

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL
COMMITTEE, ODISHA HELD ON 02nd AUGUST, 2021**

The SEAC met on 02nd August, 2021 at 11:00 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 (through VC)
2. Dr. K. Murugesan	-	Secretary (through VC)
3. Dr. D. Swain	-	Member (through VC)
4. Prof. (Dr.) H.B. Sahu	-	Member (through VC)
5. Sri. J. K. Mahapatra	-	Member (through VC)
6. Sri. K. R. Acharya	-	Member (through VC)
7. Prof. (Dr.) B.K. Satpathy	-	Member (through VC)
8. Dr. K.C.S Panigrahi	-	Member (through VC)
9. Dr. Sailabala Padhi	-	Member (through VC)

The agenda-wise proceedings and recommendations of the committee are detailed below.

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR GREENFIELD TEXTILE PROJECT UNIT ESTABLISHMENT OVER AN AREA 60 ACRES LOCATED IN VILLAGES - PAHIMAHURA & HELPUR, TAHASIL - BHANDARIPOKHARI, DIST – BHADRAK, ODISHA OF M/S. PARADEEP REFINERY INDIAN OIL CORPORATION LTD – EC.

1. This is a proposal for Environmental Clearance of M/s Paradeep Refinery Indian Oil Corporation Ltd. for Greenfield Textile project unit Establishment over an area 60 acres located in villages - Pahimahura & Helpur, Tahasil - Bhandaripokhari, Dist – Bhadrak, Odisha.
2. The project falls under category “B” or activity Category - 5(d) Man-made fibres manufacturing in the ‘Project or Activities’ projects under EIA Notification dated 14th September 2006 as amended from time to time.
3. IOCL is proposing the Greenfield Textile project unit establishment in Villages Pahimahura & Helpur, Tahasil Bhandaripokhari, Dist. Bhadrak, Odisha, Odisha on a land measuring 59.625 acres or 2,41,292 m².
4. Standard ToR was issued by MoEFCC vide letter no. IA-J-11011/57/2019-IA-II(I) dated 24.03.2019. Now, as the project is ‘B’ category project, further application was made at SEAC/SEIAA, Odisha.
5. Public hearing was conducted on 30.12.2020 at Bhandaripokhari Higher Secondary School High School of Naguan Panchayat under Bhandaripokhari Tahasil in the district of Bhadrak (Odisha).
6. **Location and Connectivity** - The plot area of the project site is 2,41,292 m² (or 59.625 acres). The coordinates of the area is Latitude - 20° 59' 2.00"N to 20° 59' 20.60"N and Longitude - 86° 23' 48.05"E to 86°24' 13.61"E. The nearest Railway station is Manjuri Railway station located at an aerial distance of 5.1 km in NW direction & Kenduapada Railway station at an aerial distance of 5.0 km in NNW direction & Bhadrak Railway station at an aerial distance of 18 km in E direction from

the site. Bhubaneswar airport located at an aerial distance of 102 km in SW direction. NH 5 & AH 45 at an aerial distance of 0.84 km in SE direction. Reba river is at 0.1km. Akhuapada High Level Canal is at 0.65km.

7. The Detailed Area Statement of the project is mentioned in the table:

SI. NO.	PARTICULARS	AREA (SQ.M.)
1.	Total Plot area	2,41,292
2.	C.P. Building With Slurry Preparation	1,176
3.	POY/FDY SPG	9,600
4.	POY/FDY LAG Area & Trolley Area	3,640
5.	Paper Tube & Packaging	520
6.	DTY	39,476
7.	PSF Spinning	2,214
8.	PSF Storage	3,450
9.	PTA Bag Storage	4,784
10.	Admin Area & Parking Area	2,500

8. Details of production capacity is given as:

S. No.	Name of Products	Total Production Capacity (TPA)
1	Polyester Staple Fibre	1,00,000
2	Draw Texturized Yarn	1,67,000
3	Fully Drawn Yarn	33,000
	Total	3,00,000

9. Project will comprise of:

- Continuous Polymerization (CP) units,
- Fibre/Yarn manufacturing units in one block and
- Associated downstream units in another block

S. No.	Raw Materials	Consumption (MT/Annun)	Means of Storage	Capacity of storage Means	No. of Storage means/ Numbers	Total Capacity
1	Purified Terephthalic Acid (PTA)	257143	Warehouse	Silos & Bags	2	4,000 MT
2	Monoethylene Glycol (MEG)	99800	Tank	1,250 m ³	2	2,500 m ³
3	Diethylene Glycol (DEG)	1199	Tank	100 m ³	1	100 m ³
4	HSD	29368	Tank	600 m ³	1	600 m ³
5	Heat Transfer Fluid (HTF)	15	Tank	600 m ³	1	600 m ³
6	Impure MEG	included in MEG	Tank	100 m ³	1	100 m ³
7	TiO ₂	0.024	Warehouse	-	-	-
8	Catalyst	0.024	Warehouse	-	-	-
9	Modifier	0.024	Warehouse	-	-	-

10. **Process** - Polymer enters the spinning beam which discharges polymer through the spinneret into the quench chamber where the heated polymer is solidified by flow of cool dry air. Further, Tows are sent for drawing. The metering pump regulates the flow of polymer to spinneret. After this, the polymer goes through the spin pack which acts as a reservoir and filter that removes any contamination. Further, the polymer passes through spinneret plate that has several holes, imparting cross-sectional shape to the filaments.
11. **Green Belt** - Greenbelt Area at site is 59,900 m² i.e. 14.81 acre (33% of total plant area of 2,41,292 m² with not less than 1,500 trees per hectare). Approximately 12,035 Nos. of Trees will be planted. Plantation will be carried out in the three layers. Capital Cost: Rs. 12,00,000 /- and Recurring Cost / annum: Rs. 2,40,000 /-.
12. **Power Requirement** - Permission has been taken from Odisha Industrial Infrastructure Development Corporation (IDCO) for 47 MW Power supply.
13. **Water Requirement** - Water will be supplied from IDCO from nearby Baitarni River. Permission Letter from IDCO has already taken. Total Water requirement is 9,674 KLD, 2289 KLD recycled water from RO & MEE. Hence, Total Fresh water requirement will be 7,385 KLD.
14. **Wastewater Generation:** Total wastewater generation will be 2,306 KLD (2,245 KLD Industrial + 61 KLD Domestic) will be treated in ETP (Capacity 2,400 KLD) followed by UF & RO (Capacity 2,500 KLD) & MEE & ATFD (Capacity 600 KLD). 2289 KLD treated water will be completely recycled and reused in cooling tower make up. The domestic sewage will also be treated in ETP.
15. **Hazardous waste Generation:** The details of the solid and hazardous waste generation, quantification, classification, collection, transportation and disposal facility as per Hazardous Waste Rules 2016 and its amendment are mentioned below:

S. No.	Hazardous Waste Category No.	Description of Hazardous Waste	Quantity	Source	Method of Collection	Treatment & Disposal
1.	5.1	Used Oil	5.5 TPA	Gear boxes, agitators, transformers, etc	Will be collected in drums and stored in designated area	Will be sold to authorized parties.
			51 TPA	DTY conning oil waste		
2.	24.1	Floor waste, sweeping Purified Teriphthalic Acid (PTA) powder & all other chemical waste	10 TPA	Sampling, floor sweeping, damaged bags, etc.	Will be packed in bags and stored at a designated area	Will be sold to authorized parties for reuse & recycle

S. No.	Hazardous Waste Category No.	Description of Hazardous Waste	Quantity	Source	Method of Collection	Treatment & Disposal
3.	24.1	Polyester polymer lump, chips, yarn waste, fibre waste, etc.	3,000 TPA	Sampling, breakdown, floor waste	This solid non harmful plastic material will be collected and stored	Recycled in house or sold to recycling parties
4.	20.2	Spent Solvent (Tri Ethylene Glycol)	6 TPA	Filter cleaning bath	Will be collected in drums and stored in designated area	Will be sold to authorized parties for reuse & recycle
5.	35.3	ETP Sludge	7,590 TPA	ETP	Solid and soil type material	Will be sent to TSDF
6.	1.3	FDY SFO Waste	7 TPA	Process	Emulsion type material which will be collected in drums	Will be sold to authorized parties
7.	33.1	Empty Liners / Bags	233 TPA	PTA empty bags, Sb ₂ O ₃ bags, TiO ₂ bags, POY bobbins cover PE bags	Will be stored at a separate storage area	Will be sold to authorized Scrap Vendor
		Empty Drums	1,665/7,929 Nos/ (TPA)	PP Drums	Will be stored at a separate storage area	Will be sold to authorized reconditioner

16. Rain water harvesting facility will be provided of 2800 m² for collection of estimated run off rainwater of 4350.30 cum & its storage in rainwater harvesting tank will constructed.
17. Baseline data collection for the project has been conducted from period 1st December, 2019 to 29th February, 2020.
18. Employment generation from the project will be 2000 persons.
19. The estimated project cost of the proposed project is ~ INR 1,971 Crore. Capital cost on environmental matters will be ~ INR 31.0 Crore and recurring cost on environmental matter will be ~ INR 64.0 Crore per year. According to the CER office memorandum dated 01st May, 2018 of MoEFCC the CER budget for 5 years comes to INR 17.855 crores i.e. 1.5% of project cost INR 1,971 crores.

20. The consultant **M/s Kadam Environmental Consultants, Gujarat** along with the proponent have made a detailed presentation on the EIA/EMP report.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kadam Environmental Consultants**, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent. Simultaneously a prior site visit by SEAC Sub-committee since it is a potentially sensitive hazardous project and flood prone site along with the following compliances sought for:

- i) The "Kisam" of the land is Agricultural lands and hence, needs to be converted to Industrial use before starting the construction of the project. An undertaking to this effect shall be submitted.
- ii) Separate chapter for water balance and management including waste water.
- iii) Justification of 340 KLD water usage.
- iv) Provision for STP for domestic purpose needs to be incorporated.
- v) Details of treatment of coloured materials (toxic-dyes etc.)
- vi) Separate chapter for Hazardous waste with chemical composition/ spent catalyst/ generation, management and disposal practice including warehousing/ packaging/ inventory holding, management and disposal practice/SOP from time to time along with agreement copies with authorized vendors for reprocessing of hazardous waste/ end use and disposal of the waste residues thereof.
- vii) Details of storage of explosive items/ HSD , Storage locations in the layout and explosives license thereof from appropriate authority.
- viii) Plan for solar power usage with exact calculations to be submitted.
- ix) Details of DG sets to be installed at the suitable places after due consideration of pre-dominant wind direction to avoid air pollution from entering the dwelling house of the colony. Plant layout along with DG set location w.r.t wind direction, stack height with layout / installation drawing of the stack / exhaust pipe be submitted.
- x) Details of Catalyst usage and quantity to be used. Details of generation of spent catalyst and its disposal practice.
- xi) Mitigation measures to be undertaken to limit PM₁₀ pollutant and fluoride.
- xii) Occupational health study report for employees and nearby villagers and setting up a barricaded occupational Health centre with experts.
- xiii) Physical measures towards issues raised in public hearing.
- xiv) Drainage pattern of land and details of surface runoff management during monsoon period.
- xv) Details of Rainwater Harvesting System.
- xvi) Regular monitoring of water in Akhuapada High Level Canal and dewatering management in case of water logging due to HFL and surface water bodies inside the proposed plant premises.
- xvii) Plantation needs to be increased from 1500 nos./ha to 2500 nos./ha. under supervision of specialized persons.

- xviii) Parking in terms of ECS for employees, floating population & visitors with locations needs to be submitted in tabular form and layout plan for parking area
- xix) Details of discharge of treated waste water need to be submitted.
- xx) Chemical composition of ETP sludge and disposal thereof with SOP to be submitted.
- xxi)** To indicate Boilers emissions standard visa-vis PM₁₀ projected value.
- xxii) Documentary evidence regarding the status of the plant i.e. whether this will be consider as IOCL unit or a joint venture project on PPP mode.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR JARIPADA SAND QUARRY ON SIDHUA RIVER OVER AN AREA OF 25.00 ACRES OR 10.11 HA LOCATED IN VILLAGE - SIDHUA, TAHASIL- SADAR CUTTACK, DISTRICT- CUTTACK OF SRI PRANAKRUSHNA NAYAK – EC

1. The proposal is for environmental clearance for Jaripada sand quarry on Sidhua river over an area of 25.00 acres or 10.11 ha located in village - Sidhua , Tahasil- Sadar Cuttack, District- Cuttack of Sri Pranakrushna Nayak.
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 “B” under item No-1(a)-‘Mining of Minerals’.
3. Sidhua R/S Jaripada Sand Quarry over an area of 25.00 acres or 10.11 ha is located in village Jaripada, Tahasil- Sadar Cuttack in Cuttack district of Odisha.
4. The lease Jaripada Sand Quarry has been granted by the Tahsildar, Sadar Cuttack vide letter no. 5052, dtd. 21.07.2017 for the period of five years i.e. 2017-18 to 2021-22 to Pranakrushna Nayak. Plot No- 244, Sector-A, Zone-B, Mancheswar Industrial Estate, Bhubaneswar-10, Odisha
5. The TOR was issued for this project vide letter No. 8402/SEIAA, dt. 3rd June, 2020.
6. Public Hearing was conducted on 22.12.2020 for the project and the final EIA /EMP report is submitted to SEIAA, Odisha.
7. Mining Plan and Progressive Mine Closure Plan for Sidhua River Jaripada Sand Quarry is approved by Deputy Director Geology, Directorate of Geology, Bhubaneswar vide letter No.GXV(k)-24/17/DG, dated 15.09.2017.
8. **Location and connectivity** - The lease area is bounded by Latitude 20° 24' 16.9" N to 20° 24' 33.6"N & Longitude 85° 54' 08.3" E to 85° 54' 15.6"E. It is a part of the area covered in the Survey of India Open series No. F45T15 & F45T14 and is on plot no- 395 of Khata no- 428, Kisam- “Nadi”. The lease area is approachable about 1km from village Jaripada. The nearest railway station Cuttack at a distance of 8 Km. There is no existence of public road and railway line within the lease area. The nearest airport is Bhubaneswar at a distance of 26 km.
9. As per the replenishment study, appox. 95% replenishment can been done and proposed production is 140220cum/annum or 700700 cum & replenishment quantity of sand is 133209cum/annum or 665665 cum.
10. The total geological reserve has been estimated as 1,87,632 Cum. Similarly, the mineable reserve of river bed sand is worked out to be 1,68,018 Cum. The project has been proposed for a total production of 700700 Cum of Sand (minor minerals) from this Quarry. During the plan period maximum of 140220 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.

11. Water Requirement – The total water requirement will be approx, 3.0 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 day time. However solar lights will be used for day to day living purposes.
13. Employment Potential: Total number of employee will be around 100 (one supervisor, 50 unskilled laborers, 19 skilled laborers and 30 semiskilled laborers) in the mine.
14. Greenbelt plantation will be by planting @50 saplings of suitable species per annum by the lessee in vicinity of the river bank as avenue plantation to be undertaken in consultation with the concerned authority.
15. The baseline data was collected for the pre-monsoon season i.e. Dec-19 to February 2020 in the 10 km study area results.
16. The project cost is estimated to be Rs. 1.5 crores and there is a budgetary provision of Rs. 50 lakhs as capital cost towards environmental protection measures. Rs 3.0 Lakhs per annum i.e. approx. 2.0 % of the Project cost is budgeted as Corporate Environmental Responsibility..
17. The Environment consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar** along with the proponent has made a presentation on the proposal before the Committee.

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

- i) Stone patching and plantation to be carried out around river embankment.
- ii) Physical measures towards issues raised in public hearing.
- iii) Development and maintenance of 700m kacha road.
- iv) Details of transportation route to NH5.
- v) Distance of embankment is 100 meter. Details of safety zone to protect the embankment.
- vi) Distance of bridge from the lease boundary.
- vii) Confirmation for provision of portable Bio-Toilet .
- viii) To indicate the traffic study findings visa-vis the norm as per IRC.

ITEM NO. 03

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S RUNGTA SONS PVT. LTD FOR ORAGHAT IRON ORE MINES FOR ENHANCEMENT IN PRODUCTION OF IRON ORE FROM 8.35 MTPA TO 11.0 MTPA (ROM IRON ORE FROM 7.35MTPA TO 10.0MTPA & DRY SCREENING & CRUSHING OF 1.0MILLION TPA OF LOW-GRADE ORE), OVER AN AREA OF 82.961HA. LOCATED IN VILLAGES - ORAGHAT AND SANINDPUR, TAHASIL- KOIDA, DISTRICT-SUNDARGARH OF ODISHA OF SRI H. MAZUMDER (DIRECTOR CUM NOMINATED OWNER) - 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. Oraghat Iron Ore Mines of M/s. Rungta Sons Pvt. Ltd. has proposed for enhancement in production of iron ore from 8.35 MTPA (7.35 MTPA of ROM ore+ Dry screening and crushing of low grade ore from old stacks & Dumps of 1.0 MTPA) to 11 MTPA of Iron ore (10 MTPA of ROM ore +Dry screening & crushing of low grade ore from old stacks & dumps of 1.0 MTPA), over an area of 82.961ha. located in villages - Oraghat and Sanindpur, Tahasil- Koida, District-Sundargarh of Odisha. It is in operation since 1982.
3. As per EIA Notification dated 14th Sep, 2006 as amended from time to time, the project falls under Category "B", Project or Activity 1(a) – Mining of Minerals.
4. This proposal is enhanced in production capacity from from 8.35 MTPA (7.35 MTPA of ROM ore+ Dry screening and crushing of low grade ore from old stacks & Dumps of 1.0 MTPA) to 11 MTPA of Iron ore (10 MTPA of ROM ore +Dry screening & crushing of low grade ore from old stacks & dumps of 1.0 MTPA).
5. The lease was executed for 30 years from 10/12/1982 to 09/12/2012. In pursuance to section 8A (6) of MMDR Amendment Act, 2015, the mining lease period has been extended up to 09.12.2032 by execution of a Supplementary Lease Deed on 14.07.2016. The lease area of 82.961 ha comprises of 74.933 ha of forest land and 8.028 ha of non-forest land.
6. Stage-II Forest clearance for an area of 10.80 ha of revenue forest (K.F.) has been accorded by MoEF, Govt. of India vide letter no. 8(21)5/2000-FCE dated 04/05/2006. Further, Stage II Forest Clearance has been accorded by Ministry of Environment, Forest & Climate Change, Govt. of India vide letter no. 8-18/2011-FC dt. 14.02.2014 over 64.133 ha. (74.933-10.80 ha) balance forest land. Total forest area diverted is 74.933 ha.
7. One Complaint Case bearing 2(C) C Case No.37/2013 has been filed in the court of SDJM, Bonai, Sundargarh, for violation of Sec.15 of the Environment (Protection) Act, 1986. The said case has been stayed on 12.07.2013 by the Hon'ble High Court of Orissa in W.P. (CRL) NO.837/2013 in Misc. Case No. 328/2013. Last hearing was on 29.06.2018 stating that the interim order passed earlier shall continue till the next date of listing. The matter is presently subjudice before the Hon'ble Court
8. The environment clearance has been accorded by State Environment Impact Assessment Authority (SEIAA), Odisha vide letter no. 29806/28-NCMB1/11-2018 dated 29.04.2019 for production of 8.35 million TPA of iron ore (7.35million TPA ROM Iron ore + dry screening/ crushing of 1.0million TPA of low grade Iron ore from old stacks/dumps within the lease area) & wet beneficiation plant with throughput capacity of 1.5 million TPA.
9. Modification of review of Mining Plan along with Progressive mine closure plan for the proposed production has been approved by the Indian Bureau of Mines vide letter no. MRMP/A/01-ORI/BHU/2021-22/175 dt. 23.04.2021, which is valid till 31.03.2023.
10. The area is featured in Toposheet No 73 G/5 (F45N5). bounded by Pillar BP-1: 21° 55' 21.470" 85° 18' 13.201", Pillar BP-6: 21° 55' 44.102" 85° 18' 29.954", Pillar BP-10: 21° 55' 20.449" 85° 18' 13.283" & Pillar BP-18: 21° 55' 9.179" 85° 19' 7.627". The mine is at a distance of 8 Km from Koira, 26 Km from Joda, 28 Km from Barbil. Dist. Head Qtr.

Sundargarh is at 228 Km. Barbil Railway station-28 Km, Barsuan Railway Station – 28 km, Bhubaneswar Airport-330 Km, Tonto Airstrip 23 Km. Suna Nadi, a tributary of Baitarani River, is at 0.1km. Nearest habitation is Adaghat adjacent to project site. Suna nadi flows to the East of ML area -0.1 Km, Baitarni RF-4.2 Km –NE, Sidhamath RF 4.2 Km-N, Mendhamaruni RF 0.1 Km-W, Karo RF at 4.6 Km –NW are located within a radius of 10 km from the core zone of the mine lease area.

11. Oraghat Iron Mine is situated in a hilly terrain. The maximum contour RL of the area is 679 m at the south-western part of lease area and the minimum RL of the area is 581 m at the north-eastern part of the lease area.
12. The mining lease area is located in tropical region where climate is characterized by very hot summers and cool winters. Temperature: 50C to 430C and Annual Rainfall (Average): 1535.5mm
13. Geological reserve of 4.188 million tons and Mineable reserves of 3.949 million tons have been assessed for the iron ore in the lease area. Based on the exploration input it is planned to produce ROM of 7,00,005 (0.7 million) tons iron ore per annum from the lease area along with two mobile crushing units of 150 TPH capacity each & two mobile screening units of 250 TPH capacity each within the mines. The only existing quarry will expand in all direction as well as depth wise to produce iron ore.
14. The total mineable reserves of Iron Ore is 62.16 Million Tonnes (as on 1.04.2021). The life of the mine is 6 years.
15. The mining method of Oraghat Iron Ore Mine will be fully mechanized to handle 11.0 million TPA of iron ore. The conventional opencast mining with mechanized drilling with 110mm dia drill machine, deep hole drilling & blasting, excavation by excavator of bucket capacity of 3.1m³ & 3.8 m³ and ore stacking by loader of bucket capacity 5MT. Excavator of capacity 2.1 m³ is used for feeding the crushing & screening unit. Rock breakers will be used extensively to reduce deep hole blasting as well as secondary blasting. Dry processing (screening & crushing) of ROM iron ore is done through mobile screening units and mobile crushing units. Processed iron ore (CLO & Fines) is sent to buyer's destination by truck to nearest railway sidings as well as to the port for export.
16. Mitigation measures for Dust - To prevent generation of fugitive dust during transportation of ore through trucks/dumpers, static water sprinklers have been installed along the haul road within the mine for a length of 3.2km. Beside this water is also being sprinkled in dust prone areas through water tankers.
17. The ROM from the mines as well as the old stacks of low grade ore/dumps are hauled through trucks/dumpers to dry processing mobile plants. After processing, the finished iron ore products are carried to the Railway siding and loaded into Rail wagons and dispatched mainly to the steel, pellet, sponge & sinter plants throughout India and also to port for export (fines).
18. During 2020-21 total production of Iron ore was 5108078.595 MT (ROM +Dump working).
19. The wet beneficiation plant of 1.5 MTPA capacity shall be in operation which is under process.

20. The dumped materials are mainly laterite, BHQ, BHJ, shale, lateritic soil etc. Total 5322492 MT of material (Dump-1→4591353MT + Dump-3→731139 MT) is available in the existing dumps. (Dump 1 & 3). Within total 5322492 MT of already dumped material 4354767 MT material will be of grade above 45% Fe and 967725 MT material will be of grade below 45%Fe. As this waste material in Dump-1 are of grade 45% to 55%Fe, this material can be used as low-grade ore. 501530.23 MT low grade material is available at old low grade Iron Ore stack at SG-1, which grade varies from 45 to 58%Fe.
21. Waste Generation - It is anticipated that 6775080 MT of waste will be generated during remaining mining plan period (2021-22 to 2022-23). It is expected that 24242400 MT of waste will be generated up to the end of the life of the mine. Total waste material generated will be used for backfilling of exhausted quarry. Previously, the grade of waste material was considered as below 58% Fe, but now the grade of waste material is fixed by IBM as below 45% Fe content. So, the old waste of Oraghat Iron ore Mine accumulated in old dumps is now considered as low grade Iron ore.
22. The mine lease area is 82.961 ha. The breakup of land use category at present is Mining: (56.312 ha), Over burden/ dump: (9.53 ha), Mineral Storage: (2.04 ha), Infrastructure: (0.22 ha), Roads : (1.819ha), Mine camp: (0.951ha), Green belt & Plantation: (6.735 ha) & unutilized land: (5.354ha).
23. At present mining operation is at an RL of 553.5 m which will go up to RL of 469 m in conceptual period. As ground water table is at an RL of 538 m, the mine working will intersect the water table during 2021-22. The lessee is already having the NOC of CGWA for lifting of ground water for mining operation purposes.
24. Water Requirement - Water required shall be increased from 1253KLD (Groundwater 196 KLD & Surface water 1057 KLD) to 1557 KLD (Groundwater 302 KLD, Surface water 1255 KLD). Surface water is sourced from Kundra Nala (Sona Nadi). The lessee is already having NOC from CGWA for 302KLD of ground water (NOC No:-CGWA/NOC/MIN/ORIG/2019/4992 Dated 20/03/2019) & surface water of 1255KLD from DOWR, Odisha Govt. (No. 11675/WR., dated 26/06/2020).
25. Green Belt - At present 6.735 hectare of lease area is under green belt. This will increase to 7.767 hectares at the conceptual period. Further at the end of life of the mine approximately 41.016 hectare of exhausted quarry will be back filled and afforested and 13.331 hectares will be covered under bench plantation.
26. Power Requirement - Electricity is supplied by WESCO through 2 transformers of capacity 500 KVA & 200 KVA. In future another transformer of 1000 KVA will be required. 3 nos. Generator of capacity 320 KVA, 200KVA & 140 KVA are available. There are another 29 no's of small generators (25 no's 7.5KVA & 4 no's 5 KVA) attached with tower light within the lease. There is an additional requirement of 1 no. of generator of total capacity 500 KVA in future. The project proponent has installed a solar power support system of 20 KWH to provide electricity in the office and camp area.
27. Present requirement of H.S.D is 12.56 Lakh Liters/year. For the proposed increase in production total H.S.D. requirement will be around 25.12 Lakh Liters/year.

28. Employment Potential - At present 568 nos. of people are directly employed & 400 nos. of persons are indirectly employed. After the proposed production enhancement, 580 nos. of people will get direct employment and 500 nos. of persons will get indirect employment.
29. Project Cost - The estimated total project cost is approximately Rs 300 crores.
30. The social infrastructure to the project area includes a hospital and a College. As a part of CSR activities the Company has undertaken the construction works of School buildings, boundary wall for Schools & Temples, club houses in villages, digging of ponds in nearby villages and bore wells. Such type of work will continue in future. The entire infrastructure related facilities for traffic and transportation for the mine are already available.
31. The Environment Consultant **M/s Ecomen Laboratories Pvt. Ltd.** 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 Ecomen Laboratories 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) EC conditions wise detailed compliance duly certified by MoEF&CC, Govt. of India, Regional office, Bhubaneswar be given in EIA/EMP.
- ii) 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) Compliance of specific conditions of earlier EC
 - h) Any other relevant environmental issue / parameter.
- iii) The following studies be undertaken by domain experts, viz:
 - a) Blast vibration study
 - b) Socio economic study of the neighbouring habitation
 - c) Biodiversity study with audit mechanism.
- iv) The Project Proponent shall undertake the peripheral plantation and closed areas as well as gap plantation within 6 months with the seedling of 4-6 ft height having atleast 90% survival rate. An undertaking for the same also needs to be submitted by Project Proponent.
- v) 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.

- vi) 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.
- vii) The project proponent should submit the revenue plan for mining lease, revenue plan should be imposed on the satellite imagery clearly demarcate the Govt. land, private land, agricultural land etc.
- viii) 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.
- ix) 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.
- x) 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.
- xi) 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.
- xii) 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.
- xiii) 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.

- xiv) 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.
- xv) 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.
- xvi) 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.
- xvii) 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 data, 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.
- xviii) 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.
- xix) The percentage of iron in the final waste generated and not used as iron ore or its upgradation.
- xx) Compliance to NEERI recommendations.
- xxi) Slope study for both mines and OB /wastes through domain expert to be undertaken and blasting study as well.
- xxii) Traffic density study, both inside the mines and at haulage road intersecting points of haulage road with public road be undertaken by domain expert.
- xxiii) "Zero discharge" management & "Zero Dust Re-suppression" management with SOP be submitted.
- xxiv) Internal roads, drain management with network of the drain, retaining walls and settling tanks with ETPs be submitted.
- xxv) 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.

- xxvi) Construction and perennial maintenance of haulage road with details of plantation and the species thereof to be submitted.
- xxvii) Parking plaza layout with maximum no. of vehicles and types of vehicles that can be parked with basic amenities and facilities.
- xxviii) Forest Clearance details with copy of all Forest Clearance.
- xxix) Status of complaints/ court cases/legal action regarding to lease along with a detailed write up indicating case no., purpose of the case etc.
- xxx) Copy of lease document.
- xxxi) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage.
- xxxii) Details of silt, waste and water Management should include the design of drainage structures.
- xxxiii) Comparative statement for increase in pollution load for existing production Vrs. proposed production (taking all parameters like water consumption, waste water generation, air pollutants, OB management, greenbelt, haulage roads, settling ponds, ETP etc.) In matrix form on environmental parameter and superimposing in layout on physical features.
- xxxiv) Slope study report.
- xxxv) 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.
- xxxvi) Comprehensive water management, water balance with water harvesting and its reuse both monsoon and non-monsoon period.
- xxxvii) STP- plan with design with location in the layout map for domestic waste water treatment.
- xxxviii) Provision of solar power (percentage wise) with detail plan.
- xxxix) To submit the network with dimension of concrete cement roads inside the mining lease area and haulage road.
- xl) To submit parking plaza at entry and exit of the mines with basic amenities.
- xli) 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.
- xl ii) Comparative matrix previous and proposed production w.r.t overburden, green belt, water balance, haulage roads, settling ponds, ETP, runoff management etc.
- xl iii) Increase in consumption and surface water is disproportionate wrt expansion. Necessary justification be furnished.

- xliv) Measures for protection of Suna river from ingress of waste water/wash off water and silt be submitted.
- xlv) Additional environmental measures taken for expansion of the project be submitted.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. RUNGTA MINES LTD. FOR CONSTRUCTION OF PROPOSED (S+10) STORIED RESIDENTIAL COLONY OVER AN AREA OF 28.447 ACRES LOCATED IN VILLAGE – JHARBANDH, DIST- DHENKANAL, ODISHA WITH TOTAL BUILT UP AREA - 3053352 SFT (283768.77 SMT.) OF SRI PRADEEP KUMAR CHATURVEDI (DIRECTOR) - 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 as the total built-up area exceeds 1.5 lakh m².
2. The proposal is for Environmental Clearance of M/s. Rungta Mines Ltd. for construction of proposed (S+10) Storied Residential Colony over an area of 28.447 acres located in village – Jharbandh, Dist- Dhenkanal, Odisha with total built up area - 3053352 SFT of Sri Pradeep Kumar Chaturvedi (Director).
3. The project falls under category “B” or activity 8 (b)-Building and Construction projects under EIA Notification dated 14th September 2006 as amended from time to time.
4. The present proposal has been submitted in online portal for grant of EC. Since, the built up area is more than 1.5 lakh m², the proponent is required to obtain Terms of Reference for the project for EIA study and apply for EC with final EIA / EMP report prepared as per Terms of Reference.
5. M/s. Rungta Mines Ltd. is located at villages Jharbandh in District Dhenkanal, Odisha. The location of plant and study area can be seen in Survey of India Open Series No. F45T1, F45T2, F45T5 & F45T6 bounded by Latitude - 20° 46’ 14” to 20° 46’ 33”N and Longitude - 85° 18’ 58’ to 85° 19’ 13”E. The site is accessible by all weather road from the district headquarter Dhenkanal (32 km) and town Angul (18.2 km). The site is located near NH-55 (1.3 km aerially from it), which connects Bhubaneswar to Angul. The nearest railway station is Meramandali at a distance of 3.4 km. The nearest airport is at Bhubaneswar, which is approximately 77 km from the site.
6. M/s. Rungta Mines Ltd., Dhenkanal steel Plant has obtained Environmental Clearance from MOEF&CC vide letter no J-11011/309/2018-IA II(I) dated 09.02.2021 and Consent to Operate obtained from OSPCB Vide letter no 6969/IND-I-CON-6646 dated 06.05.2021. Rungta Mines Limited has proposed a Residential colony near Dhenkanal steel plant to accommodate the non native employees.
7. The Building Details of the Project:

Particular	Proposed	Permissible
Project Name	Proposed (S+10) Storied Residential Township Project	--
Plot Area	1239151 SFT(115162.73 SMT.)	--
Ground Coverage	480649 SFT(44669.98 SMT.)	--

Particular	Proposed	Permissible
Total Built up Area	3053352 SFT(283768.77 SMT.)	--
Total FAR Area	2678160 SFT(248899.62 SMT.)	--
FAR	2.16	2.75
Maximum Height	35 meter (Residential)	--
Parking Area	674585 SFT (25.13%) (62693.77 SMT.)	669540 SFT(62224.9 SMT.) (25 % of Residential)
Green Belt Area	300491 SFT (24.24 % of Plot area)	247830 SFT (23032.52 SMT) (20% of Plot area)
Power/Electricity Requirement & Sources	Power from GRID – 12,816.96 KW Power from Solar – 703.04 KW Total Power Requirement – 13,520 KW	--
No. of DG sets	2 x 625 KVA	--
Fresh Water requirement & Sources	1154 KLD Source: Surface Water	--
Sewage Treatment & Disposal	STP Capacity 1507 KLD	--
Estimated Population-Residential, Floating/visitors	13673 nos.	--

8. **Water requirement:** Fresh make up of 1154 m³/day will be required for the project which will be sourced from Surface water. Waste water of 1478 KLD will be treated in a STP of 1507 KLD capacity, which includes primary, secondary and tertiary treatment.
9. **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. 1478 m³/day of wastewater. The wastewater will be treated in the STP of capacity of 1507 m³/day provided within the complex. Out of which 1356 m³/day will be recycled within the project for flushing (584 m³/day), landscaping (166 m³/day), STP loss (122 m³/day) & 606 m³/day will be used as HVAC system in case of non-monsoon period. STP Capacity = 1507 KLD
10. **Power requirement:** The daily power requirement for the proposed Residential Project is preliminarily assessed as 13520 KW (Power from GRID – 12,816.96 KW, Power from Solar – 703.04 KW). In order to meet emergency power requirements during the grid failure, there is provision of 2 nos. of DG set having 625 KVA (2 Nos.) capacities for power back up in the residential colony.
11. **Rain Water Harvesting:** Rain Water will be harvested through 79 nos. of recharging pits. Proposed rain water tank/tanks of 1533 m³ storage capacity. All roof rain water down takes are to be diverted to this tank.
12. **Parking Requirement:** 674585 SFT (25.13%)/(62693.77 SMT.)/ 2365 ECS has been provided for vehicles parking in the project.
13. **Firefighting Installations:** Firefighting system will be installed as per recommendation of the Firefighting Officer, Odisha and as per the guideline of NBC (part-4).
14. **Green Belt Development:** Green belt will be developed over an area of 300491 sqft which is 24.24 % of the plot area; by using the local species like Radhachuda,

Nageswar, Akash Neem, Ashok, Polanga, Karang, Bela, Pijilu, Kaniara, Tagar, Hena, etc

15. **Solid Waste Management:** From the residential complex solid waste in form of food waste from kitchen and miscellaneous waste will be generated @ 0.45 kg/person/day, which will be about 5360 kg/day.
16. The total population of project after proposed will be 13673 persons.
17. The estimated project cost is ` 504 Crores. Environment Management Cost = Rs 50.0 Crores.
18. The Environment consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar** along with the proponent has made a presentation on the proposal before the Committee.

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

- i) Treated water will be used in Steel Plant. Detailed plan to be submitted.
- ii) Breakup of ECS for residential, floating population and visitors in terms of ECS for 2 & 4 wheelers.
- iii) Detailed integrated water balance both for township and steel plant as treated water of township proposed to be used in steel plant. The township is located 700 meter away from steel plant. Treated water of township to be sent to plant through a pipeline. Details of pipeline project to be submitted.
- iv) Detailed calculation for solar energy consumption.
- v) Details of surface runoff management and rain water usage.
- vi) Conversion of land to Gharabari. Therefore, an undertaking in form a legal / notarised Affidavit is to be submitted for conversion of the land from appropriate revenue authority to “Gharabari” before starting the construction of the project.
- vii) Details of DG sets to be installed at the suitable places after due consideration of predominant wind direction to avoid air pollution from entering the dwelling house of the colony. Plant layout along with DG set location w.r.t wind direction, stack height with layout / installation drawing of the stack / exhaust pipe be submitted.
- viii) Compliance to checklist applicable for construction /building project be submitted.
- ix) Traffic study by domain expert at intersecting point of lead road from Plant and township with NH be undertaken and submitted.

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. ASTROZ CREATORS PVT. LTD. FOR CONSTRUCTION OF B+G+4 RESIDENTIAL BUILDING AND G+1 STOREYED COMMERCIAL BUILDING PROJECT OVER PLOT NO. 612, 557 AND KHATA NO.277/94 AT MOUZA - SATYABHAMAPUR UNDER TAHASIL - BALIANTA OF DISTRICT - KHORDA WITH TOTAL BUIT UP AREA- 22250.248 SQ.MT OF SRI SANJAY KUMAR MOHARANA (DIRECTOR) - EC

1. The proposal is for Environmental Clearance of M/s. Astroz Creators Pvt. Ltd. for construction of B+G+4 residential building and G+1 storeyed commercial building project over plot No. 612, 557 and khata No.277/94 at Mouza - Satyabhamapur under Tahasil - Baliana of district - Khorda with total buit up area- 22250.248 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 Astroz Creators Pvt. Ltd. Proposes to Construct B+G+4 with 135 nos. residential flats. The project will be come up in Plot No.- 612, 557, 556, Khata No. 277/94 of Mouza – Satyabhampur, Tahasil- Baliana, Bhubaneswar, District-Khordha on a land measuring 8052.12Sqm(1.989acres) with total built-up area 22,250.248 Sq.mt.
4. The Project Site is a part of the Survey of India Toposheet No. 73H/15&73H/16. The site falls between Latitude 20°14'43.07"N to 20°14'47.00"N and Longitude 85°53'31.3"E to 85°53'31.3"E. The site is surrounded by 9.14 m wide road on the southern side connecting to main PWD road. The site is plain without any vegetation or trees. Nearest Highway is NH-203 which is 3.5 km & AH-45 is 6.5 Km away from project site. The Bhubaneswar Railway Station is 5.6 km from the project site. Biju Patnaik International Airport is 7.8 km from project site.
5. The site is coming under development plan of Bhubaneswar Development Authority. The project comprises of the following construction: consist of two residential blocks, one commercial building, club house, courtyard and parking. The number of dwelling units proposed is 135 numbers.
6. The total plot area is 8052.12Sqm (1.989acres) with total built-up area 22,250.248 Sq.mt and ground coverage is 48 % of plot area.
7. The Building Details Of The Project:

S. NO.	DESCRIPTION	AREA (SQ M)
A.	Plot Area	8052.12
B.	Proposed Ground Coverage (@48 % of net plot area)	3777.24
C.	Proposed FAR (@2.074 of plot area Residential(Basement)	16112.92
D.	Non FAR Area (Strain case, Lift, Balcony, Ramp, Accessory Use)	6137.08
E.	Built-up Area (C+D)	22,250.248
F.	Green Area (@ 10 % of plot area)	805
G.	Open parking area (@ 6.08 % of plot area)	490.607

S. NO.	DESCRIPTION	AREA (SQ M)
H	Open Area & Drive way (@37.06% of plot area)	2984
I.	Height	14.75 m
J.	No of Dwelling Units	135

8. Water requirement: The total water requirement for the project will be approx.92 KLD, out of which domestic water demand is 85 KLD. The fresh water requirement will be 58 KLD. Fresh water will be extracted from ground water through borewell.
9. Waste water details: The project will generate approx. 73 KLD (sewage load) of wastewater. The wastewater will be treated in an onsite STP of 85 KLD capacity. The treated water will be reused for flushing (27 KLD), horticulture (2.4 KLD) & other purpose etc.
10. Power requirement: The power supply will be supplied by CESCO, Bhubaneswar. The requirement load for the project will be approx. 550 kW. Power Backup: Total 2 nos. of DG sets total 250 kVA (2*250 kVA) capacity for power back up.
11. Rain Water Harvesting: Rain Water will be harvested and recharge through 23 recharge pits from the plot area.
12. Parking Requirement: Total parking area required 6007.458 m² Sq.mt./450ECS and basement parking area will be provided.
13. Firefighting Installations: Firefighting system will be installed as per recommendation of the Firefighting Officer, Odisha and as per the guideline of NBC (part-4).
14. Green Belt Development: Out of the total area, green belt will be developed over an area of 805 sq.m (10% of the plot area) and 100 trees will be planted.
15. Solid Waste Management: Total amount of solid waste generated of the project will be 331 kg/day which will be disposed through BMC.
16. The total population of project after proposed will be 625 persons.
17. The estimated project cost is ` 46 Crores.
18. The project proponent along with the consultant **M/s P & M Solution Pvt. Ltd., Noida** made a detailed presentation on the proposal.

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

- i) Parking in terms of ECS (both 2 wheelers & 4 wheelers) for occupants, floating population & visitors with locations needs to be submitted in tabular form.
- ii) Fire clearance from the appropriate authority need to be obtained and submitted.
- iii) Plan for solar power with exact calculations to be submitted.
- iv) Details of DG sets to be installed at the suitable places after due consideration of pre-dominant wind direction to avoid air pollution from entering the dwelling house of the

colony. An undertaking to this effect along with DG set location w.r.t wind direction, stack height with layout / installation drawing of the stack / exhaust pipe be submitted.

- v) Detailed water balance for Zero Liquid Discharge. Details of drainage management with layout. Mode of discharge of excess treated water.
- vi) DFO certificate about distance of the project boundary from the boundary of Nandankanan and Chandaka- Dampada Sanctuary and its Eco-Sensitive Zone.
- vii) 2 Entry and exit gates to be made for decongestion.
- viii) Permission from Water Resources Deptt. for usage of ground water.
- ix) Status of NOC from BMC for sewage disposal.
- x) Greenbelt area proposed to be 10%, which need to be increased to 20% (excluding landscape area) and accordingly, revised plan and built-up area calculation indicating the 20% greenbelt area to be submitted.

ITEM NO. 06

PROPOSAL FOR EXTENSION OF VALIDITY OF ENVIRONMENTAL CLEARANCE OF KHAMARIGAON DECORATIVE STONE MINES OVER AN AREA OF 1.513 HA. AT VILLAGE - KHAMARIGAON, TAHASIL – PATRAPUR IN THE DISTRICT OF GANJAM OF M/S GALAXY ENTERPRISES – EXTENSION OF EC


1. This proposal is for Extension of validity of Environmental Clearance for Khamarigaon Decorative Stone Mines over an area of 1.513 ha. at village - Khamarigaon, Tahasil – Patrapur in the district of Ganjam of M/s Galaxy Enterprises.
2. Based on the approved Scheme of mining in 2011 Environmental Clearance for production of 11520 cum has been granted by SEIAA , Odisha vide letter no. 883/SEIAA dated 26.03.2013.
3. DEIAA, Ganjam vide letter No. 192/DEIAA dated 20.02.2018 has issued the Environmental clearance for production of 3000 cum/annum of decorative stone for the period upto 2020-21.
4. As per MOEF & CC Notification No 4254(E) 27.11.2020, SEIAA , Odisha vide letter no. 156/SEIAA dated 22.01.2021 extended the Environmental Clearance period upto. 30.09.2021.
5. The mining lease of Khamarigaon Decorative Stone Mines over an area of 1.153 ha was granted in favour of M/s Galaxy Enterprises for mining of Decorative Stone vide proceeding No.: III(MM) SM.97/2006/ 18047/SM, Bhubaneswar, the 18.12.2006 for a period of 20 years.
6. The lease was Executed on 20.12.2006 and Registered 21.12.2006 (i.e lease s valid upto 20.12.2026).
7. Consent Order No :10/2013-14 DATE 16-04-2013 to produce 11520 cum/Annum. Based on Validity of E.C, the Mines obtained the C.O.P. from Regional office of S.P.C.B. Berhampur. The Present Consent to Operate order No-1233/CTO-530/2014 dated 05-04-2021 to produce 3000 cum of Decorative stone per annum valid up to 30.09.2021.
8. The entire Mining Lease area of 1.513 hectares comprises of non-forest land.
9. There is no sensitive ecological habitat like National Parks, Sanctuaries, Biosphere

Reserves, Wildlife corridors, Tiger/Elephant reserves within 10 km radius of ML area. No Schedule I species are found within the study area.

10. The proponent has made a briefing on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

- (i) Certified copy of half yearly condition wise compliance Report on Environmental Clearance conditions submitted to MoEF&CC, Regional Office, Bhubaneswar
- (ii) Copy of lease sanctioned by the Steel and Mines Department, Govt. of Odisha.
- (iii) Year wise production details duly certified by Mining Officer.


11/8/21
SECRETARY, SEAC

Approved

11.08.21
CHAIRMAN, SEAC

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR M/S RUNGTA SONS PVT. LTD FOR ORAGHAT IRON ORE MINES FOR ENHANCEMENT IN PRODUCTION OF IRON ORE FROM 8.35 MTPA TO 11.0 MTPA (ROM IRON ORE FROM 7.35MTPA TO 10.0MTPA & DRY SCREENING & CRUSHING OF 1.0MILLION TPA OF LOW-GRADE ORE), OVER AN AREA OF 82.961HA. LOCATED IN VILLAGES - ORAGHAT AND SANINDPUR, TAHASIL- KOIDA, DISTRICT-SUNDARGARH OF ODISHA OF SRI H. MAZUMDER (DIRECTOR CUM NOMINATED OWNER)

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 falling 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 (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.
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 PM₁₀, 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 railway siding or pipeline for captive mines and 70% for non-captive mines

Code	EC	Suggested Ore Transport Mode
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 SOTM 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 with 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 as per the provisions of EIA Notification 2006, as amended time to time) 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	X1					
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, SO₂, NO_x 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, PM₁₀, PM_{2.5}, SO₂, NO_x 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 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 geotextile 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 long period. 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 outtees 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 the suggested 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 by 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 Holders 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.)
1.	Environmental Quality Monitoring with respect to Air, Water, Noise and Soil	SPCB	Continuous Annually

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	<p>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.</p> <p>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.</p>		
	Installation of online ambient air quality monitor for PM10, 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
4.	A detailed hydro-geological study in each of the regions shall be	SPCB	Once in 2 years

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	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.		
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 through 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 upliftment of people of the region, there is a need to create an agency, who will integrate all the aspects relating to sustainable mining in the region on long term basis. It could be a SPV of Govt, of Odisha or a cell within the overall control and supervision of Dept, of Steel & Mines, with members from

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

- C.** Besides the above, the below mentioned 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.
- 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.

ANNEXURE-B

STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR M/S. RUNGTA MINES LTD. FOR CONSTRUCTION OF PROPOSED (S+10) STORIED RESIDENTIAL COLONY OVER AN AREA OF 28.447 ACRES LOCATED IN VILLAGE – JHARBANDH, DIST- DHENKANAL, ODISHA WITH TOTAL BUILT UP AREA - 3053352 SFT (283768.77 SMT.) OF SRI PRADEEP KUMAR CHATURVEDI (DIRECTOR)

- 1) Examine details of land use as per Master Plan and land use around 10 km radius of the project site. Analysis should be made based on latest satellite imagery for land use with raw images. Check on flood plain of any river.
- 2) Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/ villages and present status of such activities.
- 3) Examine baseline environmental quality along with projected incremental load due to the project.
- 4) Environmental data to be considered in relation to the project development would be (a) land, (b) groundwater, (c) surface water, (d) air, (e) bio-diversity, (f) noise and vibrations, (g) socio economic and health.
- 5) Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area. Any obstruction of the same by the project
- 6) Submit the details of the trees to be felled for the project.
- 7) Submit the present land use and permission required for any conversion such as forest, agriculture etc.
- 8) Submit Roles and responsibility of the developer etc. for compliance of environmental regulations under the provisions of EP Act.
- 9) Ground water classification as per the Central Ground Water Authority.
- 10) Examine the details of Source of water, water requirement, use of treated waste water and prepare a water balance chart.
- 11) Rain water harvesting proposals should be made with due safeguards for ground water quality. Maximize recycling of water and utilization of rain water. Examine details.
- 12) Examine soil characteristics and depth of ground water table for rainwater harvesting.
- 13) Examine details of solid waste generation treatment and its disposal.
- 14) Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption. Energy conservation and energy efficiency.
- 15) DG sets are likely to be used during construction and operational phase of the project. Emissions from DG sets must be taken into consideration while estimating the impacts on air environment. Examine and submit details.
- 16) Examine road/rail connectivity to the project site and impact on the traffic due to the proposed project. Present and future traffic and transport facilities for the region should be analyzed with measures for preventing traffic congestion and providing faster trouble free system to reach different destinations in the city.
- 17) A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic.

- 18) Examine the details of transport of materials for construction which should include source and availability.
- 19) Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters.
- 20) Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster.
- 21) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 22) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.