Trading & Agencies Limited is spread over an area of 49.372 hectare in Raikela & Tantra village under Koida Tehsil of Sundargarh district, Odisha. The lessee has planned to increase the production of Iron Ore from the permitted quantity i.e. 1.080 million TPA to 2.160 Million TPA.
4. Terms of Reference (ToR) has been granted by SEIAA, Odisha vide letter no. 1352/SEIAA, dated 24th May, 2021.
5. Baseline Data was collected from December 2020 to February 2021 (Winter season).
6. The Public Consultation was conducted successfully on 21.10.2021 at 11.00 AM at existing parking area of M/s PTA Limited, Opposite side of Geetarani Mohanty Hutting School under Dengula GP under Koira Block of Sundargarh District.

7. Mining Lease of Raikela and Tantra Iron Mines was granted in favour of Sri Ramji Lal Bathwal for 20 years on 03.12.1986.The lease was transferred to M/s Penguin Trading & Agencies Ltd on 23.06.1991.1ST Renewal of lease was applied on 22.02.2005.

8. Subsequently, under Section 8(A) of MMDR Act of 12.01.2015, the lease period was extended up to 02.12.2036 and hence supplementary lease deed was executed on 21.07.2016 between Govt. of Odisha and the lessee.

9. The expansion proposal is as follows:

Particulars	Existing Capacity	Additional Capacity	Total Expanded Capacity
Iron Ore	1.080 Million TOA	1.080 Million TPA	2.160 Million TPA
Crushing Plant	250 TPH	150 TPH	400 TPH
Screening Plant	500 TPH	150 TPH	650 TPH

10. The mining operation within the lease area for production of iron ore has started since 27.07.1987.

11. Out of total lease area of 49.372 ha., 48.632 ha. is forest land. MoEF&CC, Govt. of India in two phases has granted diversion of 45.585 ha. excluding safety zone of 3.047 ha. vide letter no. 8-23/2007-FC, dated 13.5.2009. Further on 15.07.2015 vide letter n. F no. 8-23/2007-FC, the lessee has obtained clearance of forest diversion proposal over safety zone area of 3.047 ha. Further, clearance of safety zone for cluster mining over 0.218 ha has been obtained vide letter no. 10F(Cons)25/2020-12478/F&E, BBSR dated 17.08.2020.

12. Raikela & Tantra Iron Ore Mines had obtained Environmental Clearance from MoEF&CC, Govt. of India vide no. **J-11015/169/2007-IA.II(M), dated 17.01.2008** for production capacity of 0.378 million TPA. They had obtained revised Environmental Clearance from SEIAA, Odisha for extension of validity period of EC upto 30 years or the life of the mines which ever is less vide letter no. 3429/SEIAA, dated 30.05.2015. They had obtained Environmental Clearance from SEIAA, Odisha for enhancement of production capacity of Iron Ore from 0.378 MTPA to 1.080 MTPA vide letter no. 354/SEIAA, dated 27.12.2012.

13. Raikela & Tantra Iron Ore Mines had obtained Consent to Establish for production of 1.080 Million TPA of Iron ore and 250 TPH & 500 TPH Mobile Crushing & Screening Plant respectively vide letter no. 390/Ind-II-NOC-5628 Dated 09.01.2013. CTE obtained for additional stationary crushing & screening complex of 300 TPH comprising 100 TPH Crushing and 200 TPH Screening Plant vide letter no. 2970/IND-II-CTE-6281 dated 25.03.2019.

14. Consent to Operate has been issued by SPCB, Odisha for the same quantity vide letter no. 3325/IND-I-CON-4573, dated 25.05.2019, valid upto 31.03.2021. The existing capacity of Mineral Processing Plant comprises of 1X150 TPH & 1X100 TPH Crushing and 2X150TPH & 1X200 TPH Screening Plant. CTO for the requisite quantity is renewed on 04.03.2021 vide letter no. 3351/IND-I-CON-4573 and is valid up to 31.03.2026.

15. Forest Clearance (Stage II) obtained vide letter no. 8-23/2007-FC, dated 13.05.2009 over an area of 45.585 ha excluding Safety Zone. Forest Clearance over Safety Zone Area over 3.047 ha vide letter no. 8-23/2007-FC dated 15.07.2015. For change of land use from

safety zone to mining, Clearance granted over 0.218 ha under safety zone obtained vide letter no. 10F(Cons)25/2020/12478/F&E dated 17.08.2020.

16. Site Specific Wildlife Conservation plan approved vide letter no. 27551WL-C-SSP-197/10 dated 13.04.2010.
17. Ground Water (48 KLD) renewal obtained for abstraction of 48 KLD vide letter no. CGWA/NOC/MIN/REN/3/2021/6169, dated 10.10.2021 and is valid up to 09.10.2023.
18. Surface Water (300 KLD) allocation of 0.123 cusecs obtained from Department of Water Resources, Govt. of Odisha vide letter no. 8632/WR dated 01.05.2020.
19. Review of the Mining Plan along with Progressive Mine Closure Plan has been approved for the period 2021-22 to 2025-26 vide letter no. RMP/A/19-ORI/BHU/2020-21/2057, dated 06.11.2020.
20. The mine has planned to produce maximum ROM of 2.160 million TPA (1.389 million TPA of +55% grade iron ore and 0.771 million TPA of +45 to +55% grade iron ore) and Setting up of additional one mobile Crushers & one mobile Screening Plants of 150 TPH Capacity each. The planned production target shall be achieved by working in the existing Raikela-Tantra Quarry and by joint mining operation on the northern side of the ML area which is the common boundary with TRB mine of Jindal Steel & Power Limited from 2021-22.
21. The infrastructure facilities such as site office, weigh bridge, rest shed, First-Aid centre, Blasting shed, Security house etc are already made available within the ML area.
22. The Geological Reserve within the lease area is estimated to be 22.16million tonne whereas the Mineable Reserve is 19.94 million tonne. Based on the rated production of mine and mineable reserve, it is estimated that the life of the mine shall be 15 years.
23. Till the end of the life of the mines, an area of 37.770 hectare shall be mined out of 49.372 hectare of ML area.
24. **Location and Connectivity -** The mining lease area is on southern slope of Kadribara Pahar. The general elevation of the ML area ranges between 620m AMSL (Southern Side of the lease) and 840m AMSL (Northern side of the lease). The general gradient is from north to south and gently sloping towards south east part of the leasehold area. The area is featured in Toposheet No 73G/1 bounded by latitude – 21°52' 18.98232" to 21° 53' 00.94342" N and longitude 85°10' 43.37875"to 85° 11' 05.86014" E. It is easily from Tensa town which is connected through Bandhal to Raikela & Tantra public motorable road. The nearest railhead are Barsuan Railway siding & Barbil railway station which are at a distance of 28km (in SW direction) & 43 km away (in SE direction) respectively. Nearest town is at Tensa (3km away in SW direction) where all facilities like medical, postal, education, etc are available. The ML area of ***M/s PTAL*** is adjacent to five other mining leases namely TRB Iron Ore Mine of M/s Jindal Steel & Power Limited, Tantra Iron Ore Mine of M/s Korp Resources Pvt. Ltd., Raikela Iron Ore Mine of M/s National Enterprises, Raikela Iron Ore Mine of M/s S.N. Mohanty and Raikela Iron ore Mine of Smt. Gitarani Mohanty.
25. **Method of Mining -** Open cast mechanized method of mining with drilling & blasting on double shift basis is proposed to excavate the iron ore to gradually achieve the production target. Drilling and blasting will be adopted for loosening of hard rock mass by rock drill.

Ore to waste ratio is 1 : 0.119. The average number of working days in a year shall be 300. The mining will be carried out with the deployment of DTH Drill, Excavators, dumpers/tippers & Crushing & Screening Plant.

26. **The** existing dump over an area of 2.275 ha is already been stabilized and reclaimed with coir matting and plantation. The waste to be generated due to the futuristic mining activity shall be used for backfilling which is already in practice. The existing area already backfilled is covering an area of 2.820 ha.
27. Water Requirement - The total water requirement shall be 348 m3/day which will be sourced from Karo river & bore well (Ground Source)..
28. The water table of the region is at 615m AMSL and during post monsoon it goes up to 618m AMSL. This fluctuation of water table is proved by the nearby village wells. The ultimate working depth of the mining will reach upto 630m AMSL. So, there will be no accumulation of water in the proposed pit by the end of the conceptual period.
29. Employment Potential - The expansion of mining activity shall generate direct employment opportunity for 404 nos. and the locals will get priority in appointment.
30. The capital cost of the project shall be Rs. 37,19,83,450.00 (Rupees Thirty-Seven Crore Nineteen Lakhs Eighty-Three Thousand Four Hundred Fifty Only) and the recurring cost shall be Rs.3,35,23,906.00 (Rupees Three Crore Thirty-Five Lakhs Twenty Three Thousand Nine Hundred Six Only) per year. Provisions have been made to spend Rs.120 Lakhs towards capital expenditure and recurring expenditure of Rs. 70.50 lakhs per annum to be incurred towards environmental control measures.
31. The project proponent along with the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd. Bhubaneswar** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd. Bhubaneswar,** the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

(i) "Red Soil" is stated to have been getting deposited on surrounding Agricultural fields damaging the fertility of the land. Since Agricultural land is about 20-21% of the surrounding area, an "SOP" must be in place & submitted for periodical cleaning / removal of the red soil (if any) including de-silting (if any).

(ii) To arrest ingress / deposit of red soil/tailings and silt in fertile Agricultural land, "Zero Water balance" / "Zero liquid discharge" must be in place and ensured.

(iii) "Flying Rock" is stated to have been observed during blasting. So, to avoid any threat of safety due to this, an SOP be submitted to this effect in connection with domain expert.

(iv) Current dump plan and proposed dump plan with adequate justification.

(v) Compliances to NEERI recommendations.

(vi) Current EC conditions wise compliance while addressing the concerns raised during verification of Regional Office of MoEF&CC, Govt. of India.

(vii) Number of plants in Safety Zone and Dump stabilization plantations be increased with an average of 2500 plants per hectare while maintaining the biological diversity of area.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR JAKARA DECORATIVE STONE DEPOSIT OVER 56.03 ACRES OR 22.675 HECTARES IN VILLAGE JAKARA UNDER RAYAGADA TAHASIL OF GAJAPATI DISTRICT OF SRI M. JAGADISWAR RAO - 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 the EIA Notification, 2006 and amendment thereafter.
2. The project falls under category "B" or activity 1(a) - Mining of Minerals projects under EIA Notification dated 14th September 2006 as amended from time to time.
3. Jakara Decorative Stone Deposit of M/s. Tejeswini Granites is located over an area of 56.03 Acres or 22.675 Hectares in Village-Jakara, Tehsil-Rayagada, Dist- Gajapati.
4. Prospecting License was granted vide proceedings no.MII(d)-132/07-5690/DM, dated 08.07.2015**.**
5. LOI was granted vide letter no.7610/SM, Bhubaneswar, dated 04.10.2019.
6. Modified Checklist of Minor Minerals is approved by Mining Officer on 06.12.2021.
7. Survey Report On Minor Minerals submitted by Mining Officer to Collector, Gajapati vide letter no. 991/Mines, dated **17.11.2021**
8. Mining Plan was approved by Directorate of Mines vide letter no. MXXII-(a)-3/2020-7826/DM., Dated. 09.11.2020**.**
9. **Location and Connectivity** - Jakara Decorative Stone Deposit, over an area of 56.03 Acres or 22.675 Hectares is located in Khata No. – 29, Plot No. – 180/P & 181/P, village Jakara under Rayagada Tahasil of Gajapati District. The proposed lease area is bounded by latitude N18° 51' 49.5" – N18° 52' 09.4" and longitude E84° 20' 00.0" – E84° 22' 25.5" & It is a part of the area covered in the Survey of India Toposheet No E 45 G 5. Lease area can be accessible 2.1 km away from village Jakara and is about 11.4 km away from NH-5. The nearest railway station is Palasa -10 km (SSE) & Mandasa-30 km. Biju Pattnaik International Airport, Bhubaneswar is at a distance of approx.245 Km from project site. The nearest township Palasa is at 10.0 km away from the lease area where the medical and educational facilities are available. Nearest Reserve forest is Baliyagam RF- 2.1 Km(S).
10. The lease area shows single hillock topography. Maximum altitude of the hill peak 190mRL and the minimum altitude is at 165mRL. The overall slope of the hill is towards SE to NW side of the area. The area is partly overlain by boulders. There is neither any seasonal nor any perennial nala flowing within the applied M.L. area. The drainage pattern of the area is dendritic. Surface run-off water of the area is drained through the natural slopes/ nearby Nala.
11. **Method Of Mining -** During the mining plan period mining will be done by opencast

semi-mechanized method will be adopted using machineries such as Excavator, Line offset, compressor, jack hammer, wire ropes & drill rod etc. Firstly the weatherd zone of 0.5-1.0 m will be scraped from the top. After removal of weathered zone, drilling will be carried out by using jack hammers driven by air compressors as per the requirements adhering to the drilling norms. Both vertical & horizontal holes will be done to expedite wire saw cutter to detach the stone blocks from the quarry face. The Depth of the hole is proposed to be 2 m, 3 m & diameter will be 32mm.

12. **Total Reserves & Production** - It has been estimated that the geological resource of the decorative stone deposit is 2669186.20 m^3 and mineable reserve is 1854311.00 m^3.

Table No.1.3 Details of the proposed production during the Plan Period

Year	Volume of Rock Zone (m^3)	Volume of Recoverable Decorative Stone (m^3)	Volume of Khanda (m^3)	Volume of waste (m^3)
1st Year	35000.00	7000.00	3500.00	24500.00
2nd Year	35000.00	7000.00	3500.00	24500.00
3rd Year	35000.00	7000.00	3500.00	24500.00
4th Year	35000.00	7000.00	3500.00	24500.00
5th Year	35000.00	7000.00	3500.00	24500.00
Total	**175000.00**	**35000.00**	**17500.00**	**122500.00**

13. **Waste generation and utilization** - A total of 122500 m3 of waste to be generated during plan period. The generated waste will be dumped with an average height of 5 m having five terraces. About 40% of the generated waste will be utilized for maintenance and construction of the haul road, approach and existing roads in the surrounding areas periodically. The waste generated during the conceptual period will be back filled over an area of 4.669 hectares up-to 168m RL .The wastes are proposed to be stacked maintaining the overall slope at less than 280 and to be sequentially graded, compacted and leveled. Retaining wall of 153 mtr and garland drain of 160 mtr will be erected around the dumping yard to arrest the washing off of loose sediments. Since the dump constitutes of rocky mass, no plantation of saplings on the dump slope is envisaged.
14. After the plan period a total of 11.3736 Ha will be utilised for mining, dumping, stack yard and ancillary activities along with the safety zone over 2.272Ha. During the life of the mine, a total of 5.180 Ha of lease area will be degraded under mining.
15. **Green Belt** - The plantation will be done over an area of 1.458 Ha in the safety zone lease boundary available. 510 nos. of saplings will be planted over the plan period.
16. **Water Requirement** - Total water requirement for the project will be 1100 litres/day and source is from nearby village..
17. **Power Requirement** - No electrical power shall be required for operations in mine. Minimal power required for office shall be taken by using D.G set (225 KVA).
18. **Employment Potential** - The mining activity will generate employment for 27nos consisting of (Skilled, Semiskilled, Unskilled, and Administrative Staffs).
19. The project cost is ` 3 crores and funds under EMP is ` 90000/annum (Recurring).

20. The project proponent along with the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd. Bhubaneswar** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd. Bhubaneswar**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – A** for conducting detailed EIA study.

(i) Since about 80% waste / non-saleable waste /dump, the detail management including its year-wise utilization to be submitted.

(ii) "Zero discharge" management with silt management having SOP for periodical de-siltation (if & as necessary) be submitted.

(iii) Must ensure No Surface run-offs / wash offs to nearby nalas.

(iv) Plantation on both sides of the haulage road of desired no. & species be ensured.

(v) No. of plant species proposed need to be increased and plantation be completed in the first year and the rest of the years, the same be maintained.

(vi) STP of suitable capacity and design be in place for hygienece.

(vii) Details of water balance (during monsoon and non-monsoon) be submitted with rain water harvesting.

(viii) Dump management with detail calculations of waste utilization / inventory / sale including its chemical characteristics be submitted.

(ix) Measures taken to prevent water ingression in mines pit during rainy season.

(x) Water management with rain water harvesting along with calculation be submitted.

(xi) Plantation to be undertaken in one year and maintain it in remaining years.

(xii) Increase number of tree plantation along haulage roads and nearby suitable open areas.

(xiii) Silt management including SOP for silt management for desliting of surrounding water body(s) / Agricultural land be submitted.

(xiv) Proposed "Zero discharge" mechanism be submitted.

(xv) Certificate from the concerned mining officer that there is no mine within 500m radius of proposed quarry.

(xvi) Certificate from the concerned DFO that there is no forest land involved in the lease area.

(xvii) Details of waste management along with the composition of waste is to be provided.

(xviii) NOC/permission to be taken from private land owners/govt. land for plantation outside lease area.

(xix) Biodiversity study of the area.

ITEM NO. 03

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. CHHEND HERITAGE HOMES PVT. LTD FOR PROPOSED 2B+G+16 STORIED RESIDENTIAL APARTMENT BUILDING OVER AN AREA OF 1.75 ACRES ON KHATA NO. 9 & PLOT NO. 288 (P) & 289/432(P),

MOUZA- CHHEND, R.T.U - 3, P.S. CHHEND, TAHASIL - ROURKELA, SUNDARGARH, ODISHA OF SRI ALOK SHARMA (TOTAL BUILT UP AREA - 7081.94 SQ.MT) - EC

1. The proposal is for Environmental Clearance of M/s. Chhend Heritage Homes Pvt. Ltd for Proposed 2B+G+16 storied Residential Apartment Building over an area of 1.75 Acres on Khata No. 9 & Plot No. 288 (P) & 289/432(P), Mouza- Chhend, R.T.U - 3, P.S. Chhend, Tahasil - Rourkela, Sundargarh, Odisha of Sri Alok Sharma (total built up area - 7081.94 sq.mt).
2. The project falls under category “B” or activity 8 (a)-Building and Construction projects under EIA Notification dated 14th September 2006 as amended from time to time.
3. M/s. Chhend Heritage Homes Pvt. Ltd. has proposed project for construction of Residential Apartments at Plot No. 288(P) & 289/432(P) Khata No. 9, Mouza- Chhend, R.T.U - 3, P.S. Chhend, Tehsil-Rourkela, Sundargarh, Odisha over an area of 1.75 Acres (7081.94 sq.mts) through Public Private Partnership (PPP) mode by Chhend Heritage Homes Pvt. Ltd. and Rourkela Development Authority (RDA). A total area of 5.05 Acres is divided into Affordable Housing Area (AHA) of 3.30 acres on which AHA is undertaken and Developer's area (DA) of 1.75 Acres on which this proposed project (PDP) will be undertaken. The project measuring about to construct 91 Units in 2B + GF + 16 storied building for sale.
4. **Location and connectivity** - The area is located in Survey of India Toposheet No. 73H/15. Nearest Railway station is Panposh Railway station at a distance of 1.5 Km from the project site. The nearest road is Rourkela Ring road, Chhend main Road &Panposh Road at a distance of 1.5Km, 0.3Km &1.5Km respectively. The site is well connected to NH-23 at a distance of 1.7Km. Nearest airport is Rourkela airport at a distance of 1.7Km from the project site. The nearest river is Brahmani River & Koel River located at a distance of 1.3 Km & 2.0 Km respectively. Rourkela Steel Plant & Rourkela industrialship located at a distance of 4.5 Km & 2.5Km respectively.
5. The site is coming under development plan of Rourkela Development Authority.
6. The Building Details Of The Project:

Sl. No.	Area details	Area in Sq.mt.
1.	Total Plot area	7081.94 (1.75 Acres)
2.	Built-up area	47889.13
3.	Ground floor coverage area %	39.94% (3069.85 Sq. mt)
4.	Total open space	4012.09
5.	Green Area	1421.91
6.	Service area	62.5
7.	Parking area	10768.3
8.	Area for Internal Roads	1950
9.	Area of STP & Sewerage	97.2
10.	Maximum height of the building	59.15 meters
11.	FAR (with respect to project Area of 1.75 Acre)	4.92

12.	No. of Apartments/flats.	91 Units
13.	No. of population (office, retail area, residential area)	700 nos. (Approx.)

7. **Water requirement**: The Total amount of water required will be 95 KLD (approx) out of which fresh water requirement will be 63 KLD & it will be made available by PHED, Rourkela and 20 KLD of water will be used for gardening purpose.
8. **Waste water details**: Every building generates wastewater amounting about (80 % of fresh water consumed + 95 % of flushing water). The major source of wastewater includes the grey water from kitchens, bathrooms and black water from toilets. It is expected that the project will generate approx. 89 m3/day of wastewater. The wastewater will be treated in the STP of capacity of 125KLD provided within the apartment. Out of which 80 m3/day will be recycled within the project for flushing (32 m3/day), landscaping & plantation (20 m3/day), STP loss & for washing purposes (20 m3/day) and discharged to the drain (8 m3/day).
9. The storm water disposal at the site will be made through the peripheral drain system connecting to main drain along with 60-0' wide BT road existing. This work will be taken up during the time of site development work. Total 280 Kg per day amount of solid waste will be generated which will be disposed through the Rourkela Municipal Corporation (RMC).
10. **Power requirement**: The Electricity requirement for the apartment will be 750 KW which will be supplied from the TPWODL, Odisha and 3.4% of the electricity i.e. 25.85 KW will be met through solar energy. Energy conservation measures will be adopted by using maximum use of sunlight and minimize the use of electricity during day time.
11. **Rain Water Harvesting**: Rain Water will be harvested and recharge through 31 recharge pits from the plot area.
12. **Parking Requirement**: Total parking area provided is 10768.36 m^2 Sq.mt. and space provided are lower and upper basement, ground floor and open parking area.
13. **Fire fighting Installations**: Fire fighting system will be installed as per recommendation of the Fire fighting Officer, Odisha and as per the guideline of NBC (part-4).
14. **Green Belt Development**: Green belt will be developed over an area of 1421 sqm which is 20.0 % of the plot area; by using the local species like Mango, Sisoo, Chakunda, Karanja, Neem, Sirisa, Kadamba, Krushachuda, Radhachuda, Bottle brush, Gangasiuli, Aonla, Sunari, Coconut, Mango, Guava, Baula, Ashok, Kanchan, Bela, Harida, Bahada, Kanchana, Mandar, Tagar, Kaniar, ,Karabira, Kamini, Godibana, Ixora, Sugandha raj, Brazil flower, Kagajaphula, Ixora, Kunda, Shtalapadma, Ma, etc.
15. **Solid Waste Management**: From the residential complex solid waste in form of food waste from kitchen and miscellaneous waste will be generated @ 0.4 kg/person/day, which will be about 1000 kg/day for around 750 persons in operational phase. The generated solid waste from the residential apartment will be segregated as biodegradable and non-biodegradable. This will be collected in separate colored bins. Proper waste management practices will be adopted during the collection, storage and disposal of the generated solid waste and construction and demolition waste. Two nos of Portable organic converter will be installed.

16. The total population of project will be 700 persons for residential.

17. The estimated project cost is ` 110 Crores.

18. The project proponent along with the consultant **M/s Kalyani Laboratories Pvt. Ltd. Bhubaneswar,** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories Pvt. Ltd. Bhubaneswar,** the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent followed by site visit by the sub-committee of SEAC.

(i) "Kisam" of the land along with relevant document from appropriate Revenue Authority be submitted. The said document needs to be in favour of project proponent with conversion of the Kisam to "Gharabari" before start of the construction of the project.

(ii) Since the project site is located at 300 mtrs from Chhend Road and closer to ring road besides being a crowded place, traffic study be undertaken by a domain expert / institute of repute at intersecting point with all public roads, considering the traffic 10 years ahead with other projects and decongestion plan (if any required) based on the study findings be submitted. If the said study has already been undertaken by domain expert, a copy of the same be submitted with its findings and recommendations.

(iii) 1421.91m2 land (exactly) has been stated to have been provisioned for green belt development without land scaping. As such, details of dimensions of green belt with continuous stretch surrounding the boundary with three tier plantation (including the species) be submitted, showing in the layout map. Provision of land scaping as possible be worked out, showing in the layout map and be submitted.

(iv) Stretch with dimension in the layout map for free movement of fire tender along side the boundary and pedestrian pathways (all the sides) be submitted.

(v) Internal drainage layout system with dimension (both for run-off and waste water) be submitted along with its connectivity to external public drain and permission from the authority of the public drain to take the additional of this project along with the ROW of the land necessary to connect the internal drain with the public drain.

(vi) Width of the peripheral road at all four sides of the project.

(vii) No. of rain water harvesting pits (31 nos.) has been considered with maximum rain fall of 100 mm/hr in 24 years and the calculation has been made with co-efficient of run off for roof top = 0.80, parking = 0.60 and green area=0.20 without retention time. This looks very high and be revisited taking into consideration maximum rainfall in 24 hours in past 30 years based on logical climate data and norm for retention time /co-efficient of runoff with relevant reference be submitted as well.

(viii) Since Rourkela is subject to heat and cold wave weather, specific disaster mitigation management plan including inbuilt construction characteristics (if any) be submitted.

(ix) Provision of parking, both in terms of space & ECs confirming to the norms showing the demarcation in the layout map for 4 wheelers / 2 wheelers / bicycles be submitted.

(x) Detail plan with calculation of solar power consumption vis-à-vis the generation be submitted indicating the % of the total demand.

(xi) Correct location of DG set with stack height and installation drawing of exhaust pipe of the stack be submitted in reference to predominant wind direction and the location of the residential town be submitted.

(xii) The layout to accommodate WTP, Waste Water Treatment Plant, STP with Dual plumbing system with matching OVERHEAD tank for fresh water and wastewater and OIL water separation pit for the project.

(xiii) The recommendation of the Fire Safety Department be obtained on submission of revised layout plan and Superstructure plan prior to construction activity so that it can be accommodated during construction to facilitate issue of Fire Safety Certificate.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. AMARJOTHI GRANITES INDIA PVT. LTD. FOR BHAGABANPUR DECORATIVE STONE MINES OVER MINING LEASE AREA OF 31.808 HA. AT VILLAGE- BHAGABANPUR, TAHASIL- BERHAMPUR, DIST- GANJAM OF SRI SURESH CHANDRA PRADHAN – EC

1. The proposal is for Environmental Clearance of M/s. Amarjothi Granites India Pvt. Ltd. for Bhagabanpur Decorative Stone Mines over mining lease area of 31.808 Ha. at village- Bhagabanpur, Tahasil- Berhampur, Dist- Ganjam of Sri Suresh Chandra Pradhan.
2. As per the EIA Notification S.O. 1533, dated 14th September 2006 and subsequent amendments, this project falls under Category B (B1) Project or Activity 1(a) Mining of minerals
3. Terms of Reference (ToR) has been granted by SEIAA, Odisha vide letter no. 323/SEAC-39, dated 19.10.2019.
4. Baseline Data was collected from November 2019 to January 2020 (Post monsoon season).
5. The public hearing for environment clearance of enhancement in production of decorative stone from Bhagabanpur Decorative Stone Mines of M/s Amarjothi Granites India Pvt. Ltd. over an area of 31.808 Ha at Bhagabanpur village under Berhampur tehsil of Ganjam district, Odisha was conducted on 26.10.2021. The major issues are employment, peripheral development, road development, plantation and pollution control etc.
6. The Bhagabanpur Decorative Stone Deposit over 43.36 acres or 17.547 Ha in village Bhagabanpur under Kukudakhandi Tahasil of Ganjam District, Odisha has been 17.01.1996 in favour of M/s Amarjothi Granites (India) Pvt. Ltd upto 16.01.2006.1st renewal application made on 17.09.2005 for 20 years. However, the lease period will be extended for 30 years from 17.01.1996 to 16.01.2026 as per section 8(2) of Odisha Minor Mineral consession rule, 2016.
7. **Location and Connectivity** - The mining lease area is located in Village Bhagabanpur under Berhampur Tahasil of Ganjam District, Odisha and is on Khata No. 215, Plot No. 4/P & 6, Kissam - Parbat (Abada Ajogya Anabadi) covers under Toposheet No: 74A/11. It is bounded by Latitude – 19° 20’ 29” - 19° 20’ 47” N & Longitude – 84° 42’ 45” - 84° 43’ 20” E. Nearest railway station is Berhampur, 10 km away. Nearest airport is Bhubaneswar, 162 km away. Nearest town is Berhampur, 8 km away. Medical facilities are available at Berhampur which is about 8km. Nearest NH is NH 16 at 10km and SH 17 at 2km.Nearest habitation is Bodalundi at 500m and Bhagabanpur at 1km.The study area within 10 Km of the project site is devoid of any national parks, sanctuaries,

Biosphere reserves, wild life corridors, tiger/elephant reserves etc.

8. Land pattern use as shown in the satellite imagery of the study area shows that the project area constitutes mainly agricultural land (65%).
9. Mining plan is being approved by Director of Geology, Odisha, Bhubaneswar vide letter no. MXXII-(a)-12/2020/2881/DM dated 06.04.2021.
10. **Method of Mining** - The mining is done by opencast semi mechanized method on single shift basis with deployment of machineries like Hydraulic Rock Drillers, jack hammer drill, compressor, hydraulic excavator, Diamond wire rope Cutter & tippers. Height and width of the benches will be 6m each and the overall slope angle of the benches will be around 90°. The overall slope of the quarry will be 45°.
11. **Resource and Reserves** - The mine has the Resource of Decorative stone is 27,57,380 cum and reserve of Decorative stone is 23,89,308 cum.
12. **Production and waste management details** - It is proposed to excavate 30000 Cum of ROM per annum out of which 26250 Cum shall be Marketable rock and 3750 Cum will be non saleable in nature. During the plan period 199500 cu.m of waste and 16625 cu.m of sub grade will be generated. The waste and sub grade generated during the plan period will be dumped over an area of 1.0 Ha. During the conceptual period (life of mines) about 424500cu.m of waste will be generated. The waste generated during the proposed plan period and conceptual period will be dumped over an area of 3.580 Ha with a maximum height of 10m.
13. **Power Requirement** - There is no electricity connection to the lease area. A 100 kVA DG set is used as source of power. The diesel consumption in the mines for operation of machinaries and DG set will be 8 liters per hour.
14. **Water Requirement** - 8KLD of water shall be required which will be sourced from Rain water harvesting and Tanker from nearby villages.
15. **Rain Water Harvesting** - Rain water will be harvested through rain water harvesting tank of dimensions 40mx40mx12m to store around 822cum of rain water.
16. **Green Belt**– 6.726 Ha area will be under plantation in the 5 year plan period. 2100 number of saplings will be planted as per the approved mining plan.7450 number of saplings will be planted by the end of conceptual period. Local species will be selected for plantation in consultation with DFO. Road side plantation will be carried out to control soil erosion and air pollution. Post plantation care will be taken properly to achieve Survival rate of 80-85% to maintain suitable growth & tree density.
17. **Employment Potential** - Total number of employee will be around 73 which includes skilled, semi-skilled & unskilled category in the mine.
18. The costs of the project will 3.5 cores. The capital cost of environmental mitigation measures is estimated to be Rs. 23 Lakhs and the estimated recurring cost of environmental mitigation measures for the proposed project has been estimated to be Rs. 9.7 lakhs. The cost for peripheral developmental activities is 25 Lakhs.
19. The Environment consultant **M/s Kalyani Laboratories Pvt. Ltd. Bhubaneswar** along with the proponent have made a detailed presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories Pvt. Ltd. Bhubaneswar,** the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

(i) Sri Jagamohan Singh Arora, one of the Directors of M/s. Amarjothi Granites (India) Pvt. Ltd., Rajasthan has appointed Sri Suresh Chandra Pradhan, Bhubaneswar as power of Attorney on dated 29.3.2016 and is revocable at any time. "Power of Attorney" can be executed by virtue of a "Board Resolution" and not by any single Director and the Board resolution (based) to this effect is to be submitted by the company Secretary duly notarized / affidavit from Executive Magistrate. The Director / or any person so authorized by the Board to appoint power of Attorney shall be made by a resolution as stated above.

(ii) Since, non-saleable waste /OB / intermediate waste etc. is huge, the management of the some with year wise utilization and average moving inventory (for 5 years) be submitted.

(iii) Rain water harvesting management with recharging details along with water balance (both mansoon & non-monsoon) be submitted.

(iv) To confirm "Zero discharge" including silt management with SOP for di-siltation periodically since 65% of the surrounding land is Agricultural land.

(v) It is stated by project proponent that Rs. 2 lacs/year will be spent for maintenance of panchayat road of 2 km distance which appears to be too low. Therefore, a letter need to be submitted to this effect that the projected budget is sufficient for maintenance of the road from appropriate Govt. Authority.

(vi) Use of village / panchayat road need permission from concerned BDO / Govt. Authority.

(vii) Adequate plantation with right species shall be done on both sides of the haulage road in connection with the concerned DFO

(viii) Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression.

(ix) Perennial maintenance of haulage road/village / panchayat road shall be done by the project proponent as required in connection with the concerned Govt. Authority.

(x) Since manpower requirement is 73 besides floating population, a STP of required capacity and design shall be in place.

(xi) It is stated by the project proponent in disaster and risk management that "Bench slope failure" may occur. In such a situation, a contingency plan for the same / to address the same be submitted.

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR ROYAL HERITAGE RESIDENTIAL APARTMENT BUILDING PROJECT (S+6) OVER AN AREA 2.66AC. NEAR SHAILASHREE PALACE, GATE NO.1 , PALACE LINE, KOSHAL CHOWK, BOLANGIR OF SRI NIRAJ AGRAWAL (TOTAL BUILT UP AREA - 24843.9 SQM) - EC

1. The proposal is for Environmental Clearance of Royal Heritage Residential Apartment Building Project (S+6) over an area 2.66Ac. near Shailashree Palace, Gate No.1 , Palace Line, Koshal Chowk, Bolangir of Sri Niraj Agrawal (total Built up area - 24843.9 sqm).

2. The project falls under category “B” or activity 8 (a) - Building and Construction projects under EIA Notification dated 14th September 2006 as amended from time to time.

3. M/s Royal Heritage Residential Apartment Building Project (S+6) over an area 2.66Ac. at Plot NO: 1291/2324, 1293/2325 of Khata no. 368/5386, Plot NO: 1372/2331, 1373/2332, 1380/2333, 1381/2334, 1382/2335,1383/2336 of Khata No. 368/223.

4. **Location and connectivity** - The proposed site is located near to Shailashree Palace, Gate No.1, Palace Line, Koshal Chowk, Bolangir, Odisha. The Geographical co-ordinate of the project site is: Latitude 20°41’ 45.74” N & Longitude 83°28’ 13.53” E. The project site is well connected with National Highway - 201 (Bhawanipatna-Balangir Highway). The nearest railway station is Balangir Railway station at a distance of approx 2.6 Km in East-East- South. The nearest airport is Deogan Air strip which is 20.22 km away from the project site towards S direction. Biju Pattanaik International Airport which is 250 km away from the project site towards SE direction. Nearest Town: Balangir – 1.10Km (N-E), District Headquarters: Balangir at – 2.5 Km (NE).

5. The site is coming under development plan of Balangir Muinicipality area.

6. The Building Details Of The Project:

Total plot area	10776.78	SQM
Total stilt floor area	7067.87	SQM
Proposed Buit Up Area		SQM
BLOCK A (Residence)		SQM
1st Floor	1567.84	SQM
2nd Floor	1567.84	SQM
3rd Floor	1567.84	SQM
4 th Floor	1567.84	SQM
5th Floor	1567.84	SQM
6 th Floor	1567.84	SQM
Total Built Up Area	9407.04	SQM
Block B (Shop And Residence)		SQM
Ground Floor (Shops)	322.98	SQM
1st Floor	2501.7	SQM
2nd Floor	2501.7	SQM
3rd Floor	2527.62	SQM
4 th Floor	2527.62	SQM
5th Floor	2527.62	SQM
6 th Floor	2527.62	SQM
Total Built Up Area	15436.86	Sqm
Proposed Total Built Up Area (Block A & Block B)	24843.9	Sqm
Ground Coverage	3.38%	
Far Consumed	2.25	

7. **Water requirement**: During operation phase water will be sourced from Ground Water (Public Health Department).Total Fresh Water requirement is 105 m3/day.Total Flushing Water requirement is 53 m3/day. Total Water requirement is 159

8. **Waste water details**: Proponent will treat & recycle the waste water generated from this project. Recycled water will be used within the project area. Total water

requirement is 160 (Domestic + Flushing). The treated water recovered from STP will be 106 KLD and will be recycled & reused; out of which 54 KLD for toilet flushing, 30 KLD for Greenbelt & 7 KLD used in DG Set Cooling & 15 KLD for Road/general washing in the project site.

9. **Power requirement**: The daily power requirement for the proposed Residential Project is preliminarily assessed as 1092 KW source from TPWODL of Odisha State Electricity Board. In order to meet emergency power requirements during the grid failure, there is provision of 1 nos. of DG set having 200 KVA capacities for power back up in the Residential Housing Project.
10. **Rain Water Harvesting**: Rain Water will be harvested and recharge through 4 recharge pits from the plot area.
11. **Parking Requirement**: Total parking area provided is for residents 7696.8m^2 or 224 ECS for 4 wheelers and 95 ECS for 2 wheelers. Residential area provided is 7356.276 sqm. and 193.788 sqm. for commercial purpose.
12. **Fire fighting Installations**: Fire fighting system will be installed as per recommendation of the Fire fighting Officer, Odisha and as per the guideline of NBC (part-4).
13. **Green Belt Development**: Total green area will measure 2155.356m2 (20 % of the total plot area). Trees like *Azadirachta indica, Cassia fistula, Terminalia arjuna, Butea monosperma* etc. and flowering and ornamental plants have been proposed to be planted inside the premises.
14. **Solid Waste Management**: Total solid waste generation 0.570 Ton/day. Adequate number of colored bins (green, blue and dark grey) separate for biodegradable and non-biodegradable will be provided at all strategic locations within the site. The solid waste will be thus segregated at source and collected. STP sludge, which is periodical in nature is proposed to be used for horticultural purpose only after removal of oil & grease. Horticultural Waste is proposed to be composted and will be used for gardening purposes. The solid waste generated from project will be mainly domestic in nature and the quantity of the waste will be 0.560 Ton/day. Solid wastes generated will be segregated into biodegradable 0.342 T/Day (waste vegetables and foods etc.) and Non-biodegradable or recyclable 0.228 Ton/day. (papers, cartons, thermo-cool, plastics, glass etc.) Components will collected in separate bins. Solid waste &. Recyclable and non-recyclable wastes will be disposed through Govt. approved agency.
15. The total population of project will be 1134 persons for residential and 16nos for commercial and 115nos for visitors.
16. The estimated project cost is ` 49.370 Crores.
17. The project proponent along with the consultant **M/s Green Circle. Inc., Vadodara** made a detailed presentation on the proposal.

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

site visit by the sub-committee of SEAC.

(i) "Kisam" of the land alongwith relevant document from appropriate Revenue authority be submitted. The said document needs to be in favour of project proponent with conversion of "Kisam" to "Gharabari" before start of construction of the project.

(ii) Since the project site is located very proximate to Collector's office, electric office besides being a crowded locality, traffic study be undertaken by a domain expert / institute of repute at relevant intersecting point(s) with all public roads, considering the traffic 10 years ahead with other projects and decongestion plan (as and if any required) based on study findings be submitted.

(iii) Provision of parking, both in terms of ECs and space compatible to each other, confirming to norms showing detail calculation and the demarcation in the layout map for 4 wheelers / 2 wheelers / bicycles be submitted. While working out provision of parking, no of dwelling units / visitors / floating population for residential apartment as well as commercial complex be considered and indicated / shown.

(iv) Detail plan with calculation of solar power consumption vis-à-vis the generation be submitted indicating the % of total demand.

(v) Location of DG set w.r.t. predominant wind direction and location of residential towers looks and hence, to be re-located accordingly. The basis of determination of stack height (25 mtrs) is not indicated. So, the stack height basis of selection of no of DG set(s) and their capacity(s) alongwith installation drawing of exhaust pipe of the stack be submitted.

(vi) Water balance (both monsoon & non-monsoon) be submitted including permission of the authority of the public drain to which the excess treated waste water / storm water shall be discharged. 'ROW' of the land connecting the internal drain and public drain be submitted with dimension and drawing.

(vii) Internal drainage network dimension and drawing for both waste water / treated waste water / storm / run off water be shown in the map and submitted. Entry and exit gate (s) with pedestrian pathways, drawing with di-mentions be shown in the layout map and submitted.

(viii) "Green belt" details with di-mention having continuous stretch along the fair sides of the boundaries and three tier plantations be submitted indicating the norms as well.

(ix) Provision of fire corridor for free movement of fire tender with drawing and dimensions and pedestrian path alongside be provisioned and submitted showing the same in the layout map...

(x) Rain water harvesting management with re-charging pits be submitted with detail claculations considering maximum hourly rain fall in 24 hours based on 30 years logical climate date, run off co-efficient and their norms / real time inputs, retention time etc.

(xi) The layout to accommodate WTP, Waste Water Treatment Plant, STP with Dual plumbing system with matching OVERHEAD tank for fresh water and waste water and OIL water separation pit for the project.

(xii) The recommendation of the Fire Safety Department be obtained on submission of revised layout plan and Superstructure plan prior to construction activity so that it can be accommodated during construction to facilitate issue of Fire Safety Certificate.

ITEM NO. 06

PROPOSAL OF ENVIRONMENTAL CLEARANCE FOR KAIRABATHI STONE DEPOSIT

OVER AN AREA OF 7.525 HA FOR PRODUCTION OF 20,007CUM AT VILLAGE- KHAIRABATHI, TAHASIL - SHERAGADA, DISTRICT- GANJAM OF SRI MANTU KUMAR PATNAIK – EC

1. This proposal is for Environmental Clearance for Kairabathi Stone Deposit over an area of 7.525 ha for production of 20,007cum at village- Khairabathi, Tahasil - Sheragada, District- Ganjam of Sri Mantu Kumar Patnaik.
2. As per EIA Notification dated 14.09.06 and its subsequent amendments S.O.141 (E) on dated 15.1.2016, the project falls under, Category "B1".
3. The proposed Kairabathi Stone Deposit over an area of 7.525 ha for production of 20,007cum at village- Khairabathi, Tahasil - Sheragada, District- Ganjam of Odisha. The lease was identified and issued letter no 4461/Sairat, dated 31.12.2019 from Tahsildar, Sheraguda, Odisha for stone mining activity. Sri Mantu Kumar Pattnaik, S/o- Krushna Chandra pattnaik, At/Po-Alarigada, Villa-Kukudakhandi, Dist- Ganjam, State: Odisha is the Successful Bidder.
4. The TOR was issued for this project vide letter No. 56/SEIAA on dated 18.01.2021.
5. The Public Hearing meeting was held on dated 13/09/2021 at Plot No 1691, Kissam-Gochar (Vacant) which is south side of Village Khairabathi under Sheragada Tehsil, Ganajam District for the project and the final EIA /EMP report is submitted to SEIAA, Odisha.
6. The mining plan has been approved by Director of Mines Odisha, Bhubaneswar vide letter no 5486 dated 04.08.2020.
7. **Location and Connectivity** - The area under discussion is featured in Survey of India Topo Sheet No – E45A11 and is bounded between the Latitude -19^0 26' 46.63"N to 19^0 26' 57.09" N, Longitude– 84^0 41' 25.02" E to 84^0 41' 36.71"E & is on Khata No.218 (AAA), Plot No. -1574, 1575, 1576 & 1683 in village Khairabathi, Tehsil Sheragada, District Ganjam in Odisha. The lease area is approachable to NH- 217 via approach road of approx. 6.20 km. Nearest Railway Station is Berhampur railway station at a distance of 20 Km. Nearest Airport is Biju Patnaik International airport at a distance of about 147 km. Nearest NH is NH-59, approx. 6.5 km and SH-36, approx. 5.0 km. Nearest Habitation is Khairabati village, approx. 0.9 Km. Nearest river is Ghoda Hada River, approx 1 km. Nearest Reserve forest is Ramagurha RF, approx 9 km.
8. **Total Reserves and Production** - The total geological reserve has been estimated as 11,18,952 m^3. Similarly, the mineable reserve of stone is worked out to be 9,51,654 m^3. The project has been proposed for a total production of 56019.6 TPA of Stone from this Quarry. During the plan period maximum of 20007Cum of stone will be produced per annum by Open Cast semi mechanised mining method. Mining will be done by Opencast semi-mechanized method with adopted of drilling & blasting. Mining will be done by using machines jack hammer drill, compressor, hydraulic excavator. The height of the benches will be 3m and the width of a bench will not be less than the height of the bench. During plan period, development has been proposed in SW part of the lease area. The overall progress in mining will be West to East direction.
9. A total of 11,115 cum waste/rejects (10 %) is likely to be generated during the plan period. About 30 % of waste will be dumped in South direction which will cover an area of 360 sqm (0.036 ha) so the dump height will be 10 m. About 70 % of these

waste/rejects will be utilized con-currently for backfilling and construction and maintenance of road in the lease area.

10. **Life of the Mine** – The life of the mine will about 48 years.
11. **Water Requirement** – There is requirement of approx. 5.1 or 5.0 KLD water for this project. 1.8 KLD will be for drinking/domestic purpose which will be abstracted from old ground water source. For other purpose water will be taken from mine.
12. **Power Requirement** - No use of electric power as the operation will be done in the day time.
13. **Green Belt Development**: Plantation will be done in 33% of mining lease area. About 6200 saplings will be planted till conceptual period in safety barrier zone, approach road, & backfilled area.
14. **Employment Potential** - A total of 40 nos. of workers are to be employed in stone mining.
15. Baseline data on ambient air quality, water quality, noise level, soil, flora and fauna Site-specific meteorological data have been collected for post- monsoon season during October, 2020 to December, 2020.
16. The project cost is estimated to be Rs. 40.0 lakhs and there is a budgetary provision of Rs.8.4 lakhs as capital cost and Rs.4.9 lakhs as recurring cost towards environmental protection measures.
17. The Environment consultant **M/s P&M Solution Pvt. Ltd. Noida** along with the proponent has made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s P&M Solution Pvt. Ltd. Noida** along with the project proponent, the SEAC recommended for grant of Environmental Clearance with following specific conditions in addition to the conditions as per **Annexure – B.**

(i) Since 380 mtrs of village road is stated to be used by project proponent for transportation of minerals / wastes, the permission from concerned BDO for use of the said road shall be submitted, besides perennial maintenance of the road under deposit scheme with the appropriate Govt. authority or maintenance as under advice of the appropriate Govt. authority.

(ii) “Zero Discharge” shall be ensured with detail SOP to achieve the same.

(iii) The proponent shall take appropriate measures for “Silt Management” and prepare a SOP for periodical de-siltation indicating the possible silt content and size.

(iv) The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.

(v) Plantation shall be ensured on both sides of the haulage road of desired species besides avenue plantation. Plantation programme shall be completed in first 2 years and the same be maintained in rest of the year.

(vi) Since villages, high schools and temple are situated within 1 to 1.5 km of lease boundary, sufficient safety precaution shall be taken.

(vii) An STP of lower capacity shall be installed to maintain public health and hygiene for the workers.

ITEM NO. 07

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR GUNUPUR SAND BED - II OVER AN AREA OF 5.261 HA/13.00 ACRES FOR PRODUCTION OF 25100 C.UM. AT VILLAGE- GUNUPUR, TAHASIL - GUNUPUR, DISTRICT - RAYAGADA OF TAHSILDAR GUNUPUR – EC

1. This proposal is for Environmental Clearance for Gunupur Sand Bed - II over an area of 5.261 Ha/13.00 acres for production of 25100 C.um. at Village- Gunupur, Tahasil - Gunupur, District - Rayagada of Tahsildar Gunupur.
2. As per EIA Notification dated 14.09.06 and its subsequent amendments S.O.141 (E) on dated 15.1.2016, the project falls under, Category "B1".
3. The proposed project is of Gunupur Sand Bed over an area of 5.261 Ha or 13.00 acres for production of 25100 C.um. at Village- Gunupur, Tahasil-Gunupur, District-Rayagada, State-Odisha.
4. This project is proposed by Tahasildar of Gunupur. The Government gave consent for mining in favor of Tahasildar of Gunupur.
5. Mining Plan has been approved by Directorate of Geology, Koraput vide memo letter no. 679/mines Dated- 08/05/2020.
6. The TOR was issued for this project vide letter No. 10240/SEIAA on dated 17.12.2020.
7. The Public Hearing was held on 08.09. 2021 at (11.00 A.M) at Town hall, Gunupur under Gunupur Municipality, Rayagada.
8. **Location and Connectivity** - The area under discussion is featured in Survey of India Topo Sheet No – E44F16 and is bounded between the Latitude -19° 05' 58.74" N to 19° 06' 11.23" N, Longitude– 83° 48' 45.47" E to 83° 48' 53.58" E and is on Khasra no. 330&12, Plot no. 710/1624, 692, 702/1623 & 79. The nearest railway Station is Gunupur Railway Station is approx 4.5 km. Nearest Airport is Biju Patnaik international Airport is approx 245 km. Nearest State Highway is SH-4 is approx 0.8 km. Nearest village is Pujaharigada village is 0.75 km from the proposed area. Nearest forest is Peddakonda Reserve Forest / South Odisha Eastern Ghat Range 5.00 Km.
9. **Total Reserves and Production** - The total geological reserve has been estimated as 52610 Cum. Similarly, the mineable reserve of river bed sand is worked out to be 42255 Cum. The project has been proposed for a total production of 35140 Cum of Sand from this Quarry. During the plan period maximum of 25100 Cum of sand will be produced per annum by Open Cast Manual mining method. Excavation & loading of sand into the dumpers and trucks/tractors will be done manually.
10. **Replenishment Study Report** Replenishment study has been done during the pre-monsoon (May-2021) and post-monsoon season (Nov - 2021). This shows that replenishment quantity of sand is almost 24989.75 cum. or 24990 cum, same as proposed mining capacity i.e. 25,100 cum per year.
11. **Water Requirement** – The total water requirement will be 8 KLD for different purposes like Domestic, Dust suppression, plantation purposes.
12. **Power Requirement** - No use of electric power as the operation will be done in the

day time. However solar lights will be used for day to day living purposes.

13. **Green Belt Development**: Greenbelt plantation will be by planting 208 saplings of suitable species per annum by the lessee in vicinity of the river bank ,haulage roads and near village**.**
14. **Employment Potential** - A total of 21 nos. of workers are to be employed in sand quarry.
15. The baseline data was collected for the winter season i.e. October 2020 to December 2020 in the 10 km study area.
16. The project cost is estimated to be Rs. 40.0 lakhs and there is a budgetary provision of Rs.4.08 lakhs as capital cost and Rs.3.12 lakhs as recurring cost towards environmental protection measures.
17. The Environment consultant **M/s P&M Solution Pvt. Ltd. Noida** along with the proponent has made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s P&M Solution 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.

(i) The following information be submitted by the project proponent.

a) Width of the river

b) Extraction area be indicated in absolute value area as % of ML area against the norm of sand mining by MoEF&CC.

c) "No mining zone" safety zone, distance of ML boundary from river bank, distance of ML boundary from nearest habitation, distance of haulage road from village road, distance from river bridge or NH/SH or large infrastructure (both upstream and downstream) vis-à-vis the norm for the same as per sand mining management as per MoEF&CC in a tabular form.

(ii) It is stated by project proponent that sand extraction / production shall be 25,100 m3 and replenishment / deposition will be 24,000 m3 with replenishment factor taken as '1' and depth of mining as "2 meter" and difference between the two is 0.16. Since river flow is from north to south direction, the erosion will happen to right where the river bank is located, that means, bank erosion is unavoidable. Therefore, depth of mining, bank stabilization management be re-visited and submitted to arrest bank erosion including stone pitching on a stretch of bank with plantation between beyond the length of ML and ramp on the bank as well as domain expert advice / consultation of concerned Water Resources Department, Govt. of Odisha.

(iii) SOP of sprinkling on haulage road including details of plantation on both side of haulage road and avenue plantation be submitted.

(iv) Provision of bio-toilet to be ensured and confirmed.

(v) To ensure safety since school, temple and hospitals are present in the vicinity.

ITEM NO. 08

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR PAKIDI SAND BED OVER AN AREA OF 11.623 HA/28.720 ACRES FOR PRODUCTION OF 90000C.UM. AT VILLAGE-

PAKIDI, TAHASIL - SHERAGUDA, DISTRICT - GANJAM OF SRI. SUDHANIDHI CHOUDHURY – EC

1. This proposal is for Environmental Clearance for Pakidi Sand Bed over an area of 11.623 Ha/28.720 acres for production of 90000C.um. at Village- Pakidi, Tahasil - Sheraguda, District - Ganjam of Sri. Sudhanidhi Choudhury.
2. As per EIA Notification dated 14.09.06 and its subsequent amendments S.O.141 (E) on dated 15.1.2016, the project falls under, Category "B1".
3. Pakidi Sand Bed Mining is located on dry river bed of Rushikulya River at village: Pakidi , Tehsil: Sheragada & District: Ganjam in Odisha over an area of 11.623 Ha or 28.720acre.
4. The project has been proposed by Sri Sudhanidhi Choudhury, The LOI for mining lease was granted for 5 years period vide letter no. 373/Sairat dated 24-01-2020.
5. The mining plan has been approved by Director of Mines Odisha, Bhubaneswar vide letter no GXVII(g),707/19/5487/DG Dated-04/08/2020.
6. The TOR was issued for this project vide letter No.39/SEIAA on dated 15.01.2021.
7. The Public hearing has been conducted on 15.09. 2021 at (10.00 A.M) at Plot No. 936, Kissam-Patita which is adjacent to Negeswar Shiva temple and in east side of village Pakidi under Shergada Tehsil of Ganjam District. District.
8. **Location and Connectivity** - The area under discussion is featured in Survey of India Topo Sheet No – E44A10 and is bounded between the Latitude -19° 33' 08.55" N to 19° 33' 31.43" N, Longitude– 84° 42' 09.61" E to 84° 42' 25.91" E and is on Khata no. 507 (AAA) Plot no.01. The nearest railway Station is Berhampur Railway Station is approx 30km. Nearest Airport is Biju Patnaik international Airport is approx 139km. Nearest State Highway is SH-36 is approx 6.20km and NH – 59 at 0.50km. Nearest village is Mantapada village is 0.46 km from the proposed area. Nearest forest is Pakidi Reserve Forest is at 1.10km. Nearest water body is Ghorhaharh river, approx 6.9 km.
9. **Total Reserves and Production** - The total geological reserve has been estimated as 303960 Cum. Similarly, the mineable reserve of river bed sand is worked out to be 276450 Cum. The project has been proposed for a total production of 32400 Cum of Sand from this Quarry. During the plan period maximum of 18000 Cum of sand will be produced per annum by Open Cast Manual mining method. Excavation & loading of sand into the dumpers and trucks/tractors will be done manually.
10. **Replenishment Study Report** Replenishment study has been done during the pre-monsoon (May-2021) and post-monsoon season (Nov - 2021). This shows that replenishment quantity of sand is almost 18596.8 cum. or 18597 cum, more than proposed mining capacity i.e. 18000 cum per year.
11. **Water Requirement** – The total water requirement will be 2 KLD for different purposes like Domestic, Dust suppression, plantation purposes.
12. **Power Requirement** - No use of electric power as the operation will be done in the day time. However solar lights will be used for day to day living purposes.
13. **Green Belt Development**: Greenbelt plantation will be by planting 270 saplings of

suitable species per annum by the lessee in vicinity of the river bank ,haulage roads and near village**.**

14. **Employment Potential** - A total of 33 nos. of workers are to be employed in sand quarry.
15. The baseline data was collected for the winter season i.e. October 2020 to December 2020 in the 10 km study area.
16. The project cost is estimated to be Rs. 20.0 lakhs and there is a budgetary provision of Rs.2.80 lakhs as capital cost and Rs.4.82 lakhs as recurring cost towards environmental protection measures.
17. The Environment consultant **M/s P&M Solution Pvt. Ltd. Noida** along with the proponent has made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s P&M Solution Pvt. Ltd. Noida** along with the project proponent, the SEAC recommended for grant of Environmental Clearance for the proposal valid upto lease period with stipulated conditions as per **Annexure – C**

ITEM NO. 09

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S RUNGTA MINES LTD. (GREEN FIELD PROJECTS) FOR PURHEIBAHAL IRON ORE BLOCK OVER AN AREA OF 64337HA. FOR PRODUCTION OF 1.0 MTPA OF IRON ORE WITH TOTAL EXCAVATION – 1.064 MTPA. (ROM IRON ORE: 1.0 MTPA + OVERBURDEN 0.064 MTPA) LOCATED AT VILLAGES – BADAINDUPUR & SANINDUPUR, TAHASIL – KOIRA, DISTRICT – SUNDERGARH OF SRI. HIRAK MAZUMDAR - 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 the EIA Notification, 2006 and amendment thereafter.
2. M/s Rungta Mines Ltd. (Green field projects) for Purheibahal Iron Ore block over an area of 64337Ha. for production of 1.0 MTPA of Iron Ore with total excavation – 1.064 MTPA. (ROM Iron Ore: 1.0 MTPA + Overburden 0.064 MTPA) located at villages – Badaindupur & Sanindupur, Tahasil – Koira, District – Sundergarh , Odisha.
3. The project falls under category "B" or activity 1 (a) - Mining of Minerals under EIA Notification dated 14th September 2006 as amended from time to time.
4. The Purheibahal iron ore block over 64.337 ha. has been allocated by e-auction to M/s Rungta Mines Ltd. by State Govt. of Odisa and declared as the Preferred Bidder under Rule(9)(iii) of Auction Rules. The Letter of Intent (LOI) has been issued by the Govt. of Odisha vide no. IV(B)SM-48/2021/8713/SM, Bhubaneswar, dated 28.10.2021.
5. The mining plan was approved by Indian Bureau of Mines, Bhubaneswar vide No.MP/A/20-ORI/BHU-2021-22 Dt: 24.11.2021

6. The Purheibahal Iron ore Block covers 64.337 ha of land falling within Koira Tehsil of Sundargarh dist., Odisha. Majority of land comprises of non forest land (34.695 Ha.) with some forest land (29.642 Ha). The area is a virgin Iron ore block.

7. **Location and Connectivity**: The deposit falls in the Survey of India Toposheet No. 73 G/5(open series map F45N5). The target area is bound by: Lat: 21^0 54' 58.91740"N to 21^0 55' 34.84448" N, Long: 85^0 17' 24.51774" E to $85^0$18' 00.84765"E. A panchayat road running from Koira to Rugudi runs through the SE part of the block. This road connects to Koira Rugudi road which finally meets the NH 520 road near Koira town and also to Rugudih & this road connects to NH520. The Nearest Rail head is at Barbil, the nearest railhead which is on Tatanagar-Barbil section of the South Eastern Rail and is about 30 Km away & Barsuan railway station (30 KM) another railway station is at Barsuan which is also at a distance of 30 KM from the Project area.The nearest civilian airport is Tanto Air Strip – 23 km. Jharsuguda Airport (170 km), Bhubaneswar Airport (330 KM).The area is devoid of any notable public buildings, archaeological monuments, etc. There is also no National Park or Wildlife sanctuary near the area. The Nearest town is at Koida is located at a distance of about 08 km km (aerial) by road where school/colleges and health facilities are available including that for social infrastructure and common amenities.

8. **Reserves** - The estimated mineable reserve of iron ore within the block area is 42.12 Million Tonnes lying within Forest and non-forest land. The total geological reserve resource is 46.8 million tonnes. Considering the rated annual production of iron ore as 1 Million Tonnes per annum, the lease period will be 50 years from execution of lease deed.

9. **Method of Mining** - Fully mechanized opencast mining method shall be adopted with excavator of 2.1/ 3.9/4.2m3 capacity, Loader of capacity 1.7 m3 & dumper of capacity 30MT/40MT for the excavation work. During this proposed plan period, one quarry will be developed. Height & width of individual bench is proposed to be maintained up to 9m &15m respectively. The overall pit slope will be maintained at 45^0 max. As per the requirement, drilling & blasting will be done. The excavated ROM ore will be transported to Mineral stack yard/mineral processing unit by dumper & excavator combination. The haul road will be maintained to facilitate the movement of all mining machineries. The haul road will be of 9m width. The extracted waste will be transported to the preselected dump site or in future this will be used for backfilling of exhausted part of the quarry..

10. **Production Details:** This is an opencast mine of peak production capacity 1.0 MTPA of ROM Iron Ore, with a total excavation of 1.064 MTPA (1.0 MTPA ROM iron ore+ 0.064 MTPA of waste) and the extent of ML is about 64.337 Ha. The lease period will be 50 years from execution of lease. During proposed plan period total ROM iron ore production will be 24,27000T. (initial 5 years). In course of proposed mining operation period up to the end of lease period of each year ROM iron ore will be produced along with the generation of waste

11. The ore production year-wise is given as follows :-

Financial Year	Total tentative excavation (T)	Over Burden/waste (T)	Rom in T	Ore:OB Ratio (T/m^3)
2024-25	-	-	-	-
2025-26	-	-	-	-
2026-27	442704	15704	427000	1:0.02
2027-28	153894	53894	1000000	1:0.03
2028-29	163854	63854	1000000	1:0.03

12. **Waste management** - An waste of 133452 T will be generated during initial stage of 5 years to be dumped at earmarked place within lease area and afterward for backfilling it will be used.
13. **Green Belt** - The plant species which preferably will be nitrogen fixers, pollution abaters, fruit bearing shall be taken up for plantation. During the plan period afforestation programme will be carried out over an area of 6.0 hectares of safety zone area.
14. **Water Requirement** - Total requirement of water is estimated as 236 KLD. Water will be utilized for green belt development, sprinkling on haul roads, drinking & domestic purpose etc. during mining operations.
15. **Power Requirement** - The electricity is to be supplied to the project by TPWODL. The Mine will receive power at 200 KVA from the nearby line of TPWODL. In case of power failure DG of total capacity 200 KVA will be used.
16. **Employment Potential** - Total direct employment will be 140 no. & Indirect employment will be about 500 nos. as per the requirement in the mining project.
17. The cost of Project is ` 143 crores.
18. The Environment Consultant **M/s Ardra Consulting Services Pvt. Ltd. Bhubaneswar** along with the proponent made a detailed presentation on the proposal before the Committee.

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

i) 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) Any other relevant environmental issue / parameter.

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

- Blast vibration study
- Socio economic study of the neighbouring habitation
- Biodiversity study 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

ii) 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.

iii) 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.

iv) 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.

v) 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.

vi) 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.

vii) 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.

viii) 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.

ix) 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.

x) 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.

xi) 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.

xii) 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.

xiii) 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.

xiv) 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.

xv) 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.

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

xvii) Compliance to NEERI recommendations.

xviii) “Zero discharge” management & “Zero Dust Re-suppression” management with SOP be submitted.

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

xx) 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.

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

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

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

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

xxv) Copy of lease document.

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

xxvii) 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.

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

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

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

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

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

xxxiii) 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.

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

xxxv) 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.

xxxvi) 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.

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

xxxviii) 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.

Approved

24.01.2022

Chairman, SEAC

Secretary, SEAC

ANNEXURE – A

TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN THE EIA/EMP REPORT FOR JAKARA DECORATIVE STONE DEPOSIT OVER 56.03 ACRES OR 22.675 HECTARES IN VILLAGE JAKARA UNDER RAYAGADA TAHASIL OF GAJAPATI DISTRICT OF SRI M. JAGADISWAR RAO - TOR

1. 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.
2. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3. 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.
4. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, 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).
5. Information should be provided in Survey of India Topo sheet 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.
6. 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.
7. 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 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 EIA Report.
8. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
9. 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.

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10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

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

16. 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.

17. 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.

18. 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, the necessary plan alongwith 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.

19. 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.

20. 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 falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21. 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 lease 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.

22. 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 PM10, particularly for free silica, should be given.

23. Air quality modeling 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 modeling 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.

24. 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.

Environmental Scientist, SEAC

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

26. 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.

27. 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.

28. 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.

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

30. 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.

31. 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.

32. 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.

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

34. 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.

35. 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.

36. 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.

37. 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.

38. 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.

39. 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.

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

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

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

43. 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.

44. Besides the above, the below mentioned general 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.

    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.

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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.

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

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ANNEXURE-B

CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE FOR KAIRABATHI STONE DEPOSIT

A. Specific Conditions

1. This EC for the proposal shall be operational after submission of an undertaking through affidavit to SEIAA, Odisha within 15 days of receipt of the EC letter for compliance of all the conditions prescribed herein.
2. EC for the proposal shall be operational after getting necessary approval from the CGWA.
3. Consent / NoC shall be obtained from the concerned village Sarpanch for use of village road for mineral transport. The said road shall also be maintained by the lessee.

B. Standard conditions

(I) Statutory compliance

1. This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
2. The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
3. The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors. This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project,
4. This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the project.
5. Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board.
6. The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety

(DGMS) and Indian Bureau of Mines from time to time.

7. The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made thereunder in respect of lands which are not owned by it.
8. The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-l1013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
9. The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.
10. A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
11. State Pollution Control Board shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
12. The Project Authorities should widely advertise about the grant of this EC letter by printing the same m at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board and web site of the Ministry of Environment, Forest and Climate Change (www.environmentclearance. nic.in). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.
13. The Project Proponent shall inform the MoEF&CC/SEIAA, Odisha for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

(II) <u>Air quality monitoring and preservation</u>

14. The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2; CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCl/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
15. Effective safeguard measures for prevention of dust generation and subsequent

suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from ah sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

(III) <u>Water quality monitoring and preservation</u>

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

17. Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

18. Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

19. The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC / SEIAA, Odisha. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon

(August), post-monsoon (November) and winter (January) and the record of monitored data be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, SEIAA, Odisha, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.

20. Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1 /2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

21. The project proponent shall construct retaining wall and settling pond within the lease area. Further, check dams shall be constructed at strategic locations in which rain water passes in rainy season. Finally, the excess supernanted after sedimentation shall be allowed to spill away through stone pitch structure to the nearby valley.

22. De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. A legal affidavit shall be submitted within 6 months from the date of issue of Environmental Clearance to this effect with periodicity of de-silting.

23. Detail design of the existing retaining wall and the proposed for the expansion from a chartered Civil Engineer shall be submitted within 6 months from the date of issue of Environmental Clearance to ensure that no silt after wash up is escaped from the core / buffer zone of the mines.

24. An area of 3.40Ha shall be kept for public use as pond and road. Hence, remaining 52.956Ha shall be planted during life of the mine in a phased manner i.e. within a period of 20 years.

25. Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office, MoEF&CC annually.

26. Industrial waste water (workshop and waste water from the mine) should be properly collected and treated in an ETP as proposed so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

27. The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board.

(IV) Noise and vibration monitoring and prevention

28. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.

29. The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

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

(V) Mining Plan

31. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.

32. The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.

33. The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.

(VI) Land reclamation

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

35. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

36. The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.

37. The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.

38. The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC, Govt. of India, Bhubaneswar as well as SEIAA, Odisha.

39. Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and topsoil / OB / waste dumps to prevent runoff of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.

40. Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the comers of the garland drains.

41. The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety

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

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

(VII) Transportation

43. No Transportation of the minerals shall be allowed in case of roads passing through transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

44. The Main haulage road within the mine lease should be provided with a permanent water arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

45. Traffic management shall be done as per recommendation of Traffic Management Study Report.

(VIII) Green Belt

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

47. The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of

trees.

48. The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

49. The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.

50. And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

(IX) <u>Public hearing and human health issues</u>

51. The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half-yearly basis.

52. A commitment in form of an undertaking for periodical occupational health checkup of the employee and the local people shall be done through an occupational health expert as per the detailed action plan submitted with the proposal within 6 months from the date of issue of Environmental Clearance.

53. The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.

54. The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise

Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x l4 inches and of good quality).

55. The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities, (c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1),Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.

56. The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

57. Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

58. The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.

59. Issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the Mining Authority as per OM F. No. 22-65/2017-IA.III, dated 30.09.2020 of MoEF&CC, Govt. of India.

(X) Corporate Environment Responsibility (CER)

60. The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by SEAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.

61. Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.

(XI) Miscellaneous

62. The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.

63. The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

64. The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC & its concerned Regional Office, SEIAA, Odisha, Central Pollution Control Board and State Pollution Control Board.

65. A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.

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

67. The project proponent shall augment infrastructure on drinking water, health care and education in nearby villages as per time bound action plan submitted.

68. The project proponent shall obtain permission from DGMS under 106(2b) to carry out blasting operation within the lease area.

69. The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.

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

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ANNEXURE- C

STANDARD ENVIRONMENTGAL CLEARANCE CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE FOR PAKIDI SAND BED OVER AN AREA OF 11.623 HA/28.720 ACRES FOR PRODUCTION OF 90000C.UM. AT VILLAGE- PAKIDI, TAHASIL - SHERAGUDA, DISTRICT - GANJAM OF SRI. SUDHANIDHI CHOUDHURY – EC

Stipulated Conditions:

1. The project proponent should carry out River bed sand mining manually by engaging local laborers in force to check over exploitation of sand at the source.
2. Any change in the plan or quantity to be produced shall require prior approval of SEIAA.
3. There shall be a 'no working zone' to protect the embankment on both sides, road or rail bridge in the vicinity, if any, dam, weir, water intake structure of irrigation or drinking water project, or any cross drainage structure. 10 % of the width of river shall be left intact along the embankments on both sides as 'no mining zone'. Further, no mining shall be allowed within 200 m of any existing structures dam, weir, water intake structure of irrigation or drinking water project, or any cross drainage structure. In case of River Bridge, this no mining zone shall extend upto a minimum stretch of 200 meters from the bridge and it may extend upto 500 meters in sensitive locations. The lease area shall be accordingly curtailed to carve out the actual sand mining area within the leasehold. Exact map of the lease area, and the 'no mining zone' shall be drawn to scale, showing the DGPS coordinates of all corner points, and the location of the bridge, embankment, extraction route & other structures; and such map has to be submitted to SEIAA by the project proponent through the Tahasildar within three months of the date of issue of the EC. The quantum of sand allowed to be extracted will be worked out on the basis of the actual working area.
4. The lease area and the actual working area shall be demarcated on the ground by erecting durable masonry /concrete pillars by the project proponent.
5. The project proponent shall take prior statutory and regulatory clearance as required from the concerned authorities in respect of the project, before carrying out any operation.
6. Mining is not permissible within the water channel or stream flow area. No stream shall be diverted for the purpose of mining and no natural water course shall be obstructed. The mining or any ancillary activity shall not in any way disturb the flow pattern of the river water during the non monsoon period. There shall be no sand mining in the river during the rainy season or when there is flow of water in the river.
7. Sand mining operations shall not affect the existing sources for irrigation / drinking water / industrial purpose.
8. The natural sand dunes, if any, near or surrounding the lease area shall not be disturbed.

9. No transportation of the minerals shall ordinarily be allowed on any road passing through villages/habitations/forest land without prior explicit permission. Transportation of minerals through existing rural roads can be allowed only by the concerned Govt. Department/BDO and only after required strengthening, such that the carrying capacity of road is increased to handle the sand truck traffic. The project proponent shall bear the cost towards the widening and strengthening of existing public roads in case the same is proposed to be used for the project. No movement on any road is allowed on existing village road network without appropriately increasing the carrying capacity of such roads. Project proponent shall ensure that the road may not be damaged due to transportation of the mineral and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and traffic density. Plying of sand extraction trucks may be allowed on roads / path ways passing close to schools, temples, hospitals and such other public places only with prior written permission of competent authority.

10. Vehicles hired for transportation of sand from the site should be in good condition and should have pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours.

11. The vehicles shall not be overloaded and shall be covered with Tarpaulin. The Tahasildar may collect an appropriate road maintenance levy from the lessee as part of the lease conditions on the basis of quantum of sand transported, and utilize the proceeds of the levy for proper maintenance of the extraction paths and roads to prevent their degradation on account of plying of sand trucks.

12. The project proponent shall take all precautionary measures against causing damage to flora and fauna of the locality. The PP shall plant and nurse to full establishment a minimum of 50 number of saplings of native tree species along the approach roads, river banks and in community areas in consultation with the Gram Panchayat.

13. Water spray should be made on the road/extraction paths to control dust emission during transportation of sand.

14. The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.

15. Environmental Management Plan (EMP) shall be implemented by PP to ensure compliance with the environmental conditions specified above. The year wise funds earmarked for environmental protection measures shall be kept in separate account and shall be spent according to the plan proposed. Year wise progress of implementation of EMP shall be reported to the SEIAA, Odisha and OSPCB along with the compliance report.

16. The proponent shall take necessary measures to ensure that there is no adverse impact of the mining operations on the human habitation if any, existing nearby.

17. It shall be mandatory for the project management to submit quarterly compliance reports on the status of implementation of the above stipulated environmental safeguards to the SEIAA, Odisha / SPCB, Odisha/ Regional Office of the MoEF&CC,

Bhubaneswar, in hard and soft copies on 1st day of January, April, July, October of each calendar year, failing which EC is liable to be revoked.

18. River Bank stabilization shall be made through stone patching. Plantation of adequate number native species on river banks and both sides of haulage roads shall be made.

19. Since NH200, Kuccha Road and temple are only at a distance of 800 mtr, 570 mtr and 500 mtr respectively, all traffic safety measures shall be taken to avoid any kind of accidents.

20. Bio - toilet provision shall be made.

21. As raised during public Hearing and committed by PP, Loknathpur Sasan village road shall not be used for transportation of sand.

22. Stone patching on river bank with plantation in-between and the ramp construction shall be done in consultation with and advice of concerned W.R.Deptt, Government of Odisha.

23. Necessary sprinkling on Haulage Road and Avenue plantation shall be done.

24. At the end of mine closure, the proponent shall immediately remove all the sheds put up in the quarry and all the equipment in the area before closure of the quarry.

25. The conditions stipulated in the environmental clearance will be closely monitored on the ground by the lease granting authority, i.e. the Tahasildar, who shall ensure compliance of the stipulated conditions and take corrective measures promptly in case of any non- compliance and also ensure that the project proponent submits quarterly compliance reports.

26. The concerned Regional Office of the MoEF&CC/ SPCB, Odisha shall periodically monitor compliance of the stipulated conditions as applicable for this project. The project authorities should extend full cooperation to the MoEF&CC officer(s)/SPCB officer(s) by furnishing the requisite data / information / monitoring reports.

27. A copy of the clearance letter shall be sent by the proponent to concerned Gram Panchayat /Panchayat Samiti /Zilla Parisad /Municipal Corporation / Urban Local Body as the case may be.

28. Project proponent shall obtain Consent to Operate from the OSPCB and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the State Pollution Control Board.

29. The SEIAA, Odisha may revoke or suspend this EC, if implementation of any of the above conditions is not satisfactory. The SEIAA, Odisha reserves the right to alter /modify the above conditions or stipulate any further condition in the interest of environment protection.

30. The Project Proponent (lease holder) shall inform the SEIAA of any change in ownership of the mining lease. In case, there is any change in ownership or mining lease is transferred, then mining operation can be carried out only after transfer of EC

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as per provisions of the para 11 of EIA Notification, 2006, as amended from time to time.

31. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this environment clearance besides attracting penal provisions in the Environment (Protection) Act, 1986.

32. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act,1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.

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

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

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ANNEXURE – D

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR M/S RUNGTA MINES LTD. (GREEN FIELD PROJECTS) FOR PURHEIBAHAL IRON ORE BLOCK OVER AN AREA OF 64337HA. FOR PRODUCTION OF 1.0 MTPA OF IRON ORE WITH TOTAL EXCAVATION – 1.064 MTPA. (ROM IRON ORE: 1.0 MTPA + OVERBURDEN 0.064 MTPA) LOCATED AT VILLAGES – BADAINDUPUR & SANINDUPUR, TAHASIL – KOIRA, DISTRICT – SUNDERGARH OF SRI. HIRAK MAZUMDAR - 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 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, 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.

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.

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

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

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

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,

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

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

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.

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.

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.

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.)

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

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

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 & Centra! 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.

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.